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Security in the Mediterranean: How can Economic Interdependence between Italy and Libya in the Energy Sector Influence the Migration Crisis?

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Table of Contents

Abstract

The Mediterranean region is currently a focal point for pressing global issues such as migration and energy supplies. This study examines Italy's strategic role within this complex landscape, particularly its position as a primary destination for significant migratory flows from Tunisia and Libya, and its efforts to secure energy resources from the Mediterranean's Southern shores. The research focuses on the interplay between Italy's foreign direct investments (FDI) in Libya and the broader implications for economic development, political stability, and migration patterns. Utilizing quantitative analysis, in particular a Vector Autoregressive (VAR) model, the study analyzes data from 2000 to 2022 to explore how Italian FDI impacts Libya's GDP, economic stability, and political landscape, subsequently affecting migration flows to Italy. The findings confirm the existence of economic interdependence between Libya and Italy, demonstrated by the positive correlation between FDI and Libya gross domestic product (GDP). By enhancing economic development and stability through FDI, emigration from Libya to Italy decreases. Additionally, higher levels of political stability in Libya are associated with lower levels of emigration towards Italy. These findings, underlie the possibility of a broader interdependent framework between the Southern shore of the Mediterranean and Europe. This comprehensive approach underscores the interconnectedness of energy and migration policies, highlighting the critical role of strategic investments and international cooperation in promoting stability and prosperity in the Mediterranean region.

Introduction

The Mediterranean is more than just a sea; it has always been a cradle of civilization, a crossroad of different cultures and a theater of historical dynamism. Stretching across three continents—Europe, Asia, and Africa—the Mediterranean region is a unique geographical and cultural hub that has shaped human history for millennia. Today, it stands at the forefront of some of the most pressing challenges and opportunities of our time, particularly in terms of migration and energy security.

Italy, with its central location in the Mediterranean and its potential to be a leading regional power, plays a pivotal role in navigating these complexities. As a key destination along the Central Mediterranean route, Italy is the primary destination of substantial migratory flows originating from Tunisia and Libya. The peak of the migration crisis, ongoing since 2014, occurred in 2016 with 181,463 irregular arrivals. This alarming trend resurfaced in 2023, with 158,000 irregular landings on Italian shores. The nationalities of the migrants reveal the varied histories and causes of their migration. Economic and demographic crises in countries like Nigeria, Eritrea, and Gambia, alongside the decline in agricultural productivity caused by climate change in the Sahelian region and coastal states such as Senegal, Côte d'Ivoire, and Guinea, where sea level rise has been severe, are significant factors. Additionally, political instability heightened by jihadist insurgencies in the Sahel further exacerbates migration flows. Simultaneously, Italy, in collaboration with other European nations, is increasingly engaged in forging energy agreements and partnerships with countries on the Southern shore of the Mediterranean, rich in oil and gas reserves, as well as potential for the renewable energy sector. The outbreak of the war in Ukraine highlighted Italy's problematic dependence on Russian gas, prompting a swift search for new suppliers. The damage control strategy involved constructing liquified natural gas (LNG) terminals and securing new gas suppliers. Former Prime Minister Mario Draghi turned his focus to Africa, concluding agreements with Algeria, Egypt, and Angola to compensate for the shortfall in Russian gas supplies. Two of today's most pressing challenges originate in the same place: the Middle East and North Africa region (MENA), located on the Southern shore of the Mediterranean Sea. The same countries exporting oil and gas to Italy are the ports of departure for irregular migrants: what would happen if through economic interdependence expressed in the form of direct investments in the energy sector created a steadier economy and a stable political system in this region? To analyze the implications of this hypothesis we choose Libya as a case study, because of its role

as a departure point in migration flows towards Italy, and its long-standing energy partnership with Italy, suggesting the potential for an economically interdependent relationship.

This study seeks to answer the following research question: *"How do foreign direct investments (FDI) from Italy to Libya influence Libya's economic development, macroeconomic stability and political stability, in turn affecting migration flows from Libya to Italy?"* By addressing this question, the study aims at elucidating if economic interdependence between Italy and Libya is feasible, and if it is attested by a positive correlation between Italian FDI in Libya and Libyan economic growth. An increased economic growth could enhance the economic stabilization of Libya while having also a positive impact on political stability. Both economic and political stability are deemed to have a positive impact on emigration: hence, increased levels of these two variables in Libya should lead to less emigration towards Italy. A negative correlation is expected between economic-political stability and emigration.

Understanding these relationships is crucial for interpreting the current dynamics taking place in the Mediterranean, but most importantly to formulate policies that promote stability and prosperity in this critical region.

To explore the research question, this study employs quantitative analysis, in particular the Vector Autoregressive (VAR) model, carried out with the statistical software R. The VAR model is particularly suited for analyzing the dynamic relationships between multiple time series variables, making it ideal for examining how changes in one variable (e.g., FDI) influence others (e.g., GDP growth, political stability, migration flows) over time. The data collection process comprised all the data about: FDI from Italy to Libya (2000-2022), Libya GDP growth (2000-2022), Libya Current Account Balance (2000-2022), Libya Inflation (2000-2022), Libya political stability (2000-2022), Libya governmental stability (2000-2022), and migration from Libya to Italy (2000-2022). Data for these variables are sourced from international financial institutions, government reports, and migration databases, ensuring a comprehensive and robust analytical framework.

The study is divided in three chapters: the first section contains a contextual analysis of the migration phenomenon in the Mediterranean, a summary of past ten years of Italian-European policies concerning migration, ranging from Renzi's 'Migration Compact' to Meloni's 'Mattei Plan', an analysis of energy reserves and infrastructure in the Mediterranean, and Italian-European policies regarding energy security, followed by a review of the existing literature on

economic interdependence, and the ties between economic and political stability with migration. The second section explains the research design, starting with the formulation of the research question and of the hypotheses, proceeding with the explanation of the case study, Libya, and concluding with the operationalization of the variables and the explanation of the methodology. The third section presents the results of the quantitative analysis, starting with the economic correlation between Italian FDI and Libya GDP, followed by the assessment of the impact of economic and political factors on emigration towards Italy. The appendix collects the R datasets that were analyzed.

Chapter One: Migration and Energy Security

1.1 The Central Mediterranean route reaching Italy from Africa

A migrant, according to the United Nations (UN), is someone who decides to "leave his country of usual residence, irrespective of the reason or legal status"[1]. Today, 3% of the world's population falls under this category. The reasons for migration are diverse: demographic growth, search for work or better economic conditions, conflicts or political instability, persecution, and natural disasters caused by climate change. Due to the elevated political and economic instability of its Southern shore, the Mediterranean is one of the major hubs for migration. Three routes originate here, moving from South and East towards North and West: there is the *Western Mediterranean route*, which goes from Morocco to Spain, and it's one of the most secure paths, as a result of the many agreements concluded between the two countries, and thus has the lowest percentage of migrants over the past ten years; in this case, the origin of migration is mainly the Sahel and Sub-Saharan Africa. Then, there is the route passing through the Balkans and coming from Turkey, also called the *Eastern Mediterranean route*, and in this instance, the migrants' region of origin is the Middle East and Southern Asia. Eventually, the most relevant route for this study is the *Central Mediterranean route*, which goes from Libya and Tunisia to Italy, reaching the harbor cities of Lampedusa, Pantelleria, Pozzallo, Augusta and Catania[2]. Over the past ten years, the trends of landings in Italy have not been constant and uniform: the peak was reached in 2016 with 181.463 irregular arrivals, the coronation of a crisis that had been ongoing since 2014[3]. A significant component, 37.551 people, were from Nigeria[4]. Nigeria was followed by Eritrea, with more than 20.000 people reaching Italy, Guinea, Côte d'Ivoire, Gambia, Senegal and Mali, all ranging between 13.000 and 10.000 emigrants whose movement can be reconducted to the economic and demographic crisis, but also the growing desertification of the area and soil degradation, affecting agricultural productivity that generates around 40% of the Sahelian region's Gross Domestic Product (GDP) and 70% of the labor force in Mali, Niger, Burkina Faso. In addition, for countries such as Senegal, Côte d'Ivoire, and Guinea, rising sea levels have been severe: the

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[1] United Nations. (2023). *Migrants definition. United Nations.* https://www.un.org/en/fight-racism/vulnerable-groups/migrants#:~:text=The%20UN%20Migration%20Agency%2C%20International
[2] Molinari, M. (2023). *Mediterraneo conteso.* Rizzoli. pp. 155-157.
[3] All the data mentioned in this section on are taken from the Ministry of Interior statistics section *"cruscotto statistico giornaliero"*: see also http://www.libertaciviliimmigrazione.dlci.interno.gov.it/it/documentazione/statistica/cruscotto-statistico-giornaliero
[4] Carbone, G. (2023). *Africa occidentale: le migrazioni infra- ed extra-regionali.* https://www.ispionline.it/it/pubblicazione/africa-occidentale-le-migrazioni-infra-ed-extra-regionali-135619

cultural inclination to semi-nomadism has become a permanent migration condition[5]. On top of everything, the jihadist insurrections in the northeast of Nigeria and the Western area of the Sahel, generated instability and hundreds of thousands of refugees scattered around the region.

Figure 1. Main routes during the period 2015-2018 related to different factors (Torrelli, 2018; Università Di Bologna, 2022[6])
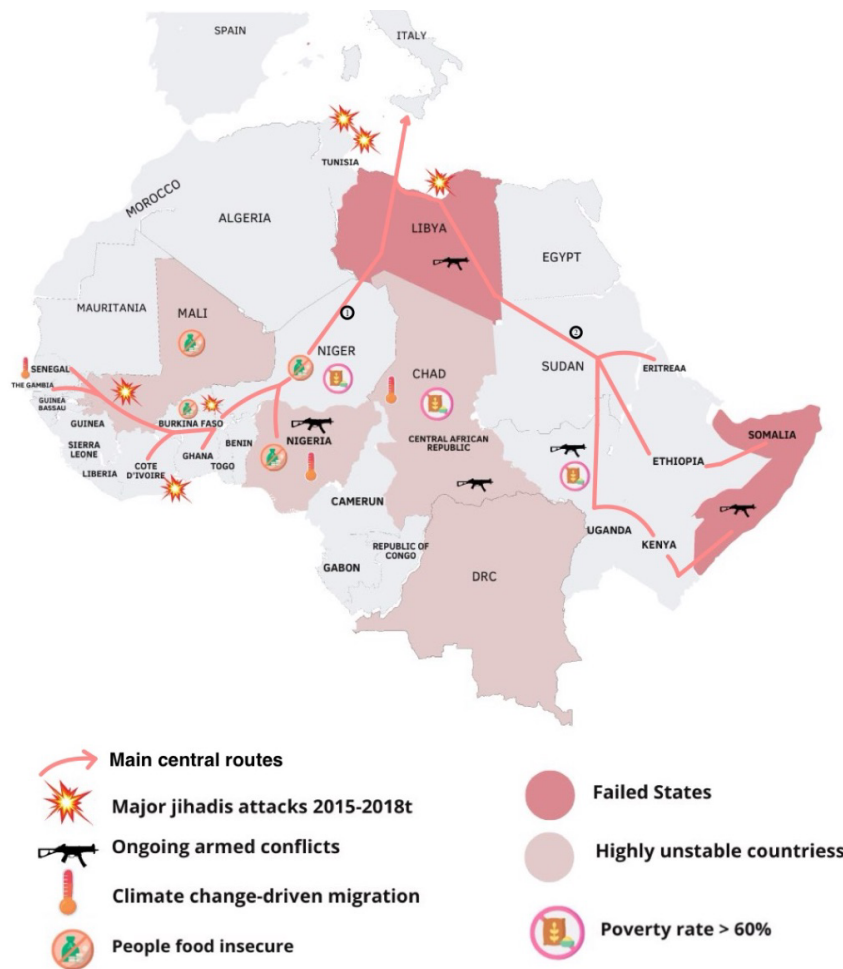
Subsequently, in 2017, we witnessed a decline of 34% compared to 2016; in 2018, we witnessed a further decrease of 80% compared to 2016. This can be the result of different factors that came into play: first, the identification of Niger as a gateway to Libya on the African

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[5] Bendandi, B. (2020). Migration induced by climate change and environmental degradation in the Central Mediterranean Route. In *Migration in West and North Africa and across the Mediterranean*, pp. 318-325.
[6] Torelli S.,(2018) Migration through the Mediterranean: Mapping the EU response, *European Council on Foreign Relations*; and Università di Bologna, (2022) Oltre il panico? Esplorare le mobilità climatiche in Senegal, Guatemala, Cambogia e Kenya. Sintesi-relazione sul caso di studio, *Climate of change,* pp. 6-13. The graphics and the rielaboration of the maps were edited by Lavinia Ansalone.

chessboard[7], and the signing of the Agreement between the European Union and the Republic of Niger on the status of the EU Common Security and Defense Policy (CSDP) Mission in Niger (EUCAP Sahel Niger) in May 2016 that allocated 26.300.000 euros[8]. The aim was to support the development of Niger's national security strategy and enhance the control of borders for better management of migration flows, especially for migrants coming from the Sahel, and ultimately the readmission of migrants arriving in Europe who have transited Niger[9]. This agreement was part of a negotiating framework involving several European countries, including Germany, France, and Italy, which allocated to Niger 48% of the total of the Italian funds earmarked for Africa[10]. Moreover, the first Memorandum Italy-Libya was signed in 2017 too, enforcing a system of control for the Libyan territorial borders, cooperation with the Libyan Coast Guard to strengthen its operational skills and strengthen the control of the conduct of Non-Governmental Organizations (NGOs) vessels[11]. Therefore, the EU's strategy of border externalization, which limited the route of Niger-Libya, was temporarily successful, although it didn't solve the root causes. Indeed, in 2019, the two "security" decree-laws n. 113 (2018)[12] and n. 53 (2019)[13] issued by the Minister of Interior Matteo Salvini to close maritime ports and regulate the work of NGOs restricted the concrete possibility of entering Italy. Apart from the months of the outbreak of the COVID-19 pandemic, when the numbers of immigrants were significantly lower compared to the rest of the year, 2020 marked a new trend of immigration growth that continued throughout 2021, 2022, and 2023.

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[7] Yuen, L. (2020). Overview of migration trends and patterns in the Republic of the Niger, 2016–2019. In *Migration in West and North Africa and across the Mediterranean*, pp. 77–85.

[8] COUNCIL DECISION (CFSP): amending Decision 2012/392/CFSP on the European Union CSDP mission in Niger (EUCAP Sahel Niger), no. 2016/1172, Council of the European Union (2016). https://eur-lex.europa.eu/eli/dec/2016/1172/oj

[9] Ibidem

[10] Di Filippo, M., & Palm, A. (2018). Le sfide della politica migratoria e il nuovo corso di Minniti. In *L'Italia al bivio Rapporto sulla politica estera Italiana* (pp. 73-74). Istituto Affari Internazionali.

[11] Serraj, F. M., & Gentiloni, P. (2017). *Memorandum d'intesa sulla cooperazione nel campo dello sviluppo, del contrasto all'immigrazione illegale, al traffico di esseri umani, al contrabbando e sul rafforzamento della sicurezza delle frontiere tra lo Stato della Libia e la Repubblica Italiana.* (pp. 1–4). https://www.governo.it/sites/governo.it/files/Libia.pdf

[12] Gazzetta ufficiale della Repubblica Italiana, Decreto-Legge 14th June 2019 n. 53, https://www.gazzettaufficiale.it/eli/id/2019/06/14/19G00063/sg

[13] Gazzetta ufficiale della Repubblica Italiana, Decreto-Legge 4th October 2018, n. 113, https://www.gazzettaufficiale.it/eli/id/2018/10/04/18G00140/sg

Chart 1. *Migrants landed in Italy (2014-2023)* **(Cruscotti statistici giornalieri; Open Polis 2023)**[14]

Chart 1

■ Migrants landed in Italy from the 1st of January to the 31st December of each year
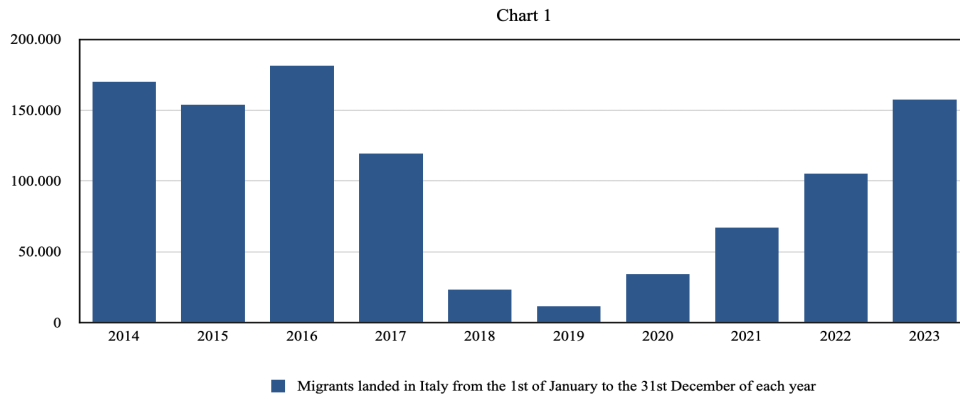
The composition of the countries of origin of migrants changed from 2018 to 2021. Mainly, Tunisians that landed in Italy in 2018 were 5.181 over 23.370 total (22%)[15], in 2019 were 2654 over 11.471 total (23%)[16], in 2020 were 12.883 over 34.154 total (38%)[17] and were 15.671 over 67.040 total in 2021 (23%)[18]. In 2021, Egypt ranked second with 8.352 emigrants (12%)[19]. In 2022, Egyptian emigrants became the first nationality of arrival, with 20.542 over 105.129 total (slightly below 20%)[20], followed by Tunisians with 18.148 emigrants (17%)[21]. In 2023, Tunisians were the second most present nationality on the Italian shores, representing 11% of the total, and Egypt was the fifth with 7% of the total[22]. The reasons behind these vast numbers of departures can be found in these countries' disastrous economic and political conditions, with Tunisia having inflation hovering around 10% and unemployment over 15%, with public debt at 80% of Gross Domestic Product (GDP) in 2023[23], a situation further complicated by the

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[14]   Open Polis. (2023). *Gli arrivi di migranti in Italia dal 1997 al 2020.* Openpolis. https://www.openpolis.it/numeri/gli-arrivi-di-migranti-in-italia-dal-1997-al-2020/;

Ministero dell'Interno. (n.d.). *Cruscotto statistico giornaliero | Dipartimento Libertà Civili e Immigrazione.* Www.libertaciviliimmigrazione.dlci.interno.gov.it. http://www.libertaciviliimmigrazione.dlci.interno.gov.it/it/documentazione/statistica/cruscotto-statistico-giornaliero

[15] Ministero dell'Interno. (n.d.). *Cruscotto statistico giornaliero | Dipartimento Libertà Civili e Immigrazione.* Www.libertaciviliimmigrazione.dlci.interno.gov.it. http://www.libertaciviliimmigrazione.dlci.interno.gov.it/it/documentazione/statistica/cruscotto-statistico-giornaliero

[16] Ibidem
[17] Ibidem
[18] Ibidem
[19] Ibidem
[20] Ibidem
[21] Ibidem
[22] Ibidem
[23]   Ambasciata d'Italia - Tunisia. (2024). Tunisia. In *https://www.infomercatiesteri.it/public/ime/schede-sintesi/r_115_tunisia.pdf.* Info Mercati Esteri.

Tunisian President Kaïs Saïed's authoritarian turn[24]. Egypt has a serious ongoing economic crisis: half of the state's revenues were aimed at repaying the public debt, which amounted to 90% of GDP, with an external debt of $165 billion, $42 billion of which is due in 2024, inflation at 35%, further worsening the situation of importing basic foodstuffs[25]. Consistently present among the countries of origin of migrants there are Côte d'Ivoire, Guinea and Eritrea, indicating that securing Niger's borders didn't stop the migration flow from Central Africa, instead it has only changed the route by taking people on more perilous paths. More generally, if we look at the progression of landings over the years of the most present nationalities, we notice some interesting facts: Nigeria had a peak in 2016 and then a steady decrease until total disappearance in 2018, whereas Côte d'Ivoire was consistently present in the years 2016-2018, although less significantly compared to Nigeria. The presence of Ivorians started to increase again in 2020, growing considerably until 2023, when 16.000 people landed on the Italian shores. Tunisia was almost absent until 2019 and 2020. The rise in arrivals since that year has been massive. Egypt peaked in 2022 after having undergone a consistent increase in departures since 2020. Yet, in 2023, the trend seems to be decreasing again.

Chart 2. Migration trends in Italy based on main nationalities of arrival (2014-2023) (Cruscotti Statistici)[26]

Migration trends in Italy based on main nationalities of arrival (2014-2023)
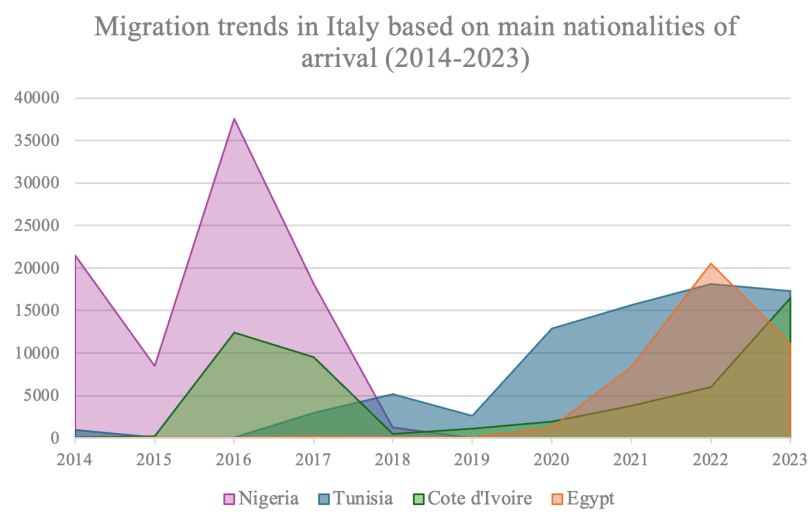
[24]   Fruganti,   L.   (2023,   April   19). La   Deriva   Autoritaria   in   Tunisia.   ISPI. https://www.ispionline.it/it/pubblicazione/la-deriva-autoritaria-in-tunisia-126138

[25] Ambasciata d'Italia - Egitto. (2024). Egitto. In https://www.infomercatiesteri.it//public/ime/schede-sintesi/r_101_egitto.pdf. Info Mercati Esteri.

[26] Ministero dell'Interno. (n.d.). *Cruscotto statistico giornaliero | Dipartimento Libertà Civili e Immigrazione*. Www.libertaciviliimmigrazione.dlci.interno.gov.it. http://www.libertaciviliimmigrazione.dlci.interno.gov.it/it/documentazione/statistica/cruscotto-statistico-giornaliero

Over the past ten years, the main points of departure have been Libya and Tunisia, and geographical proximity certainly played a role: the distance Tripoli-Lampedusa is 300 km, and Kelibia (Tunisia) - Pantelleria is around 75 km. Until 2020, Libya has undoubtedly held the record as the primary country of departure: between 2014 and 2017, approximately 90% of the journeys left for Italy were from Libya[27]. During those years, no cooperation mechanism existed with entities controlling Libya's maritime borders. Human smuggling was indeed the most proficuous economic activity of the country[28]. After the Italy-Libya Memorandum and the introduction of repatriations, some progress was made: the number of migrants stopped in Libya or brought back to their home country increased from near null value in 2016 to 12% in 2017, reaching the highest point of 68% in 2021, when 32.000 people corresponding to 51% of the total migrants of that year were stopped[29]. At the same time, we witnessed a decrease in departures from Tunisia, which has competed with Libya since 2020 for the top departure spot. However, unlike Libya, the Tunisian Coast Guard was not aided by the European Union or Italy in dismantling the human traffic business. The trend continues to increase, as shown by the graph, and considering the current unstable situation in Tunisia, it is challenging to predict if cooperation projects with the EU or Italy will be feasible.

Chart 3, *Migrants arrivals to Italy by point of departure,* **(ISPI 2023)[30]**
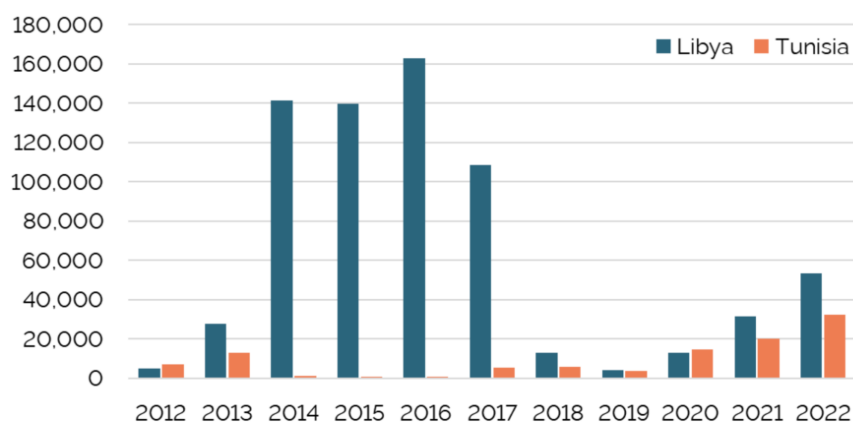
Source: Italian Ministry of the Interior.

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[27] Villa M., Pavia A., (2023), Irregular Migration from North Africa: Shifting Local and Regional Dynamics, *Ispi Journal,* *https://www.ispionline.it/en/publication/irregular-migration-from-north-africa-shifting-local-and-regional-dynamics-136302*

[28] Eaton, T. (2017). Libya's War Economy: Predation, Profiteering and State Weakness. *Chatham House: The Royal Institute of International Affairs*, 5–20.

[29] Ibidem

[30] Villa M., Pavia A., (2023), Irregular Migration from North Africa: Shifting Local and Regional Dynamics, *Ispi Journal,* *https://www.ispionline.it/en/publication/irregular-migration-from-north-africa-shifting-local-and-regional-dynamics-136302*

1.2 Italian-European framework: from Renzi's foreign policy to Meloni's Mattei Plan (2014-2024)

The Italian foreign policy has always been characterized by a geopolitical ambiguity, which is one of its main historical-geographical constants: a maritime, Mediterranean soul that hides Italy's potential role as a regional power in the Mediterranean area, and its continental perspective, more European, that sees Italy fully engaged in the transatlantic relations as a minor partner, following the logic of *"the last of the great powers, the first of the small ones"*[31] This political ambiguity towards the Mediterranean has commonly been defined over the years as the *"politics of the American wife and the Arab mistress"*[32], meaning that the tight relationship with the United States and the subordination of Italy to the Western block didn't prevent from keeping good relations with Arab countries. This tradition refers to Italian politicians and entrepreneurs such as Enrico Mattei, Giulio Andreotti, Aldo Moro, and Bettino Craxi[33]. Their approach was defined as friendly bilateralism, even with those countries that were sometimes considered "rogue states" by the US and were sanctioned, for instance, with Qaddafi's Libya after the Lockerbie affair[34].

From 2014, Italy underwent six governments representing different political parties, but they maintained, although with differences in ideological stances, core objectives regarding migration policies. The respective ministers of foreign affairs brought Italy's external action forward, as did the interior and defense ministers. Italy is, thanks to its geographical position, one of the most projected countries towards the Mediterranean and North Africa: the country has been one of the key drivers and proponent of migration policies within the European framework, in the attempt to mitigate a growing migration crisis. However, even when called upon, the European Union was rarely capable of responding effectively to the challenge. In the first years of the crisis, we witnessed an emergency approach both in the European and the Italian response: the migration flux was not deemed permanent. The first pivotal turning point was the Valletta Summit 2015 when European and African leaders met to build a shared agenda

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[31] Bosworth, R. J. B. (2009). *Italy the Least of the Great Powers*. Cambridge University Press. (Original work published 1979)

[32] Coralluzzo, V. (2011). Italy's Mediterranean Policy from a Transatlantic Perspective. *Mediterranean Paper Series: IAI*, p. 60.

[33] Ivi, p. 42

[34] The Lockerbie affair refers to the terrorist attack of 1988 that occurred in Scotland for which Abd el-Basset Ali al-Megrahi, head of Libyan intelligence, was charged in 1991. The flight was going from London to New York when, at 7 pm, it exploded just above the town of Lockerbie. 270 people died. The UN issued sanctions against Qaddafi, and Megrahi was condemned to a life sentence in Scotland. Beveridge, F. (1992). The Lockerbie Affair. *The International and Comparative Law Quarterly*, 41(4), 907–920.

concerning migration and human trafficking: it was the first time the issue was tackled in a joint and official meeting of that magnitude, thus representing a new awareness stage[35]. The action plan was developed around five main points: the first aim was to address the root causes of migration by working to eradicate poverty via boosting socio-economic development, creating new jobs, securing the areas more at risk through resilience building and reinforcing state capacities; secondly, by creating channels for legal migration; thirdly by strengthening the protection of refugees and displaced persons and ensure that human rights are respected; fourthly by fighting irregular immigration and dismantling the network of human trafficking, by sharing and improving intelligence means, and provide accessible information on the real risks and dangers of illegal migration; fifthly, by developing a system of reintegration of irregular migrants, paying particular attention to unaccompanied minors[36]. During the summit, they established the first financial means to address the crisis at a European level: the European Union Trust Fund for Africa. Up to 2021, it has devolved 5.26 billion in over 250 projects in the Horn of Africa, Sahel Lake, and Northern Africa.

In the Italian political space, the ideological difference between left and right has always been significant in determining domestic policies; conversely, foreign policy it is usually built upon similar objectives, largely with traditional allies. Let's analyze the conduct of the governments from 2014 up to the present.

The *Renzi government* (from the 22nd of February 2014 to the 12th of December 2016) defined the Euro-Mediterranean area as a priority field of action within the White Book for International Security and Defense[37]. At that time, the EU lacked a shared strategy and a standard policy line to follow: indeed, if we look at the context in which they were carried out, Renzi's proposals were ground-breaking[38]. The most relevant initiative forwarded to the European Commission President Jean Claude Juncker was the Migration Compact of 2016[39]. For the first time, it is explicitly stated that migration to Europe is a structural and not an emergency phenomenon that must be solved by including an external dimension in migration

[35] Palm, A. (2016). Did 2016 Mark a New Start for EU External Migration Policy, or Was It Business as Usual? *Istituto Affari Internazionali*, 16–33. https://www.iai.it/sites/default/files/iaiwp1633.pdf

[36] Valletta Summit. (2015). *Action Plan*. https://www.consilium.europa.eu/media/21839/action_plan_en.pdf

[37] Gilli, A., Ungaro, A. R., & Marrone, A. (2015). The Italian White Paper for International Security and Defence. *The RUSI Journal*, *160*(6), 34–41. https://doi.org/10.1080/03071847.2015.1122978

[38] Dentice, G., & Donelli, F. (n.d.). Reasserting (middle) power by looking southwards: Italy's policy towards Africa. *Università Degli Studi Di Trieste*. p. 2

[39] Italian non-paper (2016), Migration compact: Contribution to an EU strategy for external action on migration, https://www.governo.it/sites/governo.it/files/immigrazione_0.pdf

policies and addressing its root causes. According to Renzi's proposal, the EU would offer Africa investment projects, financial services to ensure access to European markets, cooperation in the security field, and instruments for legal migration towards Europe. What is the EU expecting from Africa in exchange? Effective control of the borders, repatriation cooperation for irregular migrants, a distinction between economic migrants and asylum seekers (to be done at origin before departure) and strengthening the fight against human traffickers[40]. On the back of the Migration Compact, in June 2016, the European Commission published the Partnership Framework with third countries under the European Agenda on Migration[41]. Analyzing these policy proposals reveals some similarities with the Action Plan of the Valletta Summit yet characterized by greater specificity. For instance, Operation EUNAVFOR Med Sophia, conducted by Frontex, had a crucial role in gathering information on human trafficking, exchanging it, and coordinating landing operations[42].

However, by looking at the main points of the Partnership Framework with third countries, we notice that it also came with criticalities: the biggest one is that the development projects of the destination are rather generic. The practical use of the funds isn't explained in detail. But let's take a closer look to understand what it means. The European Trust Fund for Africa has devolved up to 2021 5.26 billion euros in more than 250 projects focusing on four pillars: reducing incentives for irregular migration, border control, revising European asylum policy and new legal migration policy. Germany has been the main contributor and Italy the second, allocating 123 million[43]. Around 24% of the total was spent on managing migration flows, hence about 1.3 billion euros expenditure[44]. The strategy was the *externalization of borders* to provide aid to local migration institutions, improve border control capacity, combat human trafficking, and create concrete opportunities for repatriation. The main critique is that the externalization of borders is a short-sighted strategy because instead of working to eradicate the root causes, such as the lack of education, lack of healthcare, economic crises, and climate-

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[40] Italian non-paper (2016), Migration compact: Contribution to an EU strategy for external action on migration, https://www.governo.it/sites/governo.it/files/immigrazione_0.pdf

[41] European Commission. (2016). *EUR-Lex - 52016DC0385 - EN - EUR-Lex*. Europa.eu. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52016DC0385

[42] European Commission (2016) *establishing a new Partnership Framework with third countries under the European Agenda on Migration,* EUR-Lex, Com 385

[43] European Union. (2022*). Emergency Trust Fund for Africa - European Union.* Trust-Fund-For-Africa.europa.eu. https://trust-fund-for-africa.europa.eu/our-mission/state-play-and-financial-resources_en

[44] European Commission. (2019, July 3). *EU Trust Fund for Africa: new migration-related actions to protect vulnerable people and foster resilience of host communities in North of Africa.*

change-driven disasters, it just ensures damage control and tackling the issue at a superficial level.[45]

Gentiloni's government (in charge from the 12th of December 2016 to the 1st of June 2018) relevance can be synthesized in two strategic concepts: the non-paper presented to the Global Compact for Migration Preparatory meeting of Puerto Vallarta held on the 5th December 2017, and the diplomatic approach of the *'three Ps'*, Partnership, Protection and Prosperity[46]. In the non-paper, we find three elements: "protection of human rights", the "nexus between migration and development", and the need for "balance between the right to mobility and the right of states to determine the criteria for the admission of people into their territory"[47]. For the first time, the non-paper clearly illustrates the need to invest in the countries of origin and those of transit to ensure development as the best way to manage human mobility.

In terms of Partnerships, a forerunner for the intense resumption of bilateral relations, even with unusual partners (such as the African region of Sahel), was the Italy-Libya Memorandum concluded by Gentiloni with Libyan Prime Minister Serraj on the 2nd of February of 2017. This Memorandum included initiating Libyan Coast Guard training projects by Italy and the EU[48]. In addition, Serraj himself asked to deploy Italian naval assets in support of the Libyan Coast Guard to combat human trafficking. Then, on July 4th, the European ministers met in Tallinn to discuss the future of Libya: the Italian minister of interior, Marco Minniti, reports almost unanimity on expanding existing funds, reviewing the code of conduct of NGOs, and repatriations. Angelino Alfano, Italian minister of foreign affairs, argued that "to decrease the flux of migrants, they must not arrive in Libya",[49] meaning that they must be stopped at the Libyan Southern border, not the Mediterranean one. In this perspective, the EU reached an agreement with Niger, the leading country of passage for migration towards Libya, and Italy

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[45] Castelli Gattinara, P. (2017). The "refugee crisis" in Italy as a crisis of legitimacy. *Contemporary Italian Politics*, 9:3, 320–322.

[46] Di Filippo, M., & Palm, A. (2018). Le sfide della politica migratoria e il nuovo corso di Minniti. In *L'Italia al bivio Rapporto sulla politica estera Italiana* (pp. 63–76). Istituto Affari Internazionali.

[47] Ministero degli Esteri- Direzione generale per gli italiani all'estero e le politiche migratorie, *Towards the 2018 Global Compact for a safe, orderly and regular migration. Italian Vision,* presented to the Global Compact Migration Preparatory Meeting, Puerto Vallarta, December 2017, https://refugeesmigrants.un.org/italy-non-paper

[48] Italy - Libya. (2017). Memorandum of understanding on cooperation in the fields of development, the fight against illegal immigration, human trafficking and fuel smuggling and on reinforcing the security of borders between the State of Libya and the Italian Republic. https://eumigrationlawblog.eu/wp-content/uploads/2017/10/MEMORANDUM_translation_finalversion.doc.pdf

[49] Redazione Ansa. (2017, June 22). Migranti: Alfano, accordi per evitare arrivino in Libia. *Https://Www.ansa.it/Ansamed/It/Notizie/Rubriche/Politica/2017/06/22/Migranti-Alfano-Accordi-Per-Evitare-Arrivino-In-Libia_4a784581-7e19-40b5-8fa9-F5c979d34831.Html.*

allocated 48% of its trust fund for Africa. The measures needed to protect the European borders have traditionally been divisive. In 2017, the European Commission proposed revising the Dublin Agreements IV and, most notably, introducing a permanent quota system inspired by the principle of equitable sharing of responsibilities and eliminating the criterion of the state of first entry. Such a reform would have helped unburden Italy from the weight of total migrant crisis management in its emergency aspects[50].

Nevertheless, all the European countries refused to open their ports when the Italian government asked them to support Italy during the crisis.

The results of the Gentiloni government were more successful than the previous attempts since we witnessed in 2017 a diminution of a value 36% of irregular migration compared to 2016. However, the found solutions were short-lasting: the crisis will break out again in 2020, becoming more dramatic every year. Mario Giro, ex-vice-minister of interior for Minniti, will declare in 2020: "*it was clear that everyone in Italy and Europe, left and right, was obsessed with the migrant issue. And everyone wanted a quick and immediate solution in the name of trying to keep public opinion in check.*"[51]

The first *Conte government* (1st of June 2018 to the 4th of September 2019) was peculiar since we witnessed the left-sided Five Star Movement in the same majority and the right-sided Lega Salvini that would typically stand at the opposite political positions. This legislature has been characterized by stricter policies on ports designed by the minister of interior, Matteo Salvini. In particular, this approach has been brought forward by two "Security and Immigration" decree-laws: the first one was issued in September 2018 with the slogan *"More steps forward for security issues, more steps forward for the protection of real refugees"*. Indeed, it provided the distinction of six different kinds of asylum recognition, including work-abused people, victims of trafficking, victims of natural disasters (that is particularly interesting because of the rising number of climate–change disasters), and people in need of medical care[52]. The second part of the DL was the much-criticized closed-ports policy that prevented the entry to anyone who had carried out: "*a rescue activity [...] in an improper manner, in violation of the*

[50] di Filippo, M., & Palm, A. (2018). Le sfide della politica migratoria e il nuovo corso di Minniti. (pp. 63–76). Istituto Affari Internazionali.
[51] Bagnoli, L. (2020, April 1). *Da Operazione Sophia a Irini, anatomia delle missioni navali europee.* https://irpimedia.irpi.eu/mediterraneocentrale-operazione-sophia-irini-anatomia-missioni-navali-europee/
[52] Gazzetta Ufficiale della Repubblica Italiana. (2018, October 4). *TESTO COORDINATO DEL DECRETO-LEGGE 4 ottobre 2018, n. 113* . Www.gazzettaufficiale.it. https://www.gazzettaufficiale.it/eli/id/2018/12/03/18A07702/sg

international law of the sea and, therefore, prejudicial to the good order and security of the coastal state as it was aimed at the entry of persons in violation of immigration laws"[53]. This measure was meant mainly for the work of NGOs whose actions were defined in terms of 'possible instrumentalization of international search and rescue obligations' by incentivizing the illegal passage of migrants.[54] In the same view, Salvini, in March 2019, deprived Operation Sophia of its practical means, justifying it by saying that it was at risk of incentivizing migration. However, this mission had already received sharp critiques since its fundamental aspect of dismantling the human trafficking network in practice was unplanned and inoperative. It will be substituted in 2020 by Operation Irini, which is still ongoing[55]. The Security-bis decree-law was issued in June 2019 and had a much bolder tone: *"The Minister of the Interior may restrict or prohibit the entry, transit or stopping of vessels in the territorial sea, except for military vessels or vessels on non-commercial government service."*[56] Summing up, it is observable that the stricter policies were functional in the short term since the number of migrants sensibly diminished. Nevertheless, Salvini's approach was blind to the profound causes of immigration, not minding that Italy's very geographical location makes it impossible to blindfold oneself and not act.

The *Conte bis government* (5th of September 2019 to the 22nd of October 2022) didn't supply any particular novelty to the already analyzed framework. The priorities were the same: repatriation, reduction of irregular entry, and the search for a European solution to redistribute asylum seekers and refugees. During this legislature, Italy had to cope with the Covid-19 pandemic, and it shifted the attention of public opinion to more pressing issues. Particularly during these years, the flux of immigrants has dramatically increased again. Meanwhile, the European Union issued in July 2020 a New Pact on Migration and Asylum, but *nihil sub sole novum*: it reiterates the burden-sharing principle and adds the need to speed up the bureaucracy of repatriation.[57]

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[53] Ibidem

[54] Gazzetta Ufficiale della Repubblica Italiana, decreto legge 4 ottobre 2018 n.113, *«Disposizioni urgenti in materia di protezione internazionale e immigrazione, sicurezza pubblica, nonche' misure per la funzionalita' del Ministero dell'interno e l'organizzazione e il funzionamento dell'Agenzia nazionale per l'amministrazione e la destinazione dei beni sequestrati e confiscati alla criminalita' organizzata.» https://www.gazzettaufficiale.it/eli/id/2018/12/03/18A07702/sg*

[55] Ministero della Difesa. (2020). *EUNAVFOR MED – Operazione Irini.* Www.difesa.it. https://www.difesa.it/operazionimilitari/op-intern-corso/eunavfor-med-operazione-irini/default/28156.html

[56] Zirulia, S. (2019) Decreto Sicurezza BIS: novità e profili critici, in *Archivio di Diritto Penale Contemporaneo, https://archiviodpc.dirittopenaleuomo.org/d/6738-decreto-sicurezza-bis-novita-e-profili-critici*

[57] Barana, L. (2021). La questione migratoria nella politica estera italiana. In *Il governo Conte bis, la pandemia e la crisi del multilateralismo: Rapporto sulla politica estera italiana*. (pp. 46-50), Istituto Affari Internazionali.

The attempt of the *Draghi government* (13th of February 2021 to the 22nd of October 2022) to "Europeanize" the immigration crisis was disregarded by the EU institutions that were focused on the externalization of borders and the New Pact on Migration and Asylum[58] and all previous years had been characterized by a stable framework of migration policies based on containment and repatriation, albeit to varying degrees of strictness due to different governments. Draghi resumed cooperative work with Libya, undertaking a new aspect, economic diplomacy, to integrate the migration issue within a framework for the broader stabilization of Libya[59]. The minister of foreign affairs, Luigi di Maio, had bilateral meetings in Tunisia with his counterpart. The economic partnership was formalized when ENI-Snam started to build an eclectic pipeline that would reach the Tunisian coast via the Strait of Sicily. Moreover, Italy was Tunisia's second commercial partner[60].

The *Meloni government* (22nd October 2023 - in charge) maintained continuity with Draghi's attempt to mitigate the energy crisis and present itself as a potential energy hub between the EU and Africa: this policy is part of a broader framework of Euro-Mediterranean cooperation and integration to strengthen economic relations and trade, coping together with the climate crisis, but also curbing China and Russia. This was implemented, first, with the renewal of the Italy-Libya Memorandum, criticized by NGOs because of allegations of human rights violations in Libya reception centers, which seem more like detention centers where migrants are held in bondage. In addition, Italy would provide patrol boats to the Libyan coast guard.[61] Second, ENI signed an agreement with the Libyan Oil Production Corporation, planning to develop 2026 two gas fields reaching up to 750 million standard gas cubic feet per day. ENI's Chief Executive, Claudio Descalzi, described the agreement as an "important investment in Libya's energy sector, contributing to local development and job creation while strengthening ENI's role as a leading operator in the country"[62]. In Tunisia, the Terna-Snam project and other relevant plans for renewable energy keep going.

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[58] European Commission (2022), EU Action Plan for the Central Mediterranean, https://home-affairs.ec.europa.eu/eu-action-plan-central-mediterranean_en
[59] Barana, L. (2022). L'Italia e le migrazioni. In *Il governo Draghi e il nuovo protagonismo internazionale dell'Italia: rapporto sulla politica estera italiana* (pp. 52–57). Istituto Affari Internazionali.
[60] Osservatorio Economico (2024), Scheda di sintesi: Tunisia, https://www.infomercatiesteri.it/public/osservatorio/schede-sintesi/tunisia_115.pdf
[61] Barana, L. (2023). L'Italia e le migrazioni. In *L'Italia dal governo Draghi al governo Meloni: Rapporto sulla politica estera italiana* (pp. 57–62). Istituto Affari Internazionali.
[62] Eni Press Release (2023), Eni launches a major gas development project in Libya, https://www.eni.com/en-IT/media/press-release/2023/01/eni-launches-a-major-gas-development-project-in-libya.html

Moreover, the European Commission signed a Memorandum of Understanding with Tunisia in July 2023 that envisages solving the root reasons for migration and supporting the country economically with programs to encourage youth employment, the development of the agricultural sector, and the Tunisian Coast Guard capacities[63]. In truth, it was also an attempt to convince Saied to sign the International Monetary Fund (IMF) agreement and have a stricter approach on departures. Saied refused to sign the deal in the following months and didn't implement the agreed social reforms. Nonetheless, at the end of 2023, it should be noted that departures from the Tunisian coast have dropped; it has to be clarified how much of an impact the memorandum had on such a decrease. It is crucial to seek stability in the medium to long term in Tunisia because the institutions are politically weak, and the risk of falling into the clientelist and corrupt government logic is high.[64] The new Italian government considers its flagship the 'Mattei plan' for Africa: a "virtuous and non-predatory cooperation" with Africa that stabilizes the continent and can counter "the root causes of migration."[65] First, in the form of a law decree, which was converted into a law in January 2024, the five main areas of intervention are education and training, health, agriculture, water, and energy. The completion of the first stage of the plan happened at the end of January 2024, with the Italy-Africa summit, attended by EU and African institutions, where the Italian President of the Council of Ministers, Giorgia Meloni, announced Italy's new role as a bridge between Europe and Africa, and the need to build cooperation, that is not imposed but felt by both parties. It's functional for the development of all the countries involved.[66] Nonetheless, after a year and a half of government, the areas of the project remain rather generic, as it is the official document that lacks specificity on the measures that the Mattei Plan intends to address.

To sum up, Italy and the European Union have addressed many challenges during the past ten years, sometimes failing, sometimes gaining positive results. It would be untrue to state that we didn't make any progress in dealing with the phenomenon of migration. Together with projects of cooperation, economic investments have always been a constant in the Italian and European approach towards Africa: the outcome depended on how they were conducted and how specific, practical, and well-planned the programs of destination were.

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[63] Barana, L. (2023). L'Italia e le migrazioni. In *L'Italia dal governo Draghi al governo Meloni: Rapporto sulla politica estera italiana* (pp. 57–62). Istituto Affari Internazionali.
[64] Barana, L. (2024). Le politiche migratorie. In *Il governo Meloni alla prova* (pp. 47–51). Istituto Affari Internazionali.
[65] Ibidem
[66] Ivi, pp. 45-46.

1.3 The energy reserves and infrastructures in the Mediterranean: Libya, Egypt, Algeria and Israel

The Mediterranean is a golden area in strategic terms: it is located in 7% of the world's population, producing 10% of the total GDP and more than 8% of the world's energy demand[67]. Energy is crucial to understanding many of the region's geopolitical dynamics, being an economic and political bridge between the countries of the area.[68] The evident synergy between the strategic interests and the needs of the Northern and Southern shores of the Mediterranean suggests that a new cooperation framework between the involved countries could produce a "win-win" result. The energy supply (originating from the Southern shore of the Mediterranean) mainly consists of a hydrocarbon-based oil and natural gas portfolio[69]. Indeed, in four countries touched by the Mediterranean Sea, there are 4,6% of the oil reserves of our planet and 4,7% of the natural gas reserves[70]. The four golden oil and natural gas pots are Libya, Egypt, Algeria and Israel. The supply travels from South to North, accounting for more than 50% of the total export of North Africa, around 22% of the global export of oil and 35% of the worldwide export of natural gas, entirely originating in these four countries[71].

Libya hides an enormous oil potential that has never had the chance to fully capitalize due to American sanctions, political instability, and bad governance choices. Indeed, the country represents 3% of the global oil reserves, extending for 1,4 trillion cubic meters (tcm). Still, it has many natural gas fields, accounting for 0.75% of the world's gas reserves. It's also the eighteenth-world oil exporter with tremendous potential. Indeed, its oil stocks have almost doubled in the past forty years and could last for the following 340 years[72]. Oil is the government's primary revenue source, accounting for 98% of the total, and constitutes 60% of the GDP.

After the US eased their sanctions in 2004, there was a window of growth in global oil production share, from 3% in 2005 to 4%, before falling again in 2011 due to the Arab Spring. From the Libyan civil war that followed the death of Qaddafi, the country is divided into two parts: the Government of National Stability (GNS) controlling 42% of oil fields, and the

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[67] Molinari, M. (2023). *Mediterraneo conteso*. Rizzoli. p. 163

[68] Molinari, M. (2023). *Mediterraneo conteso*. Rizzoli. p. 163

[69] Sartori, N., & Bianchi, M. (2019). *Energia nel Mediterraneo e il ruolo del settore privato* (pp. 2–3). Istituto Affari Internazionali.

[70] Molinari, M. (2023). *Mediterraneo conteso*. Rizzoli. p. 163.

[71] Ibidem.

[72] Nakhle, C. (2024). *Libya's uphill struggle to attract oil investment*. Geopolitical Intelligence Service AG. https://www.gisreportsonline.com/r/libyas-uphill-struggle-to-attract-oil-investment/

Government of National Unity (GNU) possessing 28%[73]. During the past ten years, both sides have staged oil blockages to achieve strategic political goals or try to call for a larger share of oil reserves. The last alarming crisis happened in 2020 when the eastern part controlled by the GNU blocked oil production and exports for ten months. After the outbreak of the Russia-Ukraine war and the attempt to further diversify the Italian and European energy mix, Libya has played a relevant role, becoming the fifth supplier of oil to the European Union after Norway, the US, Kazakhstan and Saudi Arabia, and also expanding its market share with Europe to 8%[74]. Europe was already Libya's most significant market of exportation, in 2022 accounting for 71.5% of oil exports, with Italy being the second market destination of Libyan exports, 6% represented by Italian oil imports. Libya is a country that would greatly benefit from international investments: Mohamed Oun, the Minister of Oil and Gas, has declared that Libya has opened exploration licenses to companies. Before the unrest of 2011, many companies, such as Shell and ExxonMobil, were present in the territory, but from 2012 to 2013, they withdrew.

On the other hand, ENI has been operating in Libya since 1959, and nowadays, it represents 10% of its energy production portfolio.[75] Thanks to the ENI-NOC agreement, the Greenstream pipeline was built in 2003 and operational in 2004[76]. What keeps foreign investors away from Libya, then? A significant risk is the country's political and subsequent economic instability. To give a practical case: in January 2024, the El Sharara and El-Feel refineries were wrecked by demonstrators protesting to reduce inflation, more specifically, to decrease fuel prices[77]. It comes naturally that international investors and companies are cautious when deciding whether to involve themselves in energy trade deals with Libya.

Egypt is an interesting player whose importance has grown over the past years and will continue to increase. But looking at some data, today, it is the twelfth world exporter of liquified natural gas (LNG), the third country in Africa for gas reserves extension -with 2.1 trillion cubic meters- but it also has the most significant energy demand in the whole continent. Indeed, between 2002 and 2012, its energy demand reached 7.1%, with the average energy

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[73] Ibidem

[74] Nakhle, C. (2024). *Libya's uphill struggle to attract oil investment*. Geopolitical Intelligence Service AG. https://www.gisreportsonline.com/r/libyas-uphill-struggle-to-attract-oil-investment/

[75] Ibidem.

[76] Molinari, M. (2023). *Mediterraneo conteso*. Rizzoli. p. 164.

[77] Nakhle, C. (2024). *Libya's uphill struggle to attract oil investment*. Journal? Casa Editrice=

demand in Africa being 5.5%[78]. By 2014, Egypt became a net importer: this was caused by a conjunction of factors, among them the scarce amount of investments in the energy sector and surely the political unrest of 2011. As a result, starting in 2014, new exploration projects were carried out by Eni, which, in 2015, found the Zohr gas field, making it productive very rapidly within only one year from the discovery. Hence, in 2022, Egypt produced around 64.5 bcm per year[79]. However, its fortune was not only made by discovering the most extensive gas field in the Eastern Mediterranean region but mainly by its proximity with smaller exporters - like Cyprus and Israel- needing gas liquefaction plants. The gas imported from these countries is liquefied in the sites of Idku and Damietta and then exported to Europe. The production capacity per year of these plants is 12 million tons: this is why a country like Iraq, despite it outpaces Egypt by far in terms of reserves and production, cannot compete for the European market. Indeed, Egypt has a LNG production capacity of 2 million tons per year, and according to the European Commission's LNG and gas storage strategy for European markets, the European Union shall prefer LNG reserves to pipelines. This decision is taken for energy security reasons, encouraging further diversification of the existing energy mix (that mainly depended on pipelines) and also because LNG can be stockpiled, avoiding the risk of a supply cut for economic and political reasons like in the case of the outbreak of a new conflict. This is also why the project for the EastMed pipeline that would link the gas fields in Israel and Cyprus with Greece and Bulgaria and Greece and Italy has yet to receive warm support from the European Union[80].

Algeria is the second African country (after Nigeria) for extension and production of natural gas reserves, amounting to 2,3 tcm, 3% of the world's total reserves, with a production capacity of 98.2 tcm per year[81]. In 2022, it was the seventh country for natural gas production, and it is the country that has the largest LNG export capacity. However, the LNG, where the utilization rate is 46%, and pipelines export, with a utilization capacity of 43%, are underexploited. The gas is exported to European countries mainly via pipeline (around 63%), and Italy and Spain

[78] Nakhle, C. (2023). *Egypt's gas exports under threat*. Geopolitical Intelligence Service AG. https://www.gisreportsonline.com/r/lng/
[79] Ibidem
[80] Fouad, A. (2021). *Egypt's future in the LNG market*. Middle East Institute. https://www.mei.edu/publications/egypts-future-lng-market
[81] Statista. (2023). *Natural gas industry in Algeria*. Statista. https://www.statista.com/topics/8639/natural-gas-industry-in-algeria/#topicOverview

are the leading importers, with the former importing 21% of its total gas share here[82]. This results from an agreement signed in July 2022, after the outbreak of the war in Ukraine, with a 4 billion dollar investment on a gas-sharing contract with Algeria.

Pipelines are the primary transportation method, as shown in Chart 4, with four lines connecting North Africa and Europe: two are operational, one proposed, and one suspended in 2021[83]. The oldest one is the Enrico Mattei, also called Transmed, resulting from the Eni-Tunisia agreement of 1977, with the first operational line in 1983 and the second in 1994, after the contract was extended in 1991; it originates in the Algerian desert near Hassi R'Mel and crosses 550 km to the Tunisian border. It travels through Tunisia and arrives in the Sicily Strait, specifically at the port of Mazara del Vallo. The second operation is the Medgaz, reaching Spain via the Mediterranean Sea, in use since 2011, with a capacity of transporting 10,5 cm per year. The Pere Duran Farell pipeline, which connects Algerian gas supplies to Spain and Portugal crossing Morocco, has been suspended from its activity in 2021 after the cut of diplomatic relations with Morocco[84]. This event exacerbated the relations with Spain that, during the crisis, sided with Morocco and led Algeria to seek new partners, like Italy and France, which both signed the agreement mentioned earlier in 2022. The proposed project is the Trans-Saharan gas pipeline, that would start in Nigeria and reach Algeria via Niger, increasing significantly the gas supply in the country. Moreover, 70% would pass through Algeria, giving an essential amount of royalties to Sonatrach, which, by increasing its revenue, could also magnify the investment capacity of the Algerian company[85].

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[82] Nakhle, C. (2022). *North Africa's natural gas: No panacea for the EU*. Geopolitical Intelligence Service AG. https://www.gisreportsonline.com/r/natural-gas/
[83] Saini Fasanotti, F. (2022). *Europe turns to Algeria for natural gas*. Geopolitical Intelligence Service AG. https://www.gisreportsonline.com/r/algeria-europe/
[84] Molinari, M. (2023). *Mediterraneo conteso*. Rizzoli. p. 164.
[85] Saini Fasanotti, F. (2022). *Europe turns to Algeria for natural gas.*

Chart 4: The pipelines map connecting North Africa and Europe *(Oil Map)*[86]
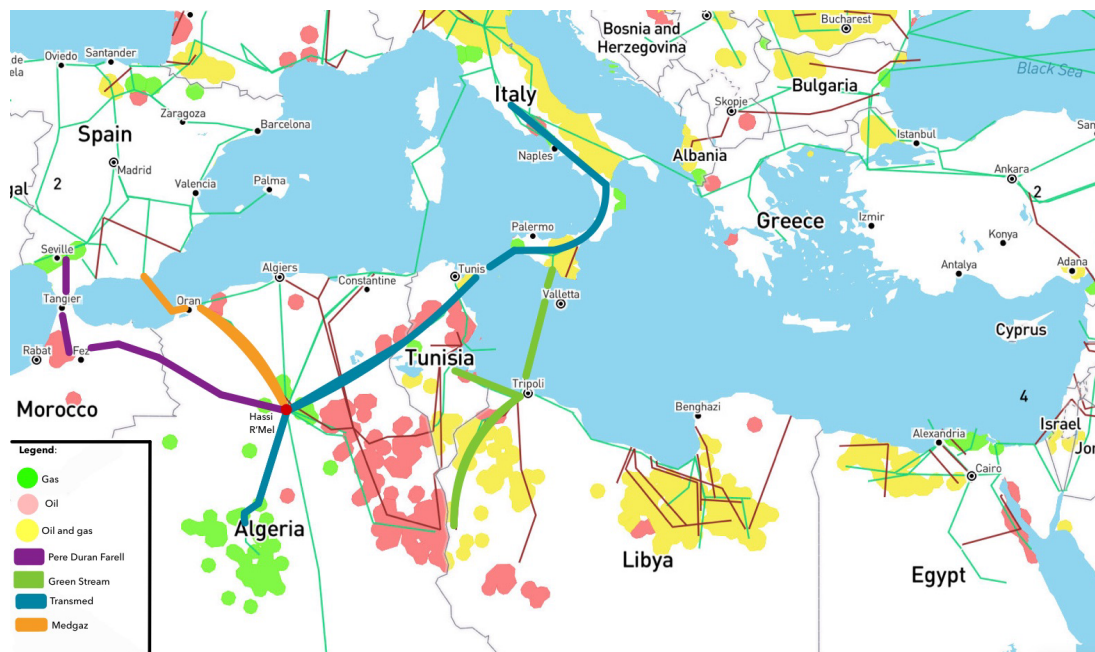
Israel became a net gas exporter in 2020, reaching a production of 21.9 bcm per year, whose export was 10 bcm. At the beginning of the 2000s, Israel couldn't cover its internal energy demand with its production, importing 96% of it, mainly oil and coal. The turning point happened when, in 2009, the Tamar and Leviathan gas fields were founded: in the year 2019, the production of natural gas hit for the first time 8.5 bcm, bound to increase further. Despite the rapid growth of the past decade, Israel's reserves are limited compared to its neighbors in North Africa: the gas fields are equivalent to 1 tcm, around 0.5% of the global reserves, generating in 2022 around 1% of the world's production, but it was able to export half of it since it consumes only the 0.5%[87].

Moreover, export growth of 30 bcm per year is expected by the end of 2030. The relevance of this country will further grow in the energy sector in the coming years, as shown by the rising interest of international companies that until now haven't entered the business because of risks derived from the general instability of the area. In 2020, the American Chevron company purchased Noble Energy, linked with New Med Energy, and acquired shares of Tamar and Leviathan gas fields. Unexpected partners were also attracted: in 2021, Mubadala Energy, owned by the United Arab Emirates government, acquired for 1$ million a share of 22% of the Tamar field. After the outbreak of the war with Hamas on the 7th of October 2023, the security

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[86] World Oil Map (2021). *Oil Map.* https://www.oilmap.xyz/
[87] Nakhle, C. (2023b). *Israel's gas exports in times of war.* Geopolitical Intelligence Service AG. https://www.gisreportsonline.com/r/israeli-gas-exports/

concerns that have dominated the scene for years have now become sharper than ever. The Israeli's gas infrastructures are strategic targets: the risk that Hamas could hit the Tamar facilities due to the proximity with the Gaza strip (25 km) led Chevron to close it temporarily, consequently interrupting the production of gas[88].

Concerning its energy transition, Europe still very much depends on natural gas and oil supplies, being the most dependent continent of the world on imports (55,5% dependence on imports); however, the share of renewable energy grew from 15% to 38%, especially in electrical sources[89]. In the European framework, the Megrid project was designed in 2010, aiming at creating a network of electric cables exploiting solar energy on both shores of the Mediterranean to handle the growing demand for energy in North African countries. For what concerns Italy and renewable energies, ENI is present in Tunisia for photovoltaic energy, actually having two photovoltaic power plants near Adam and Tataouine, but also for the Elmed project, consisting of a system of 250 km of electric cables connecting Tunisia and Sicily due in 2025[90].

1.4 The last ten years of Italian energy policies: where do we stand regarding energy security?

Energy security is defined by the International Energy Agency (IEA, 2024) as "the uninterrupted availability of energy sources at an affordable price". It can be long-term, meaning that investments are made with an eye on economic, political, and environmental developments. It can also be short-term, namely, the capacity of the system to remain balanced while suddenly shifting supply due to the unsafety of past investments. According to Jonathan Elkind, energy security comprises four elements: availability, reliability, affordability and sustainability[91]. Availability concerns the possibility for users to secure the consumption needed. As we witnessed recently, reliability is probably the most intricate aspect: the extent to which energy supplies are protected from *disruption.* To ensure protection, a diversification of the supply mix and chains is required, as well as the capacity to recover from shocks or suddenly switch to other suppliers. For instance, liquefied natural gas (LNG) supplies can be

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[88] Ibidem

[89] SRM. (2023). *MED & Italian Energy Report Geopolitics of energy in the Mediterranean area between international crises and new energy commodities* (p. 2). Politecnico di Torino. https://www.sr-m.it/media/files/ENEMED_2023_SINTESI_ITA.pdf

[90] Gaudino, U. (2018). *Nuovi progetti per la sicurezza energetica nel Mediterraneo: il corridoio ELMED tra Italia e Tunisia* (pp. 5–7). IsAG.

[91] Elkind, J., & Pascual, C. (2010). *Energy Security: Economics, Politics, Strategies, and Implications*. Brookings Institution Press.

stockpiled and are more reliable than gas travelling via pipelines. The supplier's reliability is also delicate: a country-supplier located in a conflict area, subjected to high political instability, or at risk of being attacked (e.g. terrorist attacks) will be less safe and reliable than other options. Affordability refers to the stability of prices that are low and equitable. This involves a transparent pricing process and the ability to predict future prices that reflect the costs well. Sustainability means ensuring that attention is paid to pollution at minimum levels and respecting all environmental norms[92].

In the post-WWII world, the Western European journey towards energy security has passed in different phases. Theoretically, according to Professor Prontera, we can distinguish three models depicting forms of state and energy security: the "partner state", which describes the years going from the 1960s to 1980s when the European Union still lacked a common energy framework, based on the principle that the state and its 'national champion' have a mutually supportive relation, and the state brings forward the national champion since through its work benefits the state and promotes public interests[93]. Externally, it does so by ensuring diplomatic communication channels to accomplish projects. In return, the company's activities help governments achieve energy security goals. This kind of diplomacy is called "triangular diplomacy" since the actors involved are governments and companies of both countries involved in the negotiations, creating government-to-government, government-to-company, and company-to-company relations[94]. The second category is the "regulatory state" that emerged in the 1990s following the liberalization of the energy sector. This model is entirely based on the effectiveness of market rules to avoid failures, and the relationship between energy companies and the state is neutral. Indeed, the diplomacy employed has a multilateral shape and promotes agreement in the energy field through the existing institutions. We can't say that Italy underwent this phase until the 2000s; the national energy company ENI and the Italian state were still very dependent on each other. ENI still played a prominent role in dealing with the Italian energy supply and managing its network[95].

Nevertheless, progressively from the 2000s, the Italian government opened the space to other energy companies. The third model is the "catalytic state", where the government and the energy companies indirectly support each other: the companies help the state in pursuing their

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[92] Sovacool, B. K. (2013). *The Routledge handbook of energy security* (chapter 1). Routledge, Taylor & Francis Group.
[93] Prontera, A. (2023). Winter is coming: Russian gas, Italy and the post-war European politics of energy security. *West European Politics*, *47*(2), 388–399. https://doi.org/10.1080/01402382.2023.2225987
[94] Ibidem
[95] Ibidem

governance objectives, and in turn, the state acts as a catalyst by allocating the resources and the incentives to ensure the realization of the companies' projects. They work via 'network or catalytic diplomacy' where states interface with private and public actors, and to achieve their goals, they facilitate specific investments to the energy companies they indirectly support. Trying to achieve energy security, the governments of Italy, France, and Germany have adopted the catalytic state model: while having liberalized and privatized the energy market, in the meantime, these governments have granted backing to various energy companies to pursue policy goals of their energy security agenda, whenever that was in line with the companies' objectives[96].

After the oil shocks of the 1970s, during the first Italian 'partner state' phase, natural gas imports became the Italian way of reducing its dependency on Middle Eastern oil, deemed unreliable from an energy security perspective[97]. The new imports came mainly from Russia, which, in the 1980s, was already 30% of the Italian energy mix and is bound to grow in the next decades[98]. In the early 2000s, exports amounted to 80 bcm per year after signing further long-term agreements between Eni and Gazprom in the 1990s[99]. There wasn't a real shift towards a regulatory form of state in the 2000s since ENI still played a significant role while being backed by the government[100]. From 2010, the turn to a catalytic state was shown by the reduction in ENI's power, securing projects for other companies, although its position remained prominent[101]. In the 2010s, Russia still accounted for 28 cm/year, being the first Italian gas supplier until the outbreak of the war in 2022[102]. Indeed, in 2021, Russia accounted for 40% (29 bcm/year) of Italy's total natural gas imports, followed by Algeria at 30%, Azerbaijan at 10%, Qatar at 10% and Libya at 4%[103]. When the Ukraine-Russian war broke out in February 2022, Italy was highly dependent on Russian gas, and the former President of the Council, Mario Draghi, had to find feasible alternatives fastly since he could not wait for

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[96] Prontera, A. (2023). Winter is coming: Russian gas, Italy and the post-war European politics of energy security. *West European Politics*, *47*(2), 388–399. https://doi.org/10.1080/01402382.2023.2225987
[97] Tonini, A. (2016). *The EEC Commission and European Energy Policy: An Historical Appraisal*. In European Energy and Climate Security. Springer.
[98] Ibidem
[99] Prontera, A. (2023). Winter is coming: Russian gas, Italy and the post-war European politics of energy security. *West European Politics*, *47*(2), 388–399. https://doi.org/10.1080/01402382.2023.2225987
[100] Ibidem
[101] Ibidem
[102] Ibidem
[103] International Trade Administration - Department of Commerce USA. (2022, November 26). *Italy -Natural Gas & Renewable Energy*. Www.trade.gov. https://www.trade.gov/country-commercial-guides/italy-natural-gas-renewable-energy

the definition of a European framework to deal with the energy crisis[104]. Here, we see the re-emergence of the 'state partner' model: triangular diplomacy was back[105]. The new strategy was built on two pillars: building new LNG terminals (allowing the country to stock them up if needed) and finding new gas partners. That required a new cooperation with ENI and Snam, the national champions. Significantly, the investments and bilateral agreements were concluded mainly with African countries: Algeria granted a new gas volume of 15 bcm/year[106], Angola 1.5 bcm/year[107], and Egypt 3 bcm/year[108]. Italy has successfully navigated through this energy crisis, emerging unscathed. Between 2022 and 2024, with all the bilateral agreements, Italy got an increased gas volume of 18 bcm/year[109].

Moreover, gas imports from Russia decreased from 40% in 2021 to 16% in 2022, indicating a prompt response by the Italian government. In 2023, the newly elected President of the Council, Giorgia Meloni, supervised the conclusion of two agreements: first, she accompanied Claudio Descalzi, ENI's CEO, in Algiers, to purchase additional gas volumes of 5 bcm/year for 4 billion euros[110]. Then, again, in January 2023, they concluded a new round of investments to increase natural gas production with Libya[111]. In general, the energy crisis triggered by Russia's invasion of Ukraine allowed the European Union to rethink energy security strategies and reconsider North Africa as a key partner, not only due to geographical proximity but also for already existing energy infrastructures connecting the two continents.

1.5 Economic interdependence: a definition

After having explained in detail the past and current situation of the Mediterranean concerning migration, energy supply and security, we will now analyze these issues from a theoretical point of view. The starting point is the concept of interdependence: all the parties involved in

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[104] Prontera, A. (2023). Winter is coming: Russian gas, Italy and the post-war European politics of energy security. *West European Politics*, 47(2), 388–399. https://doi.org/10.1080/01402382.2023.2225987

[105] Ibidem.

[106] Landini, F. (2023). *North Africa will be Italy's key gas supplier for years, Eni top executive says.* Reuters. https://www.reuters.com/business/energy/north-africa-will-be-italys-key-gas-supplier-years-eni-top-exec-says-2023-09-12/

[107] AfricaNews. (2022). *Italy signs gas deal with Angola in a bid to boycott Russia. Africanews.* https://www.africanews.com/2022/04/21/italy-signs-gas-deal-with-angola-in-a-bid-to-boycott-russia/

[108] Eni. (2022). *Eni and EGAS agree to increase Egypt's gas production and supply.* Www.eni.com. https://www.eni.com/en-IT/media/press-release/2022/04/eni-and-egas-agree-increase-egypt-s-gas-production-and-supply.html

[109] Worldview Stratford. (2023). *With Energy Deals in Africa, Italy Positions Itself as Europe's Next Gas Hub |* RANE. Stratfor. https://worldview.stratfor.com/article/energy-deals-africa-italy-positions-itself-europes-next-gas-hub

[110] Zarkik, A. (2023). *Gas Crisis in Europe: A Harbinger of Sustainable Cooperation with North Africa.* Instituto Affari Internazionali. https://www.policycenter.ma/sites/default/files/2023-09/iai2320.pdf

[111] Ibidem

an interdependent relationship have something at stake and gain mutual benefits from specializing in their production. The countries overlooking the Mediterranean Sea are already living in economic interdependence due to the elevated needs of Italy and the EU for importing energy. On the other hand, countries experiencing economic and political instability have great potential to expand the energy sector. In the following paragraphs, we are about to see how foreign direct investments positively impact economic growth and how economic growth contributes to the political stability of a country. Ultimately, the permanence of political stability discourages the emigration of skilled workers. Can this be a way of coping with the migration crisis?

From a purely economic perspective, interdependence originates from the mutual gains that parties achieve by specialization and trade of goods that otherwise they could not produce by themselves. According to Blanchard, with the geopolitical approach, we can analyze how states that trade with each other do so strategically to obtain goods needed for national defense[112]. Liberals have reflected upon the relationship between interdependence and conflicts: some believe it can increase disputes. In contrast, others think it can boost the possibilities of peace and stability[113]. The latter is in line with Mansfield and Pollins's (2003) formulation, who assume that over time, the chance of achieving economic growth through trade and foreign investments is more appealing than doing so by winning territories with war[114]. They start from Montesquieu's words: *"The natural effect of commerce is to lead to peace. Two nations that trade together become mutually dependent: if one has an interest in buying, the other has an interest in selling; and all unions are based on mutual needs."*[115] An interesting perspective is the one proposed by Alamaro (2002), which gives us an insight into how economic interdependence can play a significant role in resolving a conflict; he takes us to the Middle East, more specifically to the Israel-Palestine conflict, and he explains how peace can be feasible through the case of South Korea and Japan. Alamaro argues that the principal attempts to solve the Israeli-Palestinian conflict have been solely political: the negotiation terms cover the land, governance and security issues. However, *"true peace will never take hold as long as*

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[112] Blanchard, Jean-Marc, Ripsman, & Norrin. (1996). "Measuring economic interdependence: A geopolitical perspective." *Geopolitics and International Boundaries*, 225–246.
[113] Braddon, D. (2012). The Role of Economic Interdependence in the Origins and Resolution of Conflict. *Revue d'Économie Politique*, p. 122.
[114] Mansfield, E., & Pollins, B. (2003). *Economic Interdependence and International Conflict: New Perspectives on an Enduring Debate.* University of Michigan Press.
[115] Charles De Montesquieu, Adler, M. J., & Jean Jacques Rousseau. (1990). *The spirit of laws* (chapter 4). Encyclopaedia Britannica.

a destitute third world nation stares across a border at a prosperous modern democracy"[116].
If we look at South Korea and Japan in the 1950s, we see two countries that, since 1910, had
"deep, long-standing animosities"[117]. When, in 1965, Japan decided to support the new-born
South Korean economy by investing in its industrialization, increasing the levels of trade and
loans, and sub-contracting to South Korean companies, it led to unprecedented economic
growth. Japan could benefit from a cheap labor force, and ultimately, the interdependence
between these two countries eliminated the remaining hostilities of the past. The current
division of labor was designed on this basis: Japan exports high technology to Western
countries. At the same time, South Korea specializes in medium and low technology and
exports them to developing countries. Mutual interdependence triggers beneficial results for
the whole area: now South Korea subcontracts to other developing countries as Japan did,
boosting economic development in the region. Alamaro suggests that assuming the
independence of Palestine in the future, Israel could encourage its economic growth: *"With
Israel's active participation, the West could create a peaceful regional oasis of free enterprise
and economic prosperity (in the Palestinian areas) that could serve as a model for other Middle
Eastern countries"*[118]. Of course, every conflict differs in some respects from others. Still,
according to Alamaro, economic interdependence can pave the way to more peaceful relations
since it's in the interest of both parties to ensure that development continues.

1.6 Do foreign direct investments influence the economic growth of a country?

Many scholars have analyzed the relationship between foreign direct investments and
economic growth under different lights and considering various factors. Mamingi and Martin
(2018) explored the positive impact of foreign direct investments on economic growth in
thirteen Organization of Eastern Caribbean States countries from 1988-2013. The results
proved such a relationship; however, the country's conditions must have an adequate absorptive
capacity. In particular, infrastructure development is favored by FDI investments: usually, it
happens because the telecommunication and urbanistic sectors are positively impacted and
undergo an expansion[119]. According to Szkorupová (2014), there is a long-term causal
relationship between three variables: foreign direct investment, economic growth and exports.
Her work focuses on the positive impact of FDI in Slovakia from 2001-2010. Through the VAR

[116] Alamaro, M. (2002). *The Economics of Peace* (p. 26). Harvard Business Review.
[117] Ibidem.
[118] Ivi, p. 27
[119] Mamingi, N., & Martin, K. (2018). *Foreign direct investment and growth in developing countries: evidence from the countries of the Organisation of Eastern Caribbean States* (pp. 80–97). CEPAL Review n.114.

autoregressive model, the variables were put into the equation in the following way: GDP (expressed in market prices) = f (FDI, EXP), where FDI is represented by foreign investments stocks in a country, and exports are considered for goods and services at regular prices. Then, with the cointegration Johansen test, a positive correlation between FDI and GDP was demonstrated between exports and GDP[120] Many scholars also used regression analysis: according to the study conducted on 69 developing states for twenty years by Borensztein et al. (1998), FDI positively impacts domestic growth[121] The research performed by Dritsaki et al. (2004) showed that the positive relationship between exports and economic growth and the effect of FDI on growth and export was tested in Greece[122] According to Fabry (2001), this positive relationship was also detected in Russia and Albania[123].

1.7 The relationship between political instability and economic growth

We have seen how, according to scholars, there exists a positive causal relationship between FDI and the economic growth of a country. Instead, political instability does not enhance growth and a country's excellent macroeconomic performance. A country's macroeconomic performance is considered stable when there is the absence of "large swings in economic activity, high inflation, unsustainable debt levels and volatility in exchange rates and financial markets" (UN). Indeed, economic stability is displayed in a system with "minor fluctuations of output growth and consistently low inflation rates" (ESCWA). Political instability can negatively affect all these elements necessary for a stable economic system with average macroeconomic values. But what do we mean by political stability? The index designed by the World Bank (2021) defines political stability as the absence of violence or terrorism[124]. Various concepts can be used to determine political stability: international security scholars argue that governments that do not end their mandate represent a risk to the system's stability, making it more vulnerable to coups and unrest. From an economic perspective, a frequent *cabinet change* indicates the lack of continuous and long-sighted economic policies that are devised to produce benefits in the long run, hence being unlikely to reach stability. This last view has been

[120] Szkorupová, Z. (2014). A causal relationship between foreign direct investment, economic growth and export for Slovakia. *Procedia Economics and Finance* , *15*, pp. 123–128.
[121] Borensztein, E., Gregorio, J., Lee, J. W., 1998. How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics* 1, p. 115.
[122] Dritsaki, M., Dritsaki, Ch., Adamopoulos, A., 2004. A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth for Greece, *American Journal of Applied Sciences* 3, p. 230.
[123] Fabry, N., 2001. "The role of inward-FDI in the transition countries of Europe," *4th International Conference on Enterprise in Transition*.
[124] World Bank. (2024). *Political Stability and Absence of Violence/Terrorism.* World Bank Open Data. https://data.worldbank.org/indicator/PV.PER.RNK.UPPER

inspirational for Aisen and Veiga's (2012) research on the relationship between political instability and economic growth: their findings show that political instability shortens *"policymakers' horizons, leading to sub-optimal macroeconomic policies"*[125]. It may also lead to *"a more frequent switch of policies, creating volatility and thus, negatively affecting macroeconomic performance"*[126]. They used the GMM estimator for linear dynamic panel data models, considering 169 countries from 1960 to 2004 for five years and found that political instability (a yearly cabinet change) reduces real GDP by 2.39 percentage points[127]. Similar results were obtained by Feng (1996), who showed that repression, political polarization and instability all contribute negatively to GDP growth[128]. In 2009, Jong-a-Pin found, after comparing twenty-five political instability indicators, that the higher the degree of government instability, the lower the economy of the country's growth[129].

1.8 Does political instability lead to emigration?

From the above analysis of the relationship between instability and economic growth, we can assume that a stable political system, meaning that there is no violence and terrorism and that the government in charge lasts long enough to implement appropriate macroeconomic policies, will indeed be economically stable. Instead, citizens will have less incentive to stay in political instability and lower economic growth. Miller (1967) identified *push factors* for emigration as internal conditions that create dissatisfaction in citizens' lives, figuratively 'pushing' them to leave the country. Such internal conditions could be a lack of opportunities, low wages, no employment opportunities, high inflation and high commodity prices[130]. Dutta and Roy (2011) are among the first to extensively analyze factors that trigger international migration, using a panel of 118 developing and developed countries; they identify government stability, democratic accountability, lack of internal conflicts and ethnic-religious tensions as relevant elements in keeping a skilled workforce in their home country.[131] If such elements are present, emigration rates of skilled people will be lower. As the many countries in this study prove, this

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[125] Aisen, A., & Veiga, F. J. (2012). How does political instability affect economic growth? *European Journal of Political Economy*, pp. 151–167

[126] Ibidem.

[127] Ibidem.

[128] Feng, Y., 2001. Political freedom, political instability, and policy uncertainty: a study of political institutions and private investment in developing countries. *International Studies Quarterly* 45, pp. 271–294.

[129] Jong-a-Pin, R., 2009. On the measurement of political instability and its impact on economic growth. *European Journal of Political Economy* 25, pp. 15–29

[130] Miller, A. R., 1967. The Migration of Employed Persons to and from Metropolitan Areas of the United States, *Journal of the American Statistical Association,* Vol. 62 (320).

[131] Dutta, N., & Roy, S. (2011). Do Potential Skilled Emigrants Care about Political Stability at Home, *Review of Development Economics 15*, 442-457.

research aims at developing and developed countries[132]. However, it could provide beneficial policy advice for the developing world: these countries need human capital to sustain economic growth. Still, the valuable work of Dutta and Roy limits the research to skilled emigration.

This thesis aims to fill the gaps highlighted in the above literature review. If, through economic interdependence, we increased the level of FDI, the GDP and financial stability while ensuring political stability in developing countries, could the migration flows decrease? If emigration depends negatively on political stability, meaning that less political stability leads to higher levels of emigration, then the answer should be positive. The thesis' specific focus will concern investments in the energy sector, since as seen in paragraphs 1.3 and 1.4, it represents the most flourishing industry of the Southern shore of the Mediterranean; parallelly, across the sea, a country like Italy depends on and will continue to rely heavily on imports, and as the Russia-Ukraine war has proven, it needs to diversify further its energy agenda to achieve energy security. This is what interdependence means: mutual gains for both parties. Not surprisingly, as discussed in paragraphs 1.1 and 1.2, the same Mediterranean area has been the focus of the migration crisis of the past decades. In some cases, the same countries exporting oil and gas to Italy are the ports of departure for irregular migrants: what would happen if direct investments in the energy sector could create a steadier economy and a stable political system? The following chapters will address this question.

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[132] Ibidem.

Chapter Two: Research Design

2.1 The puzzle

As the literature review explains, the Mediterranean is a strategic area for different reasons. This research focuses on two key aspects: the energy infrastructures and their main channels and the migration routes. It has been highlighted how the geographical path of these two elements is, in many cases, similar or even identical. The migration trend that exploded in 2014 hit countries bordering the Mediterranean Sea, most notably Italy, and was driven by several previously analyzed causes. Two main reasons for migrants to leave their home countries and seek better conditions of life and opportunities are economic crises and political instability. Moreover, it has been proven that foreign direct investment, as a result of its correlation with GDP, has a positive impact on economic growth and that economic growth significantly influences a country's economic stability. By economic stability, we mean that all the significant macroeconomic values are positive and significant fluctuations in any of them are absent. The relationship between economic and political stability is two ways: they both influence each other and the literature debates over which one impacts the other the most. What has been emphasized is that political instability has adverse effects on economic growth and stability. Furthermore, political instability leads to emigration: citizens will have fewer incentives to remain in an economically and politically unstable country. In simple terms, this argument can be explained as:

Level of FDI $\longrightarrow$ Economic Development

Level of Economic Stability $\longrightarrow$ Likelihood of Emigration

Level of Political Stability $\longrightarrow$
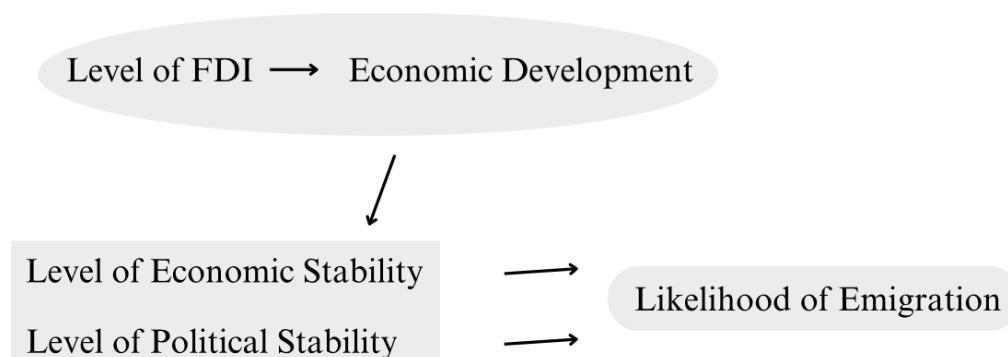
In other words, the higher the level of FDI in a country's most proficuous economic activity, the greater the economic growth, the greater economic stability, the greater political stability, and the lesser the likelihood of emigration to other countries. A negative relationship exists between the three independent variables and the dependent one. The first variable, composed

of a positive correlation between the level of FDI and economic growth, impacts the second independent variable, namely economic stability.

2.2 An analysis of the case study: Libya

North African countries' economic and political instability has been identified among the leading causes of the migration trend to Italy, which peaked in 2011 and then started to be consistently present from 2014 onwards. African countries experienced unprecedented growth in the first decade of the 2000s, when the average economic annual growth rate reached 5%, meaning that in 2010, GDP income per capita grew by 50% compared to 1995[133]. This trend slowed down between 2009 and 2011,[134] and the migration crisis broke out between 2011 and 2014. Furthermore, after the Arab Spring that shook the Middle East and North Africa (MENA) region in 2011, several countries underwent toppling of the regimes, compromising the political stability of the states. In performing our quantitative analysis, we will hence consider the period ranging from the year 2000 to the year 2022, to provide a comprehensive vision and examination of the migration phenomenon from Libya to Italy related to Italian FDI and economic and political stability in Libya. This time span allows us to verify the interactions between periods in which emigration from Libya was lower, and economic and political stability were higher, and periods in which emigration has been more consistent with lower levels of political and economic stability in Libya. It is relevant to ascertain that other factors, or alternative independent variables, that other scholars could deem relevant in determining the migration's causes didn't undergo substantial changes during the timeframe 2000-2022. These alternative independent variables are socio-cultural factors and climate change.

By socio-cultural factors we mean all the aspects related to the structure, the features of a society and its cultural ways[135], hence the central detected culture and education, the population, religion, social classes and human development. None of these values has undergone relevant variations, as explained in Table 1.

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[133] Ibidem
[134] Ibidem
[135] *socioculturale - Treccani*. (n.d.). Treccani. Retrieved March 30, 2024, from https://www.treccani.it/vocabolario/socioculturale/#

Table 1: Controlling for Alternative Independent Variables *(CIA World Factbook, UN Development Programme 2024[136])*

Socio-cultural variable	2000-2010	2011-2022
Population	5,1 mln - 5,87 mln	6,2 mln - 6,8 mln
Ethnic groups	92% Arabs, 5% Berbers	92% Arabs, 5% Berbers
Religion	97% Sunni Muslims	96.6% Sunni Muslims
UN Education Index	0.63 (average)	0,61 (average)
Human Development Index	0,746 - 0,777	0,766 - 0,746
Official language	Arabic	Arabic

Climate change is a more complex matter: African countries in the past twenty years have been experiencing extreme atmospheric events, affecting agricultural production and leading to more hunger and poverty[137]. Libya has witnessed a significant rise in temperatures, estimated at 2.2°C by 2040[138]. However, the temperatures since the 2000s have been attested around the same values,[139] and severe fluctuations were absent, as explained by Chart 5. Moreover, among the African countries, Libya doesn't negatively stand out as one of those in the worst situation: South Sudan is deemed as the first most affected country by climate change, in particular by floods and droughts[140], followed by Madagascar, Somalia, Sudan, Chad, and the Sahel region[141]. Hence, it cannot be stated that climate change is a variable directly impacting Libyan emigration to Italy. Indeed, the influence of climate change could be amplified when a country's economic and political stability are threatened. For instance, the permeability of borders can increase if no effective government controls its territory, and immigration from countries where climate change has had a significant impact could rise.

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[136] *Country Summary*. (n.d.). CIA.gov; Central Intelligence Agency. https://www.cia.gov/the-world-factbook/countries/libya/summaries/;
United Nations Development Programme. (2024). *Libya*. https://www.undp.org/sites/g/files/zskgke326/files/2024-03/specific-data_libya-human-development-report.pdf;
[137] World Food Program USA. (2023, April 21). *The 8 Countries Most Affected by Climate Change*. World Food Program USA. https://www.wfpusa.org/articles/countries-most-affected-by-climate-change/
[138] UNICEF, IOM, & FAO. (2022). *UN Climate Change Fact Sheet AVERAGE TEMPERATURE RISE IN LIBYA* (COP27, Ed.). https://libya.iom.int/sites/g/files/tmzbdl931/files/documents/UN%20Climate%20Change%20Factsheet%20Libya.pdf
[139] Ibidem
[140] World Food Program USA. (2023). *The 8 Countries Most Affected by Climate Change*. https://www.wfpusa.org/articles/countries-most-affected-by-climate-change/
[141] Ibidem

Chart 5 "Observed average annual mean temperature of Libya 2000-2021" (*UN Climate Change Facts Sheet, 2022* [142])
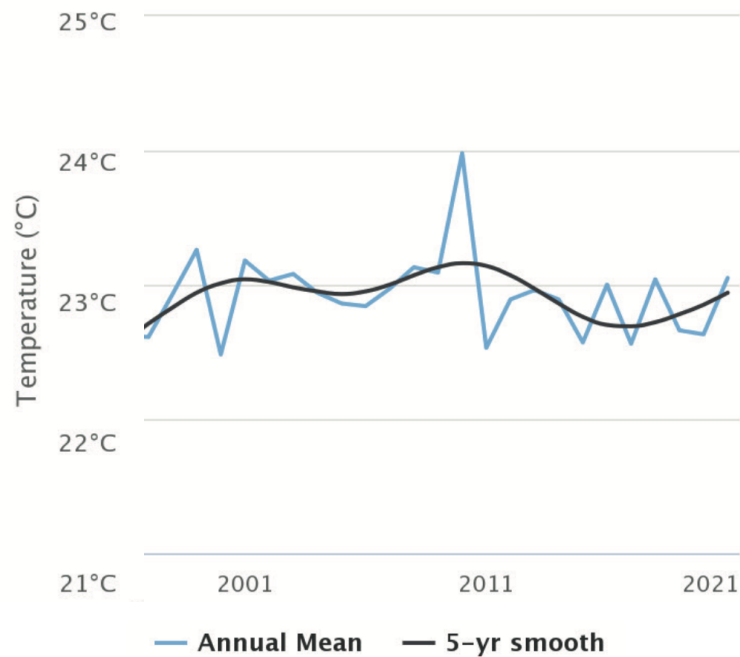
2.3 Concept definitions and operationalization

In verifying the hypothesis, three sets of tests will be performed for each period considered. First, the impact of Italian outward foreign direct investments on Libya's real GDP, indicating economic development, will be assessed. Studies have already proven a positive correlation between the two factors under examination; however, this correlation will be verified for our case study. Subsequently, the negative relationship between economic stability and emigration and political stability and emigration will be tested in the case study concerning Libya. Before going into the practical part of this study, it is essential to define the key concepts, explain why they are relevant, and operationalize the variables. It must be noted that the data collection process was highly complex due to the fragmentation of information that, in some cases, was unavailable. For instance, the total inward stocks of foreign direct investment in Libya from 2013 to 2022 were absent either in official reports of the country or other official sources of different countries due to the severe political instability affecting the country in the past decade. Also, the data accounting for Libya's unemployment rates for 2011-2022 were unavailable. Hence, a prediction was made through the ILO Statistical Model by the International Labor

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[142] UNICEF, IOM, & FAO. (2022). *UN Climate Change Fact Sheet AVERAGE TEMPERATURE RISE IN LIBYA* (COP27, Ed.). https://libya.iom.int/sites/g/files/tmzbdl931/files/documents/UN%20Climate%20Change%20Factsheet%20Liby a.pdf

Organization and reported by the World Bank. Those are pragmatic adjustments often needed when operating information on countries like Libya that are living or have lived profound political and economic stability issues.

2.3.1 Foreign Direct Investment Stocks from Italy to Libya

Starting from FDI, a report from OECD defines them as "*a category of cross-border investment in which an investor resident in one economy establishes a lasting interest in and a significant degree of influence over an enterprise resident in another economy.*"[143] FDI has numerous positive effects on both the economies of the receiving and investing countries. It directly or indirectly impacts different aspects related to the economic growth of the receiving country: the most direct effect is on the growth rate of per capita GDP, but it also has a positive impact on the unemployment rate, human capital, foreign trade, the level of technological know-how and domestic investments[144]. Moreover, the presence of foreign enterprises can increase the level of trust for the receiving country and market; hence, it will possibly attract other investors, boosting the productive capital[145]. The transfer of technological know-how occurs through the transfer of R&S in the receiving country, sharing methods, competencies and knowledge[146]. FDI also increases export levels since foreign subsidiaries will export to other subsidiaries' companies residing in other markets in different countries across the globe[147].

For our analysis, we must consider FDI stocks and not flows since stocks are the best way to measure "the total level of direct investment at a given time"[148]. The outward FDI stock represents "the value of the resident investors' equity in and net loans to enterprises in foreign economies"[149]. Assessing the total inflow of FDI in Libya for the twenty years under consideration would be impossible due to the lack of reliable data after 2012. Hence, it was decided to consider the data concerning Italian outward FDI stocks collected by the Bank of Italy and by the Istat and ITA reports on foreign trade of 2014, both reliable and valid sources. Moreover, this choice is in line with the objectives of our work. By evaluating the level of economic interdependence between Libya and Italy and assessing the impact that Italian FDI

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[143] OECD. (2022). *Foreign direct investment (FDI)*. Www.oecd-Ilibrary.org. https://www.oecd-ilibrary.org/finance-and-investment/foreign-direct-investment-fdi/indicator-group/english_9a523b18-en#:~:text=Foreign%20direct%20investment%20(FDI)%20is

[144] Loungani, P., & Razin, A. (2001, June). *How Beneficial Is Foreign Direct Investment for Developing Countries?* Finance and Development | F&D. https://www.imf.org/external/pubs/ft/fandd/2001/06/loungani.htm

[145] Ibidem

[146] Ibidem

[147] Ibidem

[148] OECD. (2022). *Foreign direct investment (FDI)*. Www.oecd-Ilibrary.org. https://www.oecd-ilibrary.org/finance-and-investment/foreign-direct-investment-fdi/indicator-group/english_9a523b18-en#:~:text=Foreign%20direct%20investment%20(FDI)%20is

[149] Ibidem

can have on the Libyan economy, we can verify if a correlation exists between economic and political stability on the one hand and emigration from Libya on the other. The economic interdependence between Italy and Libya has also manifested itself through the intense trade relation that exists between the two countries: in 2021, Italy was the second country from which Libya was importing (23,17%)[150], and Italy was the first market of export for Libya (23,47%)[151]. This trend was consistent throughout the period under examination; however, it is not the specific focus of our study; thus, it will not be a part of it, but it was deemed relevant to mention trade when referring to economic interdependence between Libya and Italy.

The focus of this study for what concerns FDI's industry of destination is the most proficuous economic market of the country under consideration. However, the diversification of FDI by industry was unavailable for the period we are analyzing, and it is difficult to find reliable data that includes both the FDI outward stocks from Italy to Libya and the diversification by industry. Since the Libyan economy is based 88% on petroleum, the economic relationship between Italy and Libya is mainly based on Libya's crude oil export. Then, with Italy's export of refined oil to Libya[152], it is safe to assume that the sector of destination of FDI is the energy market. In Table 2, FDI outwards stocks from Italy to Libya are reported to be US million dollars.

Table 2 "Italian FDI outward stocks to Libya - in US million $" *(Banca d'Italia 2023[153], Istat e ITA annual report 2014[154])*

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[150] The World Atlas. (2022). *The Atlas of Economic Complexity by @HarvardGrwthLab*. Atlas.cid.harvard.edu. https://atlas.cid.harvard.edu/explore?country=126&queryLevel=location&product=3&year=2021&tradeDirectio n=import&productClass=HS&target=Product&partner=undefined&startYear=2000

[151] Ibidem

[152] Osservatorio Economico, Info Mercati Esteri. (2024). *Scheda di Sintesi: Libia*. https://www.infomercatiesteri.it/public/osservatorio/schede-sintesi/libia_109.pdf

[153] Banca d'Italia. (2023). *Bank of Italy - Direct investment by counterpart country*. Www.bancaditalia.it. https://www.bancaditalia.it/statistiche/tematiche/rapporti-estero/investimenti-diretti/index.html?com.dotmarketing.htmlpage.language=1

[154] Istat. (2014). *COMMERCIO ESTERO E ATTIVITÀ INTERNAZIONALI DELLE IMPRESE* (ITA, Ed.). https://www.istat.it/it/files/2014/07/Istat-Ice-2014.pdf (pg. 88)

Years	FDI outward stocks to Lybia (in euros)
2000	23.931
2001	20.599
2002	7.565
2003	510.153
2004	286.000.000
2005	128.000.000
2006	474.000.000
2007	3.947.000.000
2008	5.888.000.000
2009	1.165.000.000
2010	2.722.000.000
2011	131.000.000
2012	2.509.000.000
2013	79.710.533
2014	212.164.956
2015	317.618.250
2016	270.675.000
2017	286.253.000
2018	233.537.000
2019	356.793.138
2020	393.339.100
2021	382.012.100
2022	347.490.000

Chart 7 "Italian FDI outward stocks to Libya - in US million $" *(Banca d'Italia 2023[155], Istat e ITA annual report 2014[156])*

FDI outward stocks to Lybia (in euros)
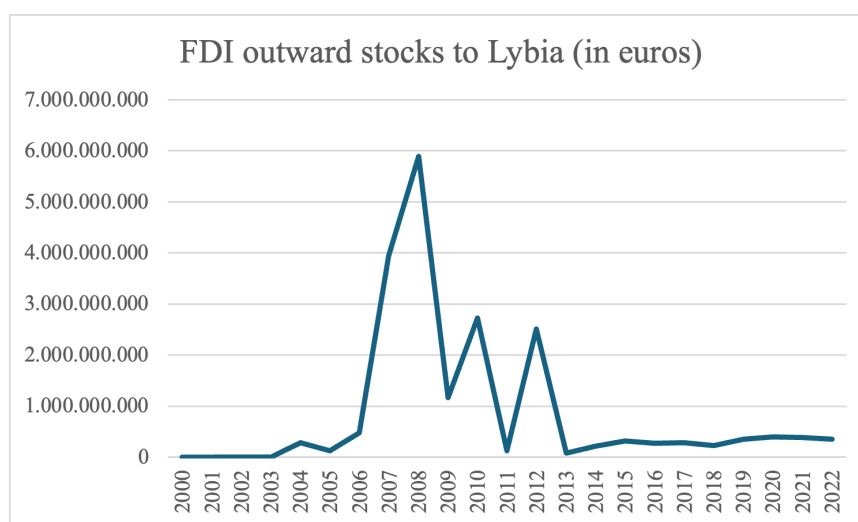
2.3.2 Libya's Economic Development

For economies that are close to subsistence[157], the correct term to indicate the "process by which a nation's wealth is increased over time" is economic development. Libya falls under this category since, according to the UN, it is a developing country[158]. To measure its economic development in the period 2000-2022, the data from the World Bank on GDP at current prices will be employed, as shown below. These operationalized data are both valid and reliable.

[155] Banca d'Italia. (2023). *Bank of Italy - Direct investment by counterpart country*. Www.bancaditalia.it. https://www.bancaditalia.it/statistiche/tematiche/rapporti-estero/investimenti-diretti/index.html?com.dotmarketing.htmlpage.language=1

[156] Istat. (2014). *COMMERCIO ESTERO E ATTIVITÀ INTERNAZIONALI DELLE IMPRESE* (ITA, Ed.). https://www.istat.it/it/files/2014/07/Istat-Ice-2014.pdf (pg. 88)

[157] *Britannica Money*. (2024, February 14). Www.britannica.com. https://www.britannica.com/money/economic-growth

[158] United Nations. (2014). *Country Classification Data sources, Country Classifications and Aggregation Methodology Data Sources* (pp. 143–150). United Nations. https://www.un.org/en/development/desa/policy/wesp/wesp_current/2014wesp_country_classification.pdf

Table 3 "GDP current prices (billions of US dollars)" *(International Monetary Fund[159])*

Years	GDP current prices ((billions of US dollars)
2000	39,50
2001	35,21
2002	21,13
2003	27,03
2004	34,05
2005	48,85
2006	60,1
2007	68,21
2008	86,8
2009	60,81
2010	75,39
2011	48,17
2012	92,54
2013	75,35
2014	57,37
2015	48,72
2016	49,91
2017	67,15
2018	76,69
2019	69,28
2020	46,92
2021	35,22
2022	37,80
2023	40,19
2024	43,95

[159] IMF. (2023). *https://www.imf.org/external/datamapper/profile/LBY*. Www.imf.org. https://www.imf.org/external/datamapper/profile/LBY

Chart 7 "GDP current prices (billions of US dollars)" *(International Monetary Fund[160])*

GDP current prices
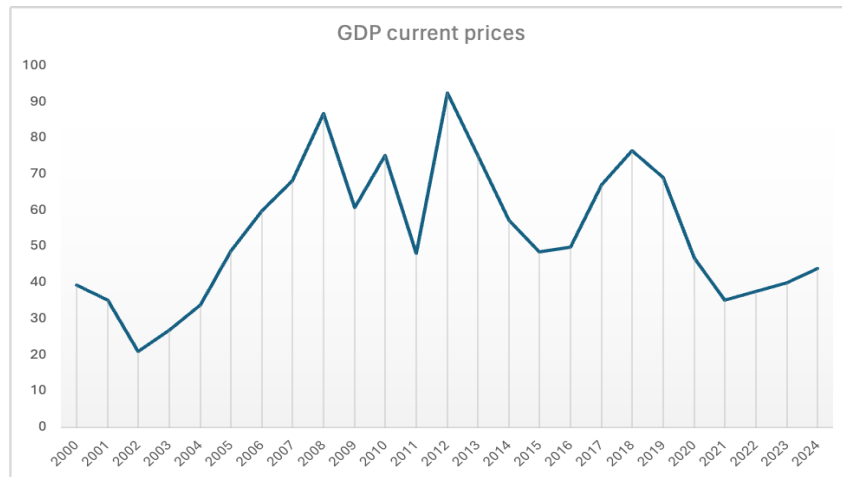
2.3.4 Economic Stability of Libya

Various factors need to be considered to assess Libya's economic stability. Economic stability means the absence of significant fluctuations in the central macroeconomic values. Hence, we will evaluate GDP fluctuations at current prices, inflation at consumer prices, and the current account balance. All data are retrieved from the World Bank or the IMF.

Table 4 "Inflation, consumer prices (annual %) - Libya" *(The World Bank, International Monetary Fund[161])*

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[160] Ibidem
[161] World Bank. (2022a). *World Bank Open Data*. World Bank Open Data. https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2022&locations=LY&start=2000

Years	Inflation - consumer prices (annual %)
2000	-2,9
2001	-8,8
2002	-9,8
2003	-2,2
2004	-2,2
2005	2,7
2006	1,5
2007	6,3
2008	10,4
2009	2,5
2010	2,8
2011	15,5
2012	6,1
2013	2,6
2014	2,4
2015	10,4
2016	25,9
2017	25,8
2018	13,2
2019	-2,2
2020	1,4
2021	2,9
2022	4,5

Chart 8 "Inflation, consumer prices (annual %) - Libya" *(The World Bank, International Monetary Fund[162])*
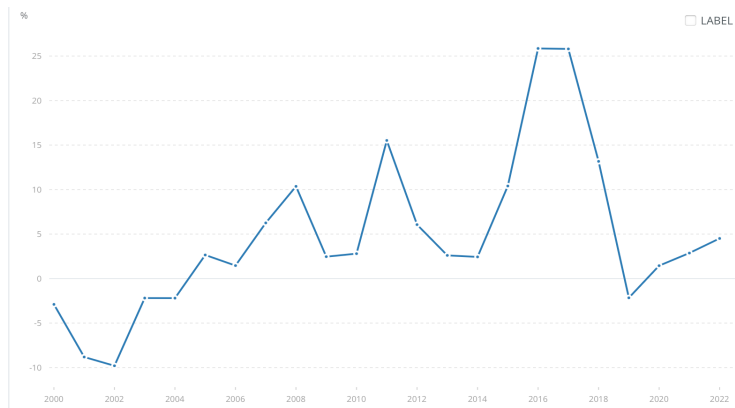
Table 5 "Current Account Balance (Balance of Payments, current US billion dollars) - Libya" *(The World Bank, International Monetary Fund[163])*

Years	Current Account balance (current US billion dollars)
2000	6,27
2001	3,33
2002	6,94
2003	3,4
2004	4,62
2005	14,95
2006	22,17
2007	28,51
2008	35,7
2009	9,38
2010	16,8
2011	3,19
2012	23,84
2013	9,60
2014	-19,03
2015	-9,35
2016	-4,71
2017	4,43
2018	11,28
2019	4,82
2020	-4,78
2021	5,68

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[162] Ibidem
[163] World Bank. (2022b). *World Bank Open Data*. World Bank Open Data. https://data.worldbank.org/indicator/BN.CAB.XOKA.CD?end=2021&locations=LY&start=2000

Chart 9 "Current Account Balance (Balance of Payments, current US billions of dollars) - Libya" *(The World Bank, International Monetary Fund[164])*
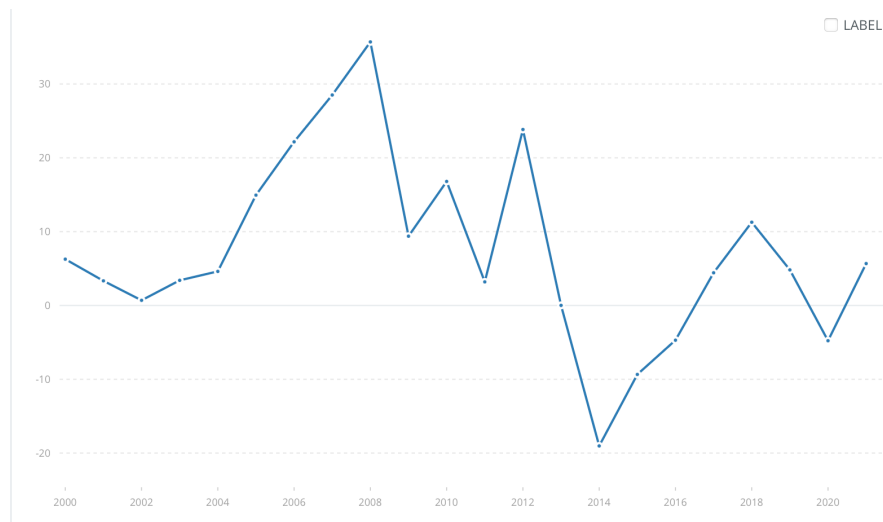
2.3.5 Libya's Political Stability

Political stability is measured by the World Bank by the 'absence of violence or terrorism'[165], and violence is also negatively correlated with GDP growth[166]. Thus, frequent violent episodes will impact economic and political stability. From 2011 onward, violence and instability increased, signaled by negative numbers in Table 7. Libya underwent two civil wars: the first one took place between February and October 2011, and the second one occurred between May 2014 and October 2020; it ended with a cease-fire agreement that was reached between the opposing parties[167]. The first civil war happened in the Arab Springs framework: Qaddafi's loyal armed forces clashed with the rebels who sought to overthrow the regime. The second civil war saw on one side the House of Representatives and the Libyan National Army (LNA) controlled by General Haftar; on the other side, the internationally recognized government based in Tripoli, first represented by the General National Congress and eventually by the Government of National Accord (GNA). The resulting

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[164] Ibidem
[165] The World Bank. (n.d.). *Glossary | DataBank*. Databank.worldbank.org. https://databank.worldbank.org/metadataglossary/worldwide-governance-indicators/series/PV.EST
[166] Institute for Economics & Peace. (2018). *THE ECONOMIC VALUE OF PEACE 2018: Measuring the Global Economic Impact of Violence and Conflict*. p. 4-5 https://www.economicsandpeace.org/wp-content/uploads/2020/08/Economic-Value-of-Peace-2018.pdf
[167] Al-Shadeedi, H., van Veen, E., & Harchaoui, J. (2020). *The main phases of the Libyan civil war*. Clingendael Institute. https://www.jstor.org/stable/resrep24673.8

agreement at the end of the second Libyan civil war established the Government of National Unity (GNU)[168].

Table 7 "Estimate of Political Stability and Absence of Violence/Terrorism", *World Bank[169]*

Year	Estimate of political stability and absence of violence/terrorism
2000	-0.3
2002	-0.1
2003	0.1
2004	0.1
2005	0.4
2006	0.4
2007	0.7
2008	0.8
2009	0.8
2010	0.0
2011	-1.3
2012	-1.6
2013	-1.8
2014	-2.4
2015	-2.2
2016	-2.3
2017	-2.4
2018	-2.4
2019	-2.6
2020	-2.5
2021	-2.3
2022	-2.2

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[168] Ibidem
[169] World Bank. (2022). *Worldwide Governance Indicators | DataBank*. Databank.worldbank.org. https://databank.worldbank.org/source/worldwide-governance-indicators/Series/PV.EST

Chart 11 "Estimate of Political Stability and Absence of Violence/Terrorism", *World Bank*[170]

Source: Worldwide Governance Indicators
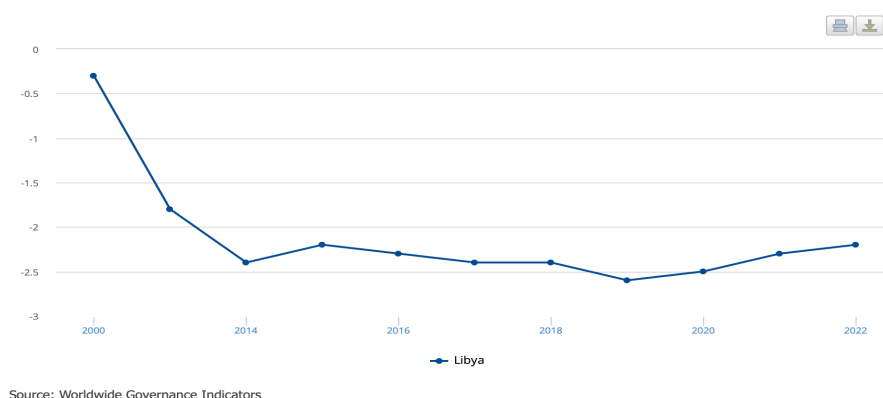
The second indicator to be considered for our analysis is the "Cabinet Change" value[171] to be intended as the "number of times in a year in which a new premier is named and/or 50% of the cabinet posts are occupied by new ministers"[172]. An index based on the Cabinet Change measure was created to measure the government stability in Libya, assigning a numerical value corresponding to the level of governmental stability.

Index of governmental stability:

0: no change in one year

1: one change in less than a year

2: more than one government at the same time in the country *(2 at the same time)*

3: more than two governments at the same time in the country *(3 at the same time)*

If we consider the first phase, 2000-2011, when Qaddafi held political power in practice, all the cabinets lasted, on average, four years, since the General People's Committee (GPCO), Libya's executive branch, had three Secretary-General who governed until 2011. Imbarek Shamekh was in charge from March 2000 to June 2003 (three years), then substituted by Shukri Ghanem, who was in charge for almost three years from June 2003 to March 2006, and finally, Baghdadi Mahmudi, who was in charge as Secretary General for five years and a half, from March 2006 to August 2011[173]. If we had to apply the Cabinet Index, assigning the value of 0

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[170] World Bank. (2022). *Worldwide Governance Indicators | DataBank*. Databank.worldbank.org. https://databank.worldbank.org/source/worldwide-governance-indicators/Series/PV.EST

[171] Aisen, A., & Jose Veiga, F. (2011). *How Does Political Instability Affect Economic Growth?; by Ari Aisen and Francisco Jose Veiga; IMF Working Paper 11/12; January 1, 2011*. p. 5-7 https://www.imf.org/external/pubs/ft/wp/2011/wp1112.pdf

[172] Ibidem

[173] Bruce St. John, R. (2023). *The Historical Dictionary of Libya* (sixth). Rowman & Littlefield.

for no change, the years from 2000 to 2011 would all be coded as 0s. Then, after the protests began in 2011, Libya experienced a transitional phase characterized by significant political instability and fragmentation, with various factions and governments vying for power; several administrations emerged during this period, each claiming legitimacy and control over different parts of the country[174]. Hence, we can't identify a single government having a mandate for several years. After the death of Qaddafi in 2011, the National Transitional Council (NTC) was created to ease the regime transition. Then in 2012 the General National Congress (GNC) was instituted with the aim of drafting a new constitution. In 2014 the House of Representatives (HoR) installed its own government that will overlap and collide with other factions.[175]. Indeed, after the 2014 elections, the government was split between the HoR and the National Salvation Government (NSG), a rebel government based in Tripoli[176]. Then, in 2016, the Government of National Accord (GNA) was founded, gaining international recognition. Both the GNA and the NSG were based in Tripoli. In 2021, the Government of National Unity (GNU) was created as successor of the GNA with the support of the HoR in Tobruk[177]. The successions of the rival governments between 2011 and 2023 can be summarized as follows[178]:

Years	Coalition	Prime Ministers - duration	Date
2011	National Transitional Council (NTC)	Mahmoud Jibril (232 days)	5 March 2011 - 23 October 2011
2011	National Transitional Council (NTC)	Ali Tarhouni (32 days)	23 October 2011 - 24 November 2011
2012	National Transitional Council (NTC)	Abdurrahim El-Keib (365 days)	24 November 2011 - 14 November 2012
2012-2014	General National Congress (GNC)	Ali Zeidan (1 yearm 117 days)	14 November 2012 - 11 March 2014
2014-2016	House of Representatives (HoR)	Adullah al-Thani (2 years and 25 days)	11 March 2014 - 5 April 2016
2014	House of Representatives (HoR)	Ahmed Maiteeq (15 days)	25 May 2014 - 9 June 2014
2014-2015	National Salvation Government (NSG)	Omar al-Hassi (206 days)	6 September 2014 - 31 March 2015
2015-2016	National Salvation Government (NSG)	Khalifa al-Ghawil (1 year and 5 days)	31 March 2015 - 5 April 2016
2016-2017	National Salvation Government (NSG)	Khalifa al-Ghawil (153 days)	14 October 2016 - 16 March 2017
2016-2021	House of Representatives (HoR)	Abdullah al-Thani (4 years and 344 days)	5 April 2016 - 15 March 2021
2016-2021	Government of National Accord (GNA)	Fayez al Serraj (4 years and 306 days)	5 April 2016 - 15 March 2021
2021-present	Government of National Union (GNU)	Abdul Hamid Dbeibeh (3 years and 18 days)	15 March 2021 - incumbent
2022	National Salvation Government (NSG)	Fathi Bashagha (1 year and 60 days)	March 2022 - May 2023
2023	National Salvation Government (NSG)	Osama Hammad (both PM and Min. of Finance)	May 2023 - incumbent

[174] Ibidem

[175] Britannica. (n.d.). *Libya - Emergence of the Transitional National Council in Benghazi*. Encyclopedia Britannica. https://www.britannica.com/place/Libya/Emergence-of-the-Transitional-National-Council-in-Benghazi

[176] Ibidem

[177] Bourhrous, A. (2022, April 29). *Libya's electoral limbo: The crisis of legitimacy | SIPRI*. Www.sipri.org. https://www.sipri.org/commentary/blog/2022/libyas-electoral-limbo-crisis-legitimacy

[178] Britannica. (n.d.). *Libya - Emergence of the Transitional National Council in Benghazi*. Encyclopedia Britannica.

Table 8 shows the government stability index for the years 2000-2022:

Table 8 "Index of Government Stability"

Years	Index of Government Stability
2000	0
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0
2011	1
2012	1
2013	0
2014	3
2015	3
2016	3
2017	3
2018	2
2019	2
2020	2
2021	3
2022	2

Chart 12 "Index of Government Stability"
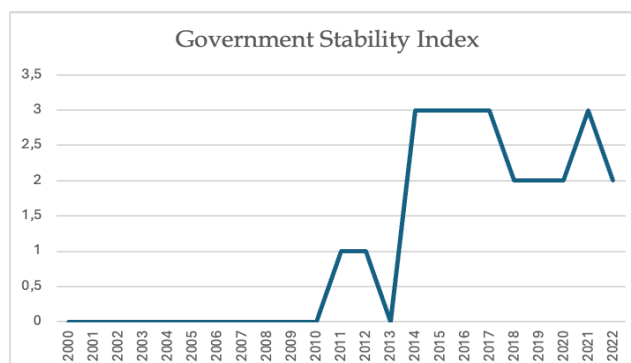
2.3.6 Level of Emigration from Libya to Italy

Libya has traditionally been considered both a country of destination for migrants originating from Central and Sub-Saharan Africa and a middle-way stop for those wanting to reach Europe[179]. After 2011, this conception changed, and Libya became Italy and Europe's leading country of departure. To measure the migration reaching Italy from Libya, the number of arrivals to Italy from the year 2000 up to 2022 will be considered. The retrieval of the data under examination was problematic since the number of people departing from Libya is not systematically mentioned by official state sources[180], such as the Ministry of Interior Affairs and the Ministry of Foreign Affairs. Hence, the data for the period 2012-2022 were taken from a joint report drafted by Istituto per gli Studi di Politica Internazionale (ISPI) and the Analysis and Programming Unit of the Italian Ministry of Foreign Affairs[181]. 2010 was found in a report by the European University Institute, Robert Schuman Centre for Advanced Studies, published in 2011[182]. The data related to the period 2000-2006 were found on an immigration Centro Studi per la Politica Internazionale (CeSPI) report of 2007[183]. For the years 2008-2009 we considered the data regarding the landings in Sicily, since it is attested that the main point of departure for those years was Libya, due to strict policies on emigration that were enforced in Tunisia since 2004[184].

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[179] Istituto Affari Internazionali. (2015). *Migration Through and From Libya, Changing Migration Patterns in the Mediterrenean*. https://www.jstor.org/stable/pdf/resrep09850.9.pdf

[180] It is only incidentally reported for the years 2018 and 2019 in the "Cruscotti Statistici" by the Minister of Interior Affairs (MIA) (v.d. *http://www.libertaciviliimmigrazione.dlci.interno.gov.it/it/documentazione/statistica/cruscotto-statistico-giornaliero*) the percentage of migrants departing from Libya, since around half of the total migrants that landed in Italy in those years departed from Libya, but the data about Libya as a departing spot are absent for all the other years. Moreover, in the statistic section of the MIA the official reports begin in 2017 and go up to the present, but there is no trace of the reports of the years before, probably due to the lack of systematicity in collecting the data.

[181] ISPI, & Unità di Analisi e Programmazione (MAECI). (2023). *Migranti e migrazioni in Italia: la dashboard con tutti i numeri*. ISPI. https://www.ispionline.it/it/pubblicazione/migranti-e-migrazioni-in-italia-la-dashboard-con-tutti-i-numeri-126051

[182] Di Bartolomeo, A., Jaulin, T., & Perrin, D. (2011). *Consortium for Applied Research on International Migration - Libya Migration Profile*. European University Institute, Robert Schuman Centre for Advanced Studies.

[183] Coslovi, L. (2007). *Brevi note sull'immigrazione via mare in Italia e in Spagna*. CeSPI.

[184] Ibidem

Table 9 "Migration from Libya to Italy"[185]

Years	Migration from Libya to Italy
2000	1500
2001	3127
2002	9850
2003	5927
2004	13.600
2005	21.605
2006	20.980
2007	10.000
2008	30.000
2009	11.000
2010	1468
2011	26000
2012	4900
2013	27500
2014	141293
2015	139777
2016	162732
2017	108409
2018	12977
2019	4122
2020	13012
2021	31556
2022	53310

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[185] ISPI, & Unità di Analisi e Programmazione (MAECI). (2023). *Migranti e migrazioni in Italia: la dashboard con tutti i numeri*;
Di Bartolomeo, A., Jaulin, T., & Perrin, D. (2011). *Consortium for Applied Research on International Migration - Libya Migration Profile*. European University Institute, Robert Schuman Centre for Advanced Studies;
Coslovi, L. (2007). *Brevi note sull'immigrazione via mare in Italia e in Spagna*. CeSPI.

All the data are both valid and reliable since the sources are either official data banks, such as the World Bank, the CIA World Factbook, the International Monetary Fund, Istat, or national banks as the Bank of Italy, or official reports conducted by one of the most prestigious Italian Think Tanks, namely ISPI, and the Crisis Unit of the Italian Ministry of Foreign Affairs.

2.4 Methodology

The Vector Autoregressive Model (VAR) will be employed to test our hypotheses. The VAR Model is an econometric model used to analyze the dynamic relationship between multiple variables over time[186]. It can be utilized to assess the correlation between our variables, starting from Italian FDI stocks and Libya's GDP growth, as well as for economic stability, emigration and political stability and emigration in Libya. Utilizing a Vector Autoregression (VAR) model to evaluate the correlation between FDI and Gross Domestic Product GDP growth provides a comprehensive approach to understanding their dynamic relationship over time. Unlike simple correlation analysis, which captures static associations between variables, VAR modelling accounts for the mutual dependencies and feedback effects between FDI and GDP growth. By incorporating lagged values[187] of both FDI and GDP growth, VAR modelling captures how changes in FDI levels influence GDP growth and vice versa, allowing for examining short- and long-term effects.

Additionally, VAR models facilitate the identification of impulse responses, explaining the magnitude and duration of the impact of shocks in FDI on GDP growth and vice versa[188]. In addition, the VAR model is ideal for assessing whether more economic stability in a country reduces emigration. VAR modelling provides insights into the temporal patterns and interactions shaping migration decisions by analyzing the relationships among economic stability indicators such as GDP, unemployment, inflation, the balance of payments, and emigration rates over time[189]. The same applies to political stability. The strengths of this model are that it captures dynamic relationships and interactions of the variables over time and controls lagged effects, meaning that it accounts for the time it takes for changes in one variable to affect the other variable. Moreover, it enables the estimation of impulse response functions that show the response of our dependent variable to a one-time shock in the independent

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[186] *An Introduction to Vector Autoregression (VAR) · r-econometrics*. (2018). R-Econometrics.com. https://www.r-econometrics.com/timeseries/varintro/
[187] In the context of time series analysis, lagged values refer to the past variables of the values of the variables in the model
[188] *An Introduction to Vector Autoregression (VAR) · r-econometrics*. (2018). R-Econometrics.com. https://www.r-econometrics.com/timeseries/varintro/
[189] Ibidem

variable (i.e. political stability and economic stability indicators), helping the assessment of long-time effects on the dependent variable (i.e. emigration). However, considering its shortcomings, the VAR Model is not optimal for establishing causal links between the variables since inferring causality would require considering other factors and potential endogenous issues.

Chapter Three: Analysis and Assessments

3.1 The rationale of the findings

The VAR model is designed to grasp the dynamic interactions between the variables. Indeed, through this quantitative analysis we are able to assess the positive correlation between FDI and GDP, the negative correlation between economic-political stability and migration, and the impact of economic and political factors on migration. In the following paragraphs, the main findings of this quantitative analysis carried out using the statistical software R, will be analyzed for the period 2000-2022, but some insights about the analysis of the period 2011-2022 will also be included because of their interest and significance.

3.2 Measuring FDI and GDP in the period 2000-2022

The VAR model analyses here the dynamic interactions between the Italian foreign direct investments (FDI) in Libya and the Libyan gross domestic product (GDP), with a sample size of 17 observations and six lagged values for each variable. The relationship between these two variables is complex, alternating positive and negative effects through the different lagged values. Some lagged values display statistical significance (p-value < 0.05, and in some cases < 0.1), suggesting a significant relationship. In the FDI equation:

FDI = FDI.l1 + GDP.l1 + FDI.l2 + GDP.l2 + FDI.l3 + GDP.l3 + FDI.l4 + GDP.l4 + FDI.l5 + GDP.l5 + FDI.l6 + GDP.l6 + const + trend,

As shown in table 10, FDI l1 (with a nearly significant p-value of 0.0696), FDI l3, and FDI l5 all positively impact the FDI of the following periods, while FDI l2, FDI l4 and FDI l6 have negative impacts. This suggests a strong FDI's autoregressive behaviour: the past values predict future values. The same stands for GDP.

Table 10 "FDI equation for VAR model assessing FDI and GDP"

	Coefficient	Standard Error	t-value	P-value
FDI l1	2.818	1.017	2.770	0.0696 .
GDP l1	-2.736	1.007	-2.717	0.0727 .
FDI l2	-1.928	6.751	-2.855	0.0648 .
GDP l2	2.408	7.607	3.166	0.0506 .
FDI l3	2.786	1.017	2.738	0.0714 .
GDP l3	-3.146	1.031	-3.053	0.0553 .
FDI l4	-2.193	8.703	-2.520	0.0862 .
GDP l4	1.670	7.474	2.234	0.1116
FDI l5	2.070	7.562	2.738	0.0715 .
GDP l5	-1.770	6.884	-2.571	0.0824 .
FDI l6	-9.214	5.007	-1.840	0.1630
GDP l6	1.800	8.661	2.078	0.1293
constant	1.070	3.707	2.886	0.0632 .
trend	-5.205	1.970	-0.264	0.8087

Moreover, analyzing the direct impact of FDI on GDP, the FDI showed both positive and negative effects on GDP in the different lags considered in the model. For instance, the effect of FDI l2 on GDP l2 is positive and significant, with a coefficient of 2.408 and a p-value of 0.0506. This indicates that an increase in FDI tends to be followed by a significant increase in GDP in the subsequent period. In addition, still considering the FDI equation, FDI l6 positively impacts GDP l6, with a 1800 coefficient and a p-value of 0.1293. Hence, this positive coefficient indicates a potential increase in FDI following higher GDP six periods earlier, even though the relationship is not statistically significant. Despite this result does not reach the standard statistical significance threshold, it indicates a positive trend. In addition, positive coefficients in various time lags (FDI l1, FDI l3, FDI l5) potentially indicate that FDIs have an immediate impact and continue to influence GDP over time. This suggests a dynamic and prolonged relationship between foreign capital inflows and domestic economic activity, which is limited by the lack of statistical significance. Moving to assessing covariance and residual correlation, the model shows that both are high and significant, as shown in Table 11 and 12.

Table 11 "Covariance for VAR model assessing FDI and GDP"

COVARIANCE	FDI	GDP
FDI	1,46E+21	1,45E+16
GDP	1,45E+16	1,89E+11

Table 12 "Correlation for VAR model assessing FDI and GDP"

CORRELATION	FDI	GDP
FDI	10.000	0.8722
GDP	0.8722	10.000

The covariance indicates a strong linear relation between the time series, and the residual correlation (0.8722) confirms that movements in one variable tend to be accompanied by similar movements in the other. This reinforces the idea of mutual economic dependence between the investor countries and the receiving countries.

The VAR model's statistical evidence shows that FDI positively affects GDP in the short term and that this relationship persists through various periods, suggesting a lasting impact of foreign investment on the economic growth of the receiving country. Moreover, the positive correlation between FDI and GDP residues reflects a synchronization between foreign capital entry and economic expansion, underlying economic interdependence between Italy and Libya. However, it must be noted that the residual standard error is high in both equations, pointing out a large variability that the model does not capture. Moreover, the R-squared is relatively high for both the variables - 0.8998 for the FDI equation and 0.8687 for the GDP equation, meaning that the model explains 89% of FDI's variance and 86% of GDP's variance explained by the model. The Adjusted R-squared is relatively low for GDP (0.2999), indicating that the Libyan GDP is influenced by other factors not captured by the model. This is expected since many different variables naturally explain Libya's GDP levels, and Italian FDI is just one of the many elements determining Libyan economic performance and growth. Furthermore, seeing that the variance of FDI is primarily explained by the model is in line with the reality of facts, meaning that the level of FDI a country like Italy is willing to invest depends, among other things, on the economic development of the receiving country, in this case Libya. Hence, based on the VAR model, we can affirm that there is a strong correlation and a complex relationship between Italian FDI in Libya and Libyan GDP, with the FDI positively influencing the future GDP. There are prerequisites to asserting that an economic interdependence exists between these two countries. However, it is limited by Italy's constrained capability to invest massively into another country's economy and by Libya's economic instability, which discourages foreign investments.

3.3 Measuring economic factors and migration in the period 2000-2022

The VAR model analysis focuses here on four endogenous variables: Migration, GDP, Current Account Balance (CAB), and Inflation, all analysed with lags of up to three periods, and is based on a sample of 20 observations. Considering the Migration equation:

Migration = Migration.l1 + GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l2 + GDP.l2 + CAB.l2 + Inflation.l2 + Migration.l3 + GDP.l3 + CAB.l3 + Inflation.l3 + const + trend,

As shown by Table 13, GDP l1 has the only significant solid p-value (0.0467) with a positive coefficient, thus suggesting a positive relationship between the two variables. This could seem counterintuitive, but it may reflect phenomena such as "successful migration", where increasing economic opportunities also increases people's ability and willingness to migrate to improve their situation. Inflation l1 has a slightly significant p-value (0.0946) with a negative coefficient (-3676), thus supporting the hypothesis of a negative relationship between economic stability and migration.

Table 13 "Migration equation for the VAR assessing economic factors and migration"

	Coefficient	Standard Error	t-value	P-value
Migration l1	1718	4654	0.369	0.7247
GDP l1	3352	1342	2.497	0.0467 *
CAB l1	-2064	1551	-1,331	0.2315
Inflation l1	-3676	1854	-1.983	0.0946 .
Migration l2	4244	4329	0.980	0.3647
GDP l2	2885	1501	1.922	0.1029
CAB l2	-2210	1777	-1.244	0.2600
Inflation l2	-4974	2327	-2.138	0.0764 .
Migration l3	3031	5547	0.546	0.6045
GDP l3	6566	1039	-0.632	0.5506
CAB l3	-1166	1596	-0.731	0.4926
Inflation l3	-5334	3888	-1.372	0.2192
constant	-2182	9691	-2.251	0.0653 .
trend	1795	3262	0.550	0.6019

The R-squared for the Migration equation is significantly high (0.9111), confirming that 91% of Migration's variance is explained by the model composed of economic variables. However, a lower Adjusted R-squared suggests that the model does not capture some of the dynamics explaining Migration.

Furthermore, by analyzing the residual correlation, we find some interesting results (see Table 14): first, a very high correlation between CAB and GDP (0.9147) is found, and although it is predictable, it confirms that movements in one of these variables are strongly correlated with

movements in the other. Second, a negative correlation between GDP and Migration (-0.09182) exists, suggesting that there may be conditions under which an increase in GDP could correlate with a decrease in migration. Third - probably the most interesting finding - an entirely consistent negative correlation exists between CAB and Migration (-0.41753), which may indicate that improvements in a country's current budget may be associated with lower levels of migration, possibly due to greater economic stability which reduces the need to emigrate.

Table 14 "Correlation for VAR model assessing economic factors and migration"

CORRELATION	Migration	GDP	CAB	Inflation
Migration	100.000	-0.09182	-0.4175	-0.07706
GDP	-0.09182	100.000	0.9147	0.60289
CAB	-0.41753	0.91466	10.000	0.57388
Inflation	-0.07706	0.60289	0.5739	100.000

The results for this model are not statistically strong due to the lack of significance for some of the lagged values. However, the residual correlation indicates a negative relation between economic variables and emigration, but further analysis would be required to assert it with certainty. Leaving out other economic indicators was dictated by the impossibility of finding the needed data in volatile countries like Libya.

3.4 Measuring economic factors and migration in the period 2011-2022

The decision to analyze and consider the results for 2000-2022 was driven by the necessity of examining datasets with the largest number of observations possible to obtain significant and consistent results. However, some interesting findings came out in the tests for a shorter period, and we believe they are worth mentioning. By analyzing with the VAR model, the dynamic relations between GDP, CAB, Inflation and Migration, considering 11 observations and one lagged value, in the GDP equation it was found that Migration l1 has a negative and significant impact on GDP, with a negative coefficient of -0.1730 and a p-value of 0.04361 (see table 15).

Table 15 "GDP equation for VAR model economic factors and migration (2011-2022)"

	Coefficient	Standard Error	t-value	P-value
GDP l1	1.239	1.629	0.761	0.48119
CAB l1	-2.245	3.638	-0.617	0.56425
Inflation l1	1.639	2.893	5.665	0.00238 **
Migration l1	-1.730	6.446	-2.684	0.04361 *
constant	6.916	1.226	5.641	0.00243 **
trend	-3.053	6.218	-4.909	0.00444 **

This means that an increase in migration is statistically associated with a reduction in GDP. This can be interpreted as an indication that economic instability, manifested here as a reduction in GDP, could result from increased emigration. Our hypothesis initially aimed to test the effects of financial stability on migration and not vice versa.

Nevertheless, this unplanned result allows us to reflect on its implications. First, we are considering only the period 2011-2022, where the economic instability of Libya was high, and emigration towards Italy increased dramatically. One of the side effects of increased levels of emigration, among others that are not considered in this model, is the reduction of the workforce, a lower tax revenue, and a diminution in the country's economic dynamism. All these elements can negatively impact GDP. This shows that the relationship between economic factors is also complex and two ways: on the one side economic instability can negatively affect emigration (confirmed even here in the test for the years 2011-2022 by the strong negative correlation between CAB and Migration), on the other side economic stability can be significantly impacted by emigration producing negative results for the GDP of the nation.

3.5 Measuring political factors and migration in the period 2000-2022

The VAR model here analyses the dynamic relationships between three endogenous variables, Migration, political stability (Political_stability) and government stability (Govt_stability), with an approach that includes constant terms and trends. The sample consists of 19 observations, and the model includes up to four lags for each variable. Three significant lagged values must be considered, starting with analyzing the Migration equation:

Migration = Migration.l1 + Political_stability.l1 + Govt_stability.l1 + Migration.l2 + Political_stability.l2 + Govt_stability.l2 + Migration.l3 + Political_stability.l3 + Govt_stability.l3 + Migration.l4 + Political_stability.l4 + Govt_stability.l4 + const + trend.

First, both Migration l1 and Migration l3 display positive coefficients (6721; 6539) and statistical significance, with p-values of 0.031271 and 0.017969 (see table 16). This result suggests that an increase in migration in an earlier period leads to a rise in migration in the current period, indicating a solid autoregressive behavior. The implications it entails are relevant: Migration l1 could reflect a cumulative or inertial effect in migration, where migratory flows tend to perpetuate over time. For instance, once a migration flow from one area to another is established, it could continue to grow due to family reunification or community networks developing between migrants. The results of Migration l3 indicate that

even at three periods of distance, past migration levels positively affect subsequent (and current) migration. Hence, the effects of migration are long-lasting and, most importantly, can have long-lasting impacts, influencing future migratory behavior not only in the immediate but also after several periods. Even though this represents an unintended result of this research, it is worth analyzing because the pattern and persistence of migratory flows should be considered when drafting policy proposals to manage migration. Second, considering Govt_stability l1 and l3, they both have negative coefficients (-3286; -7206) with significant p-values of 0.019813 for Govt_stability l1 and a highly significant p-value of 0.000734 for Govt_stability l3 (see table 16). This indicates that the increase in government stability at time *t-1* is statistically significant in reducing migration to time *t*, confirming the hypothesis that government stability plays a crucial role in easing emigration. Thirdly, Political_stability l3 has a negative coefficient of -93960 and a significantly impactful p-value of 0.005683 (see table 16). This shows that political stability measured three periods before has a significantly negative impact on migration, suggesting that political stability can persist over time and influence migration decisions even after a time interval.

Table 16 "Migration equation for VAR model assessing political stability and migration"

	Coefficient	Standard Error	t-value	P-value
Migration l1	6.721	2.265	2.967	0.031271 *
Political_stability l1	-8.825	9.043	-0.976	0.373936
Govt_stability l1	-3.286	9.740	-3.374	0.019813 *
Migration l2	4.363	3.333	0.131	0.900953
Political_stability l2	1.028	1.644	0.626	0.559037
Govt_stability l2	-2.915	1.653	-1.764	0.137987
Migration l3	6.539	1.888	3.464	0.017969 *
Political_stability l3	-9.396	2.029	-4.630	0.005683 **
Govt_stability l3	-7.206	9.811	-7.345	0.000734 ***
Migration l4	-8.534	2.471	-0.345	0.743836
Political_stability l4	1.388	2.389	0.581	0.586590
Govt_stability l4	-1.144	2.024	-0.565	0.596262
constant	-3.734	2.000	-1.867	0.120838
trend	8.052	2.669	3.017	0.029511 *

Additionally, the R-squared for the Migration equation is very high: 99% of the variance of migration is explained by the variables included in the model. Overall, the trend for the Migration equation is significant, with a coefficient of 8052 and a p-value of 0.029511, (see table 16) indicating that migration has an intrinsic growth component over time that must be considered in policy debates and analyses.

Moving to residual correlation (see table 17), the model displays a negative correlation (-0.5513) between Migration and Political_stability, indicating that increases in political stability are associated with a reduction in migration flows. Instead, the positive correlation between Migration and Govt_stability (0.5004) contrasts with the negative coefficients found in the model, suggesting that other factors not included in the model might influence this relationship.

Table 17 "Correlation for VAR model assessing political stability and migration"

CORRELATION	Migration	Political_stability	Govt_stability
Migration	10.000	-0.5513	0.5004
Political_stability	-0.5513	10.000	-0.2517
Govt_stability	0.5004	-0.2517	10.000

The results suggest that migration is strongly influenced by political and governmental stability, with a solid temporal persistence. The high explanatory capacity of the model (high R-squared) and the significance of many of the lagged values indicate that historical models of these variables are good predictors of their future achievements. Residue correlations indicate additional dynamics that could be explored with additional variables or more complex models better to capture the interdependence between migration and political-governmental stability.

3.6 Summary of the Findings

The four tests conducted through VAR analysis explain the complex interplay between various economic and political variables in 2000-2022, indicating that our original hypotheses are correct. Some improvements could be enacted, such as considering a period longer than 20 years to achieve more solid and meaningful results, or by expanding the economic variables with others that weren't included, if the available data are reliable. This research hypothesised that a positive correlation between Italian FDI and Libyan GDP exists, implying the subsistence of economic interdependence between the two countries, apart from the firm and high covariance and residual correlation, which already constitutes proof of their positive relation, a positive and significant lag was found for FDI l2 and GDP l2, proving that the impact of past FDI was positive on subsequent GDP levels. The strength of these results poses the basis for examining an interdependent relation between the two economic variables, possibly explaining economic interdependence between the two countries involved. To confirm this, we need to analyse the relationship between other economic variables for extended periods since the low adjusted R-squared implies that other variables could be

included to refine the model. Still, this represents a great starting point for evaluating the tight economic relationship between Italy and Libya. The second hypothesis is that stronger economic stability mitigates the levels of emigration. The results of this test were slightly weaker than expected: even though there is a negative correlation between GDP and Migration and a strong negative correlation between CAB and Migration, the significance of the economic variables in the Migration equation was moderately below expectations. Other tests would be needed to confirm the hypothesis, although these findings are a great base and partially confirm what was theorised. We also briefly analysed the test for 2011-2022, which displayed an interesting result, namely the negative impact of emigration on GDP. It is essential to include this outcome, especially when devising policies. The most interesting result comes with our fourth and last analysis, showing that migration and political-governmental stability have a negative relationship, meaning that the more political stability, the less emigration. In the Migration equation, two negative lags (l1 and l3) for governmental stability were found to be statistically significant, meaning that not only does governmental stability affect the migration of the next period but also at three periods of distance, having a long-lasting effect on migration. Also, political stability has a statistically significant and negative lagged value in the Migration equation, showing that it also reduces emigration when the levels of political stability are high. The model explains 99% of the migration variance to complete the evaluation, confirming the strong outcomes just analysed. Accordingly, the positive economic correlation between Libya and Italy has beneficial effects for both countries, and emigration could be partially mitigated by contributing to Libya's financial stability. However, the research about economic factors could be expanded to find further evidence. Due to the complex relationship between economic and political stability, assuming that the former significantly impacts the latter, we can affirm that economic stability can produce political stability. Most importantly, the tests confirmed that political stability significantly affects the levels of emigration in Libya. Hence, it represents a crucial variable to be considered when assessing the causes, but most importantly, the policies to mitigate emigration from Libya to Italy.

Conclusions

This study has delved into the intricate and multifaceted relationship between migration and energy security in the Mediterranean, with a particular focus on interdependence between Italy and Libya. By employing a robust methodological framework as Vector Autoregressive (VAR) model, the research unraveled how foreign direct investments (FDI) from Italy to Libya influence Libya's economic growth, political stability, and subsequently, migration flows to Italy. The findings of this study underscore the significance of economic interdependence in fostering stability and mitigating migration pressures.

The analysis confirmed all the hypotheses. Firstly, it demonstrates a positive correlation between Italian FDI and Libya's GDP growth, highlighting the potential for economic investments to spur economic development. Indeed, the results affirm that strategic investments in key sectors, such as energy, can create a more stable economic environment conducive to growth. Secondly, it confirms a negative correlation between economic instability in Libya and emigration towards Italy. Thirdly, the study affirms that political stability is intricately linked to migration patterns. Countries with higher levels of political instability tend to experience higher emigration rates. In Libya's case, periods of intense political instability have coincided with significant increases in migration flows to Italy. Despite the majority of migrant's nationalities passing through Libya and reaching Italy is from the Sahel and Sub-Saharan Africa, the lack of political control and stability annuls the migration regulatory mechanism, or worse, it leaves it in the hands of weak statal institutions or non-state actors, as it happened with the reception centers that became centers of detention. The absence of a responsible state increases a country's emigration levels regardless of the nationality of the migrants. In this research, the VAR model's findings suggest that enhancing political stability through economic development can lead to reduced migration pressures.

The insights gained from this study have several important policy implications. First, the stabilization of Libya must be a top priority on the Italian and European political agendas. Foreign direct investments can be a great alternative to fundings since they boost economic development of the receiving country while avoiding the risk of mismanagement or corruption, that too often affect the money allocated for the development projects. Enhancing greater economic and political stability is of paramount importance to ensure the long-term stabilization of Libya and possibly mitigate migratory flows in the future.

More broadly, Italy and the EU would benefit from expanding the economic partnerships with Mediterranean countries. By investing in sectors that can drive economic growth and create jobs, such as energy, these partnerships can help stabilize the region economically and politically. Migration policies should integrate economic development and political stability initiatives. Addressing the root causes of migration through comprehensive strategies that include economic investments and political support can create more sustainable solutions. Diversifying energy sources and investing in renewable energy projects in the Mediterranean should remain a priority. Investing in energy flows connecting North Africa to Italy not only fosters European energy security but also promotes stability in the region.

Future research could expand on the findings of this study by exploring the impact of other forms of economic cooperation beyond FDI, such as trade agreements and development aid, on migration and stability in the Mediterranean. Additionally, comparative studies involving other Mediterranean countries could provide a broader understanding of the region's dynamics. Investigating the long-term effects of renewable energy investments on political and economic stability could also offer valuable insights.

At a time when Western countries are no longer the only external actors seeking to play a role in Africa, and other powers from Asia are attempting to establish their own position on the continent through economic investments, strengthening interdependence between Italy and Libya also takes on significance in the broader geopolitical picture. In conclusion, this study, through quantitative analysis, has proven that Italian FDI in the energy sector, thereby ensuring Italian energy security, has a positive and significant impact on the economic growth of Libya, and that through the enhancement of economic and political stability, migration flows can be mitigated. By highlighting the critical role of strategic investments and international cooperation, the study offers a pathway towards achieving stability and development in this vital region.

1. FDI - GDP in the years 2000-2022

VAR Estimation Results:

===========================

Endogenous variables: FDI, GDP

Deterministic variables: both

Sample size: 17

Log Likelihood: -524.059

Roots of the characteristic polynomial:

1.082 1.082 0.9307 0.9307 0.9287 0.9287 0.8738 0.8738 0.8299 0.8299 0.806 0.806

Call:

VAR(y = dati_sel, p = ordine_VAR, type = "both")

Estimation results for equation FDI:

==

FDI = FDI.l1 + GDP.l1 + FDI.l2 + GDP.l2 + FDI.l3 + GDP.l3 + FDI.l4 + GDP.l4 + FDI.l5 + GDP.l5 + FDI.l6 + GDP.l6 + const + trend

Table 1.1

	Coefficient	Standard Error	t-value	P-value
FDI l1	2.818	1.017	2.770	0.0696 .
GDP l1	-2.736	1.007	-2.717	0.0727 .
FDI l2	-1.928	6.751	-2.855	0.0648 .
GDP l2	2.408	7.607	3.166	0.0506 .
FDI l3	2.786	1.017	2.738	0.0714 .
GDP l3	-3.146	1.031	-3.053	0.0553 .
FDI l4	-2.193	8.703	-2.520	0.0862 .
GDP l4	1.670	7.474	2.234	0.1116
FDI l5	2.070	7.562	2.738	0.0715 .
GDP l5	-1.770	6.884	-2.571	0.0824 .
FDI l6	-9.214	5.007	-1.840	0.1630
GDP l6	1.800	8.661	2.078	0.1293
constant	1.070	3.707	2.886	0.0632 .
trend	-5.205	1.970	-0.264	0.8087

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.207e+09 on 3 degrees of freedom

Multiple R-Squared: 0.8998, Adjusted R-squared: 0.4655

F-statistic: 2.072 on 13 and 3 DF, p-value: 0.2999

Estimation results for equation GDP:

=====================================

GDP = FDI.l1 + GDP.l1 + FDI.l2 + GDP.l2 + FDI.l3 + GDP.l3 + FDI.l4 + GDP.l4 + FDI.l5 + GDP.l5 + FDI.l6 + GDP.l6 + const + trend

Table 1.2

	Coefficient	Standard Error	t-value	P-value
FDI l1	2.362	1.158	2.041	0.1340
GDP l1	-1.996	1.146	-1.742	0.1799
FDI l2	-1.219	7.682	-1.587	0.2106
GDP l2	1.785	8.656	2.062	0.1312
FDI l3	2.139	1.158	1.847	0.1618
GDP l3	-2.780	1.173	-2.371	0.0985 .
FDI l4	-1.873	9.904	-1.891	0.1550
GDP l4	1.463	8.505	1.720	0.1839
FDI l5	1.961	8.605	2.279	0.1070
GDP l5	-1.135	7.834	-1.449	0.2431
FDI l6	-1.282	5.698	-2.250	0.1099
GDP l6	2.180	9.856	2.212	0.1139
constant	1.079	4.218	2.557	0.0834 .
trend	-1.770	2.241	-0.790	0.4873

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 13730 on 3 degrees of freedom

Multiple R-Squared: 0.8687, Adjusted R-squared: 0.2999

F-statistic: 1.527 on 13 and 3 DF, p-value: 0.4059

Table 1.3

COVARIANCE	FDI	GDP
FDI	1,46E+21	1,45E+16
GDP	1,45E+16	1,89E+11

Table 1.4

CORRELATION	FDI	GDP
FDI	10.000	0.8722
GDP	0.8722	10.000

2. Economic variables (GDP, CAB and Inflation) and Migration in the years 2000-2022

VAR Estimation Results:

===========================

Endogenous variables: Migration, GDP, CAB, Inflation

Deterministic variables: both

Sample size: 20

Log Likelihood: -509.249

Roots of the characteristic polynomial:

1.313 0.9968 0.9968 0.9118 0.9118 0.8735 0.8735 0.774 0.774 0.7607 0.5836 0.5836

Call:

VAR(y = dati_sel, p = ordine_VAR, type = "both")

Estimation results for equation Migration:

===

Migration = Migration.l1 + GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l2 + GDP.l2 + CAB.l2 + Inflation.l2 + Migration.l3 + GDP.l3 + CAB.l3 + Inflation.l3 + const + trend

Table 2.1

	Coefficient	Standard Error	t-value	P-value
Migration l1	1718	4654	0.369	0.7247
GDP l1	3352	1342	2.497	0.0467 *
CAB l1	-2064	1551	-1,331	0.2315
Inflation l1	-3676	1854	-1.983	0.0946 .
Migration l2	4244	4329	0.980	0.3647
GDP l2	2885	1501	1.922	0.1029
CAB l2	-2210	1777	-1.244	0.2600
Inflation l2	-4974	2327	-2.138	0.0764 .
Migration l3	3031	5547	0.546	0.6045
GDP l3	6566	1039	-0.632	0.5506
CAB l3	-1166	1596	-0.731	0.4926
Inflation l3	-5334	3888	-1.372	0.2192
constant	-2182	9691	-2.251	0.0653 .
trend	1795	3262	0.550	0.6019

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 27300 on 6 degrees of freedom

Multiple R-Squared: 0.9111, Adjusted R-squared: 0.7186

F-statistic: 4.732 on 13 and 6 DF, p-value: 0.0333

Estimation results for equation GDP:

====================================

GDP = Migration.l1 + GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l2 + GDP.l2 + CAB.l2 + Inflation.l2 + Migration.l3 + GDP.l3 + CAB.l3 + Inflation.l3 + const + trend

Table 2.2

	Coefficient	Standard Error	t-value	P-value
Migration l1	-8.853	2.310	-0.383	0.715
GDP l1	-5.038	6.661	-0.076	0.942
CAB l1	-3.521	7.697	-0.005	0.996
Inflation l1	1.778	9.199	1.932	0.102
Migration l2	-6.691	2.148	-0.311	0.766
GDP l2	4.801	7.449	0.645	0.543
CAB l2	-2.254	8.818	-0.256	0.807
Inflation l2	1.287	1.155	1.114	0.308
Migration l3	-1.427	2.753	-0.518	0.623
GDP l3	-5.039	5.155	-0.098	0.925
CAB l3	-1.620	7.921	-0.205	0.845
Inflation l3	-1.919	1.930	-0.099	0.924
constant	5.922	4.809	1.231	0.264
trend	-1.776	1.619	-1.097	0.315

Residual standard error: 13550 on 6 degrees of freedom

Multiple R-Squared: 0.8227, Adjusted R-squared: 0.4387

F-statistic: 2.142 on 13 and 6 DF, p-value: 0.1791

Estimation results for equation CAB:

====================================

CAB = Migration.l1 + GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l2 + GDP.l2 + CAB.l2 + Inflation.l2 + Migration.l3 + GDP.l3 + CAB.l3 + Inflation.l3 + const + trend

Table 2.3

	Coefficient	Standard Error	t-value	P-value
Migration l1	4.587	2.279	0.201	0.847
GDP l1	-7.302	6.572	-1.111	0.309
CAB l1	7.755	7.595	1.021	0.347
Inflation l1	1.231	9.077	1.356	0.224
Migration l2	-3.915	2.120	-0.185	0.860
GDP l2	-3.894	7.351	-0.530	0.615
CAB l2	3.316	8.701	0.381	0.716
Inflation l2	6.719	1.139	0.590	0.577
Migration l3	-1.529	2.716	-0.563	0.594
GDP l3	-2.208	5.087	-0.434	0.679
CAB l3	5.366	7.816	0.687	0.518
Inflation l3	7.297	1.904	0.383	0.715
constant	5.525	4.746	1.164	0.289
trend	5.623	1.597	0.352	0.737

Residual standard error: 13.37 on 6 degrees of freedom

Multiple R-Squared: 0.6683, Adjusted R-squared: -0.05029

F-statistic: 0.93 on 13 and 6 DF, p-value: 0.5747

Estimation results for equation Inflation:

===

Inflation = Migration.l1 + GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l2 + GDP.l2 + CAB.l2 + Inflation.l2 + Migration.l3 + GDP.l3 + CAB.l3 + Inflation.l3 + const + trend

Table 2.4

	Coefficient	Standard Error	t-value	P-value
Migration l1	-1.374	8.380	-0.164	0.875
GDP l1	2.579	2.416	1.067	0.327
CAB l1	-3.086	2.793	-0.110	0.916
Inflation l1	3.868	3.337	0.116	0.912
Migration l2	6.561	7.794	0.842	0.432
GDP l2	4.602	2.703	1.703	0.140
CAB l2	-5.094	3.199	-1.592	0.162
Inflation l2	-8.122	4.189	-1.939	0.101
Migration l3	1.696	9.987	1.698	0.140
GDP l3	-1.623	1.870	-0.087	0.934
CAB l3	2.635	2.874	0.917	0.395
Inflation l3	-1.011	7.001	-1.444	0.199
constant	-3.139	1.745	-1.799	0.122
trend	2.767	5.873	0.047	0.964

Residual standard error: 4.916 on 6 degrees of freedom

Multiple R-Squared: 0.8864, Adjusted R-squared: 0.6403

F-statistic: 3.601 on 13 and 6 DF, p-value: 0.0625

Table 2.5

COVARIANCE	Migration	GDP	CAB	Inflation
Migration	745554643	-33975608	-152444.24	-10344.91
GDP	-33975608	183627772	165732.84	40164.95
CAB	-152444	165733	178.80	37.73
Inflation	-10345	40165	37.73	24.17

Table 2.6

CORRELATION	Migration	GDP	CAB	Inflation
Migration	100.000	-0.09182	-0.4175	-0.07706
GDP	-0.09182	100.000	0.9147	0.60289
CAB	-0.41753	0.91466	10.000	0.57388
Inflation	-0.07706	0.60289	0.5739	100.000

3. Political factors (Political Stability and Governmental Stability) and Migration in the years 2000-2022

VAR Estimation Results:

===========================

Endogenous variables: Migration, Political_stability, Govt_stability

Deterministic variables: both

Sample size: 19

Log Likelihood: -159.043

Roots of the characteristic polynomial:

1.002 1.002 0.9908 0.9908 0.9616 0.9616 0.9266 0.9266 0.8813 0.8813 0.6946 0.2516

Call:

VAR(y = dati_sel, p = ordine_VAR, type = "both")

Estimation results for equation Migration:

==

Migration = Migration.l1 + Political_stability.l1 + Govt_stability.l1 + Migration.l2 + Political_stability.l2 + Govt_stability.l2 + Migration.l3 + Political_stability.l3 + Govt_stability.l3 + Migration.l4 + Political_stability.l4 + Govt_stability.l4 + const + trend

Table 3.1

	Coefficient	Standard Error	t-value	P-value
Migration l1	6.721	2.265	2.967	0.031271 *
Political_stability l1	-8.825	9.043	-0.976	0.373936
Govt_stability l1	-3.286	9.740	-3.374	0.019813 *
Migration l2	4.363	3.333	0.131	0.900953
Political_stability l2	1.028	1.644	0.626	0.559037
Govt_stability l2	-2.915	1.653	-1.764	0.137987
Migration l3	6.539	1.888	3.464	0.017969 *
Political_stability l3	-9.396	2.029	-4.630	0.005683 **
Govt_stability l3	-7.206	9.811	-7.345	0.000734 ***
Migration l4	-8.534	2.471	-0.345	0.743836
Political_stability l4	1.388	2.389	0.581	0.586590
Govt_stability l4	-1.144	2.024	-0.565	0.596262
constant	-3.734	2.000	-1.867	0.120838
trend	8.052	2.669	3.017	0.029511 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7827 on 5 degrees of freedom

Multiple R-Squared: 0.9937, Adjusted R-squared: 0.9775

F-statistic: 61.1 on 13 and 5 DF, p-value: 0.0001272

Estimation results for equation Political_stability:

==

Political_stability = Migration.l1 + Political_stability.l1 + Govt_stability.l1 + Migration.l2 + Political_stability.l2 + Govt_stability.l2 + Migration.l3 + Political_stability.l3 + Govt_stability.l3 + Migration.l4 + Political_stability.l4 + Govt_stability.l4 + const + trend

Table 3.2

	Coefficient	Standard Error	t-value	P-value
Migration l1	6.013	9.562	0.629	0.5571
Political_stability l1	1.495	3.817	3.917	0.0112 *
Govt_stability l1	6.412	4.111	1.560	0.1796
Migration l2	-1.580	1.407	-1.123	0.3125
Political_stability l2	-3.176	6.939	-0.458	0.6664
Govt_stability l2	6.692	6.976	0.959	0.3815
Migration l3	-2.854	7.969	-0.358	0.7348
Political_stability l3	-1.972	8.565	-0.230	0.8270
Govt_stability l3	2.692	4.141	0.650	0.5444
Migration l4	2.579	1.043	0.247	0.8145
Political_stability l4	6.740	1.009	0.668	0.5335
Govt_stability l4	3.974	8.542	0.465	0.6613
constant	1.545	8.440	1.830	0.1267
trend	-2.013	1.126	-1.787	0.1340

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.3304 on 5 degrees of freedom

Multiple R-Squared: 0.9844, Adjusted R-squared: 0.944

F-statistic: 24.33 on 13 and 5 DF, p-value: 0.001198

Estimation results for equation Govt_stability:

==

Govt_stability = Migration.l1 + Political_stability.l1 + Govt_stability.l1 + Migration.l2 + Political_stability.l2 + Govt_stability.l2 + Migration.l3 + Political_stability.l3 + Govt_stability.l3 + Migration.l4 + Political_stability.l4 + Govt_stability.l4 + const + trend

Table 3.3

	Coefficient	Standard Error	t-value	P-value
Migration l1	9.948	7.026	1.416	0.21600
Political_stability l1	-1.427	2.805	-5.086	0.00382 **
Govt_stability l1	-1.782	3.021	-5.899	0.00199 **
Migration l2	1.541	1.034	1.491	0.19624
Political_stability l2	6.471	5.099	1.269	0.26027
Govt_stability l2	-9.555	5.126	-1.864	0.12135
Migration l3	2.632	5.856	0.449	0.67189
Political_stability l3	-5.359	6.294	-0.085	0.93546
Govt_stability l3	-8.595	3.043	-2.824	0.03692 *
Migration l4	2.559	7.663	0.334	0.75195
Political_stability l4	-2.036	7.411	-2.747	0.04045 *
Govt_stability l4	-8.727	6.277	-1.390	0.22314
constant	-2.280	6.202	-3.676	0.01436 *
trend	3.409	8.278	4.118	0.00919 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.2428 on 5 degrees of freedom

Multiple R-Squared: 0.9902, Adjusted R-squared: 0.9648

F-statistic: 38.91 on 13 and 5 DF, p-value: 0.0003844

Table 3.4

COVARIANCE	Migration	Political_stability	Govt_stability
Migration	61261316.1	-1,43E+06	95.086.013
Political_stability	-1425.5	1,09E+02	-0.02019
Govt_stability	950.9	-2,02E+01	0.05894

Table 3.5

CORRELATION	Migration	Political_stability	Govt_stability
Migration	10.000	-0.5513	0.5004
Political_stability	-0.5513	10.000	-0.2517
Govt_stability	0.5004	-0.2517	10.000

4. Economic factors and Migration in the period 2011-2022

VAR Estimation Results:

=========================

Endogenous variables: GDP, CAB, Inflation, Migration

Deterministic variables: both

Sample size: 11

Log Likelihood: -282.776

Roots of the characteristic polynomial:

0.9294 0.9294 0.3054 0.3054

Call:

VAR(y = dati_sel, p = ordine_VAR, type = "both")

Estimation results for equation GDP:

===================================

GDP = GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l1 + const + trend

Table 4.1

	Coefficient	Standard Error	t-value	P-value
GDP l1	1.239	1.629	0.761	0.48119
CAB l1	-2.245	3.638	-0.617	0.56425
Inflation l1	1.639	2.893	5.665	0.00238 **
Migration l1	-1.730	6.446	-2.684	0.04361 *
constant	6.916	1.226	5.641	0.00243 **
trend	-3.053	6.218	-4.909	0.00444 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 5739 on 5 degrees of freedom

Multiple R-Squared: 0.9489, Adjusted R-squared: 0.8978

F-statistic: 18.57 on 5 and 5 DF, p-value: 0.003032

Estimation results for equation CAB:

===================================

CAB = GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l1 + const + trend

Table 4.2

	Coefficient	Standard Error	t-value	P-value
GDP l1	-0.0004371	0.0002716	-1.609	0.168
CAB l1	0.1857930	0.6063325	0.306	0.772
Inflation l1	0.9194893	0.4822117	1.907	0.115
Migration l1	-0.0001333	0.0001074	-1.241	0.270
constant	320.468.302	204.340.688	1.568	0.178
trend	-0.4805516	10.362.517	-0.464	0.662

Residual standard error: 9.566 on 5 degrees of freedom

Multiple R-Squared: 0.6757, Adjusted R-squared: 0.3514

F-statistic: 2.083 on 5 and 5 DF, p-value: 0.2198

Estimation results for equation Inflation:

===

Inflation = GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l1 + const + trend

Table 4.3

	Coefficient	Standard Error	t-value	P-value
GDP l1	-1.900	1.352	-1.406	0.2188
CAB l1	3.383	3.019	1.121	0.3134
Inflation l1	-3.377	2.401	-0.141	0.8936
Migration l1	1.642	5.349	3.070	0.0278 *
constant	1.116	1.017	1.097	0.3225
trend	-2.380	5.159	-0.461	0.6640

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.762 on 5 degrees of freedom

Multiple R-Squared: 0.8765, Adjusted R-squared: 0.7529

F-statistic: 7.094 on 5 and 5 DF, p-value: 0.02538

Estimation results for equation Migration:

===

Migration = GDP.l1 + CAB.l1 + Inflation.l1 + Migration.l1 + const + trend

Table 4.4

	Coefficient	Standard Error	t-value	P-value
GDP l1	-7.364	1.132	-0.650	0.5441
CAB l1	2.422	2.528	0.958	0.3820
Inflation l1	-5.381	2.010	-2.677	0.0440 *
Migration l1	1.282	4.479	2.862	0.0353 *
constant	1.094	8.519	1.284	0.2553
trend	-4.874	4.320	-1.128	0.3105

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 39880 on 5 degrees of freedom

Multiple R-Squared: 0.7919, Adjusted R-squared: 0.5838

F-statistic: 3.806 on 5 and 5 DF, p-value: 0.08437

Table 4.5

COVARIANCE	GDP	CAB	Inflation	Migration
GDP	32940799	3,02E+03	-9.806.068	-171080093
CAB	30170	1,50E+03	-5.504	-344083
Inflation	-9806	-5,50E+03	22.677	27110
Migration	-171080093	-3,44E+08	27.109.519	1590372942

Table 4.6

CORRELATION	GDP	CAB	Inflation	Migration
GDP	10.000	0.5495	-0.3588	-0.7475
CAB	0.5495	10.000	-0.1208	-0.9020
Inflation	-0.3588	-0.1208	10.000	0.1428
Migration	-0.7475	-0.9020	0.1428	10.000

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