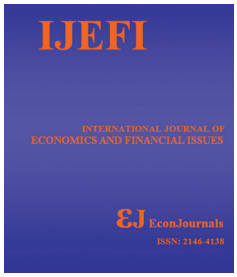

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Interaction between Migration and Economic Growth through Unemployment in the Context of Political Instability in the MENA Region

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ABSTRACT

This article aims to elucidate the direct and indirect repercussions of migration on economic growth, specifically examining its interaction with unemployment within a backdrop of political instability. Employing a simultaneous equation model, our study spans the period from 1990 to 2020, providing comprehensive insights into the intricate dynamics at play. The findings affirm a global resonance, particularly resonating across the majority of Middle East and North Africa (MENA) nations. Our empirical contribution endeavors to underscore the synergies between political instability and migration while unraveling the nuanced interplay among migration, unemployment, and economic growth within the confines of our study region. This analysis not only contributes to the existing body of knowledge but also underscores the complexity and multifaceted nature of these interactions in the MENA region.

Keywords: Migration, Unemployment, Political Instability, Economic Growth and Simultaneous Equation Model
JEL Classifications: K0, Q43, D7, C23, C33

1. INTRODUCTION

The interaction between migration, economic growth, and unemployment in the context of political instability is a complex and multifaceted issue, particularly in the Middle East and North Africa (MENA) region. This introduction aims to provide an overview of the key factors and dynamics at play in this intricate relationship (Přívarová et al., 2023).

Regarding the MENA region, it has long been characterized by a unique set of challenges and opportunities. It is home to a rich cultural heritage, abundant natural resources, and a diverse population. However, it has also experienced political instability, conflicts, and economic disparities that have driven significant migration flows both within the region and towards other parts of the world. Basso et al. (2019) emphasize the importance of well-designed immigration policies. Policymakers should consider skill-based immigration systems, integration programs, and policies that address the needs of both the native and immigrant populations. The migration has been a prominent feature of the MENA region for decades; it takes various forms, including labor migration, forced displacement due to conflicts, and refugee movements. Labor migration, in particular, has been a significant driver of population movement, as individuals seek better economic opportunities abroad, often in the Gulf countries, Europe, and North America. This has resulted in a substantial diaspora from the region.

Moreover, economic growth in the MENA region has been inconsistent and heavily dependent on oil and gas revenues in some countries. While some nations have experienced periods of rapid economic development, others have struggled with structural challenges, including high unemployment rates, especially among the youth. The high levels of youth unemployment are particularly

concerning, as they can contribute to social unrest and political instability.

Besides, political instability has been a recurring issue in the MENA region, with conflicts, revolutions, and governance challenges affecting many countries. These upheavals have often been linked to economic grievances, lack of political representation, and a desire for greater social justice. The Arab Spring uprisings in 2010 exemplify how political instability can be fueled by economic factors and unemployment.

Furthermore, the relationship between migration, economic growth, unemployment, and political instability is intricate (Borjas, 1994). On one hand, migration can relieve unemployment pressures by providing job opportunities abroad, reducing the burden on the domestic labor market. On the other hand, it can lead to a brain drain, where skilled workers leave their home countries, potentially hindering economic development. Additionally, political instability can both drive and be exacerbated by migration. Conflicts and insecurity can force people to flee their homes, creating refugee crises. At the same time, political instability can be triggered or intensified by economic disparities and unemployment.

This study aims to delve into the nuanced interactions between migration, economic growth, unemployment, and political instability in the MENA region. It seeks to answer key questions, such as:

- How do migration patterns affect unemployment rates in MENA countries?
- To what extent does political instability affect economic growth and unemployment?
- What are the long-term implications of labor migration on the region's economic development?
- How can policymakers address these challenges to promote stability and prosperity in the MENA region?

By way of conclusion, understanding these complex interactions is crucial for policymakers, researchers, and practitioners interested in fostering sustainable development, reducing unemployment, and mitigating political instability in the MENA region. This study will contribute to the broader discourse on the relationship between migration, economic growth, and political stability, offering insights that can inform evidence-based policy solutions.

2. LITERATURE PAPER

2.1. Interactions and Complexities

The relationship between these factors is not linear and can vary depending on the specific context, region, and time period. The impacts of migration on economic growth, unemployment, and political stability are contingent on factors such as the skill level of migrants, government policies, and the receptiveness of the host country. The political instability can be both a push factor for emigration and a consequence of economic and social challenges (Swapnanil and Mihalance, 2021).

Among the works that result the impact of immigration on the economy, in particular on employment, growth and productivity. Some suggest that immigration may have Immigration is a complex subject that has economic, political and social implications. There have been many debates about the pros and cons of immigration, particularly regarding its economic impact. The interaction between migration, economic growth, unemployment, and political instability is a complex and multifaceted topic that has been studied extensively in the literature (Ozekicioglu, 2019).

2.1.1. Migration and economic growth

Migration can have both positive and negative effects on economic growth. On the positive side, migrant workers often contribute to the host country's economy by filling labor gaps, increasing consumption, and paying taxes.

Remittances, money sent by migrants to their home countries, can also play a significant role in boosting economic growth in migrant-sending countries (Smith, 2006).

The migration can have both positive and negative impacts on economic growth. On one hand, migrant labor can contribute to economic productivity and fill gaps in the labor market. On the other hand, large-scale migration may strain public services, leading to increased unemployment among the local population.

In their book "*The Age of Migration*", Stephen Castles and Mark Miller (2019) argue that migration can be a key driver of economic development if managed properly. However, they also emphasize the importance of considering the social and economic implications for both sending and receiving countries.

2.1.2. Migration and unemployment

The relationship between migration and unemployment is nuanced. Some studies suggest that migration can lead to increased unemployment among native-born workers, particularly in sectors with a high concentration of immigrant labor. However, other research highlights that migrants can complement the native workforce, especially in sectors requiring specific skills or in regions with labor shortages.

Economic growth can lead to reduced unemployment rates as businesses expand and create more job opportunities. However, the quality of jobs created during economic growth may vary, with some workers still facing underemployment or low-wage jobs (Friedberg and Hunt 1995).

High unemployment rates, especially among the youth, can contribute to political instability. The frustration and discontent of unemployed individuals may fuel social unrest and political unrest.

In the MENA region, Beblawi and Luciani (2019) discuss the economic and political challenges.

2.1.3. Political instability and migration

The political instability in a country, such as conflict or government instability, often serves as a significant driver of migration. People may seek refuge in more stable countries to escape violence and insecurity. The instability can also affect the economic conditions in a country, leading to increased unemployment and

poverty, further motivating emigration. This instability can have a detrimental impact on economic growth, disrupting business operations, deterring foreign investments, and leading to capital flight (Mtiraoui and Talbi 2022).

Conversely, economic downturns resulting from political instability can also exacerbate social and political tensions, creating a vicious cycle. Political instability can be a significant driver of migration as individuals seek better economic opportunities and safety in more stable countries. Wars, conflicts, and political repression often lead to large refugee flows.

Building on this understanding, recent works by authors in 2020, such as Esposito et al. (2020), have delved deeper into the intricate relationship between political instability and migration. They emphasize the evolving dynamics and nuanced factors influencing migration patterns in the contemporary geopolitical landscape. Additionally, Countries offering a more favourable business environment attract not only foreign investments, but also foreign human capital (Simionescu, 2021).

The comprehensive study by political scientist Weiner (2019) remains a foundational work in exploring the connection between political instability and forced migration. However, the contributions of more recent authors in 2020 enrich our understanding of this complex relationship, taking into account the evolving global scenarios and their impact on migration dynamics.

2.2. Policy Implications

Effective policy responses to these interactions require a holistic approach that considers the interplay of migration, economic growth, unemployment, and political stability. Policymakers should aim to strike a balance between facilitating the positive contributions of migration to economic growth while addressing any potential negative impacts on native workers. Efforts to promote political stability can have long-term benefits for economic growth and employment prospects.

This literature review highlights the intricate relationship between migration, economic growth, unemployment, and political instability. Researchers continue to explore these dynamics, and recent studies by authors in 2020, such as Cimpoeru (2023) has provided additional insights into the evolving nature of these interactions in different global contexts. Their research enriches our understanding of the complexities involved in formulating effective policies that foster economic development and social stability.

By considering the findings of recent studies alongside established research, policymakers can develop strategies that address the challenges posed by migration, promote economic growth, mitigate unemployment, and contribute to political stability. The migration and integration policy, policymakers may need to focus on creating comprehensive immigration and integration policies that facilitate the smooth entry and assimilation of immigrants into the host society (Beverelli, 2022):

Emphasizing policies that promote cultural understanding, language proficiency, and social cohesion could be crucial. The policies related to welfare should be designed to address the needs of both the native and immigrant populations (Cebolla-Boado and Miyar-Busto, 2020; Ferwerda and Gest, 2021). When the social programs that support vulnerable groups, including immigrants, could contribute to societal well-being. The Policymakers might consider leveraging immigrant networks for economic and social development (Kaplan et al., 2016; Kabir, 2021).

Facilitating the creation of support networks within immigrant communities could enhance their integration and overall contribution to the host society.

2.3. The Contributions of the Literature Review

A number of recent studies have examined the impact of immigration on unemployment using time series data.

Several empirical studies on the causal relationship between host economic activity and immigration have yielded diverse findings. Some works, including those by Islam (2007), Marr and Siklos (1994), and Pope and Withers (1985), found no evidence supporting immigration as a cause of unemployment and economic growth. Surprisingly, they concluded that the causation ran in the opposite direction. In contrast, Esposito et al. (2020) discovered positive impacts of immigration on short-term unemployment in 15 EU countries, with certain nations experiencing long-term benefits. However, studies by Chamunorwa and Mlambo (2014) in South Africa and Angrist and Kugler (2003) covering a panel of 18 European countries during 1983-1999 concluded that immigration increased unemployment to a certain degree in native labor markets. The theoretical disparity and varying empirical findings necessitate further investigation using sophisticated techniques and larger datasets to assess the consistency of prior conclusions. This paper adopts a macroeconomic approach, akin to Esposito et al. (2020), Latif (2015), and Damette and Fromentin (2013), aiming to estimate the short and long-run impacts of immigration on unemployment across 33 OECD countries with the highest immigrant populations. The study employs a Panel Error Correction Model (PECM) for the period between 1990 and 2017. The long-run specification, linking unemployment to GDP, aligns with Okun's Law (Huang and Yeh, 2014). This relationship is extended by incorporating the net inflow of international migrants and estimated using traditional FMOLS and panel DOLS, as well as Common Correlated Effects (CCE) and augmented to the case of endogenous regressors (CCE-GMM). The use of CCE estimator enables control for cross-correlation between countries by adding cross-sectional averages of all variables as additional regressors (Kapetanios and Pesaran 2011).

Gross (2002) investigated the flow of immigrant workers into the French labor market from the mid-1970s to the mid-1990s. The study suggests that in the short run, the admittance of immigrants led to a slight increase in unemployment, while in the long run, immigration had a negative effect on the permanent unemployment rate.

One of the main issues related to immigration is the assimilation of immigrants into the labor market, and many studies in Canada have focused on this issue, such as Frenette and Morissette (2005) and Green and Pehrson (2010).

A major issue surrounding immigration has been the labor market assimilation of immigrants, and quite a number of studies in Canada have focused on this issue (Frenette and Morissette, 2005; Green and Pehrson 2010).

However, a much less studied issue is the labor market impact of immigration, particularly the effects on the unemployment rate. Recently, during the great recession of 2008–2009, a debate ensued in Europe on the issue of whether immigrants were stealing jobs from the native people (Rohac, 2014).

In terms of public opinion, Canadians have a more positive view of immigration; however, a sizeable minority considers immigrants to be a problem (Challinor, 2011). In this context, it will be interesting to examine the impact immigration has on the unemployment rate in Canada. So far, a couple of studies have focused on this issue using time series data (Gross, 2004; Islam, 2007). Recently, another couple of studies used panel data to examine the labor market impact of immigration (Beine et al., 2014; Gross and Schmitt, 2012). However, Gross and Schmitt (2012) focused on temporary immigration while Beine et al. (2014) examined Dutch disease issue. To the best knowledge of this author, so far no study used province-specific panel data to examine the impact of permanent international immigration on the unemployment rate in Canada. Panel data analysis is important since a larger number of point data increase the degrees of freedom and decrease the collinearity among the regressors and consequently allows for more powerful statistical tests compared to time series methods (Ciarreta and Zarraga, 2010).

The literature often emphasizes the potential positive effects of migration on economic growth. According to McKenzie and Rapoport (2010), well-managed migration can contribute to economic development by filling labor market gaps, fostering innovation, and promoting entrepreneurship. A study by Özden et al. (2022) discusses the importance of policies that facilitate the integration of migrants into the labor market, as this integration is crucial for maximizing the economic benefits of migration.

In the context of unemployment and political instability, Acemoglu and Robinson (2019) argue that high levels of unemployment, particularly among the youth, can contribute to political instability. When a significant portion of the population is unemployed, it may lead to social unrest and political upheaval.

In the MENA context, Cherif and Hasanov (2019) investigate the relationship between unemployment and political instability, emphasizing the need for targeted policies to address youth unemployment and its potential impact on political stability.

For the political instability and migration, Hatton (2019) explore the link between political instability and migration. They discuss how political factors, including conflict and human rights abuses, are key drivers of forced migration. Political instability can lead individuals and communities to seek refuge in more stable environments.

Focusing on the MENA region, Salehyan (2006) examines how political instability and conflict in countries like Syria have contributed to significant refugee flows, highlighting the need for international cooperation in managing such crises.

Several scholars, such as Rodrik (2019), emphasize the interconnectedness of migration, economic growth, unemployment, and political stability. They argue that a comprehensive understanding of these issues requires considering the dynamic relationships and feedback loops between them. The work of Stark et al. (2022)[1] provides insights into the role of social networks in migration decisions and their subsequent impact on both economic development and political stability in sending and receiving countries.

Authors like Lucas and Stark (1985) stress the importance of well-designed policies that consider the multi-dimensional nature of migration, taking into account economic, social, and political factors. They argue for policies that promote inclusive growth, address unemployment, and manage migration flows effectively (Gang and Rivera-Batiz, 1994).

Addressing regional disparities is crucial. Policies that promote balanced regional development can help mitigate concentrated unemployment and reduce the potential for social and political instability (Cohen-Goldner and Daniele Paserman 2011).

Kerr (2019) highlight the role of immigrant entrepreneurs in job creation. Policies should encourage entrepreneurship by providing support, such as access to financing, mentorship programs, and favorable regulatory environments.

To ensure social cohesion and minimize social tensions, policymakers should implement effective social integration programs. These programs can include language classes, cultural exchange initiatives, and community-building efforts (Ottaviano and Peri, 2012).

Active labor market policies, such as job placement services, career counseling, and unemployment benefits, can help manage short-term displacement effects and support workers in transitioning to new opportunities (Dustmann et al., 2019).

Policies aimed at preventing and resolving conflicts are essential for political stability. Strengthening institutions, promoting inclusive governance, and addressing root causes of conflicts can contribute to overall stability (World Bank, 2022).

Given the transnational nature of migration, international cooperation is crucial. Collaboration between countries can facilitate the exchange of best practices, coordination on refugee issues, and joint efforts to address common challenges (International Organization for Migration, 2022).

The policies should be flexible and adaptable to changing circumstances. Regular evaluations and adjustments based

1 Stark et al. (2022): "Agglomeration, Pollution, and Migration: A Substantial Link, and Policy Design". ZEF Discussion Papers on Development Policy No. 321, Center for Development Research, Bonn, pp. 27, Available at SSRN: https://ssrn.com/abstract=4289588 or http://dx.doi.org/10.2139/ssrn.4289588.

on empirical evidence can help policymakers fine-tune their approaches to address evolving challenges (Rodrik, 2019).

Building public awareness and communicating the benefits of migration and well-designed policies are crucial. Policies are more likely to succeed when there is public support and understanding (Ottaviano and Peri, 2008 and Peri 2012).

2.4. The Case of MENA Region

The Middle East and North Africa (MENA) region is marked by a unique interplay of factors, including migration patterns, economic growth, unemployment rates, and political instability. Understanding the intricate connections among these elements is essential for comprehending the region's socio-economic dynamics. This chapter provides an overview of the research context and outlines the objectives of the study (Ottaviano and Peri 2008, 2012).

The MENA region has been characterized by a history of diverse migration flows, primarily driven by economic opportunities and, in some instances, forced displacement due to conflicts and political instability. This migration has both contributed to and been influenced by the region's economic growth and unemployment rates, which, in turn, are closely tied to its political stability or instability (Vandenbussche et al., 2006).

This study will employ a mixed-methods approach, combining quantitative analysis with qualitative research. Quantitative methods will involve the examination of relevant economic and demographic data, including migration patterns, GDP growth rates, unemployment statistics, and political stability indices (Ortega and Peri 2009). Qualitative research will consist of in-depth interviews with experts, policymakers, and stakeholders from the MENA region to gain a comprehensive understanding of the contextual nuances.

Through a comprehensive analysis of migration, economic growth, unemployment, and political stability, this study aims to shed light on the complex dynamics within the MENA region and offer insights that can inform policy decisions and promote sustainable development in the region (Figure 1).

2.4.1. International migration to Africa

Intra-African migration, or migration within the African continent, has been a significant component of international migration (Stalder 2010). It includes movements of people within the African Union (AU) member states. Migration corridors between East, West, and Southern Africa have been prominent, with people moving for economic, political, and environmental reasons (Schuss 2016).

Africa has experienced international migration from various regions, including Europe, Asia, and the Middle East. This migration has been driven by factors such as labor opportunities, refugee crises, and family reunification (Figure 1).

2.4.2. Internal migration within Africa

2.4.2.1. Rural to urban migration

One of the most prominent internal migration trends in Africa has been rural-to-urban migration. This movement has been driven by the search for better economic prospects and improved living conditions in urban areas.

2.4.2.2. Conflict-driven displacement

Internal displacement due to conflicts, political instability, and environmental disasters has been a significant issue in Africa. Millions of people have been internally displaced within their own countries due to conflicts in regions like the Horn of Africa, the Great Lakes region, and the Sahel.

2.4.3. Migration from Africa to other continents

2.4.3.1. Migration to Europe

African migration to Europe has been a major international migration route. North African countries like Morocco, Tunisia, and Libya have been transit points for migrants from sub-Saharan Africa attempting to reach Europe, often via dangerous sea routes.

2.4.3.2. Migration to the middle east

Labor migration from Africa to the Middle East, particularly to Gulf countries, has been substantial. Migrants from East Africa, including Ethiopia, Somalia, and Eritrea, have sought employment opportunities in the Gulf states.

2.4.4. Key drivers of migration

2.4.4.1. Economic factors

Economic disparities within and between African countries have been a significant driver of migration. Migrants seek better job prospects and living conditions.

2.4.4.2. Conflict and political instability

Conflicts, civil wars, and political instability in various African regions have forced people to flee their homes, both internally and internationally.

2.4.4.3. Environmental factors

Environmental challenges, such as droughts and desertification, have contributed to displacement, particularly in the Sahel region (Arif 2022).

2.4.4.4. Demographic factors

Population growth and demographic pressures have played a role in migration trends, including rural-to-urban migration.

3. ESTIMATION METHODOLOGY

In this work, we outline the research methodology employed to investigate the interaction between migration, economic growth, and unemployment in the context of political instability in the Middle East and North Africa (MENA) region. The estimation methodology will combine quantitative analysis, data modeling, and econometric techniques to provide a rigorous assessment of the research objectives.

3.1. Assumptions

H_1: If migration is a catalyst for economic growth for MENA countries.

H_2: It is assumed that migration has a negative effect on employment.

H_3: According to these hypotheses, migration and unemployment are negatively correlated with growth in a context of instability.

3.2. Sample, Period and Data

3.2.1. Sample

Our sample of countries is made up of 16 countries from the MENA region to Know: 6 African countries, 10 Gulf countries. In fact, this study region is made up of 16 countries namely: Bahrin, Oman, Kowait, Jordin, Iraq, Iran, Yemen, United Arab Emirates, Qatar, Saudi Arabia, Tunisia, Turkey, Morocco, Egypt, Sudan, and Algeria.

3.2.2. Period

This work highlights migration and unemployment during the 29 years period (1990-2020).

3.2.3. Data

We have formed an international data base available in "World Bank CD".

3.3. Definitions and Measures of Variables

3.3.1. Economic growth indicator (GDP)

Levin and Lin, 1992; Beck et al, 2000; Beck and Levine 2004 noted (GDP). Likewise, Mohen and Mairesse (1999) give a few orders of magnitude on the contribution of R&D to GDP.

3.3.2. The migration indicator (MGR)

International migration rate measures the movement of people across national borders. It reflects the rate of immigration and emigration between countries.

3.3.3. Unemployment indicator (UNE)

The unemployment rate is one of the most widely recognized unemployment indicators. It represents the percentage of the labor force (those who are actively seeking employment) that is currently unemployed. It is usually reported on a monthly or quarterly basis by government agencies.

3.3.4. Control variables

3.3.4.1. The trade indicator (TRADE)

For our work, the ratio of trade value (export + import)/GDP to capture the degree of openness (Sachs and Warver (1995)) noted (TRADE).

3.3.4.2. The investment indicator (INV)

Business investment includes gross fixed capital formation (INV) and stock change which is considered a catalyst for any growth variable because it makes human labor more efficient.

3.3.4.3. The foreign direct investment indicator (FDI)

One variable is justified by the abundant literature which states that foreign direct investment has a positive impact on economic growth such as Ikiara, Moses (2003) and Fosto, which prove that technology transfers have a positive effect on growth and noted (FDI).

3.3.4.4. Inflation rate indicator (INF)

The World Bank database: «WDI[2]» estimates this rate against GDP which is used to construct an indicator of the noted inflation rate (INL).

3.3.5. The quality of governance and political instability

*Governance quality index (IQG): After calculating the governance quality index. The governance quality index is composed of the capacity for advocacy and expression, (VA), the effectiveness of public action (GE) and the quality of regulations (RQ) by Kaufman D. Kraay A. and Mastruzzi M. (2003)[3]. The synthetic indicator (IQG) formed following the use of ACP Method[4].

*Political Instability noted (PIS): IMGs are not used by the World Bank Group to allocate resources. The impact of institutional factors namely political Instability noted (PIS) and realized.

3.4. Simultaneous Equation Model[5]

In order to respond to our basic problem which is that of the direct and indirect impact of the migration (MGR) and Unemployment (UNE) on economic growth (GDP) in the context of political instability (PIS) in The MENA Region.

*The migration equation:

$$M_{i,t} = \alpha_0 + \alpha_1 Y_{i,t} + \alpha_2 U_{i,t} + \sum_{i=1}^{4} \alpha_i V_{i,t} + \varepsilon_{i,t} \quad (A)$$

*The unemployment equation:

$$U_{i,t} = \beta_0 + \beta_1 U_{j,t} + \beta_2 M_{j,t} + \sum_{j=1}^{5} \beta_j P_{j,t} + \mu_{j,t} \quad (B)$$

*The economic growth equation:

$$Y_{k,t} = \delta_0 + \delta_1 U_{k,t} + \delta_2 M_{k,t} + \sum_{k=1}^{5} \delta_k X_{k,t} + \omega_{k,t} \quad (C)$$

With: $Y_{i,t}=(GDP_{i,t})$, $U_{j,t}=UNE_{j,t}$, $M_{i,t}=MGR_{i,t}$

$Xi,t=FDI_{k,t}$, $INV_{k,t}$ and $HK_{k,t}$, $P_{i,t}=INF_{j,t}$, $GC_{j,t}$ and $IQG_{j,t}$ $V_{i,t}=TRADE_{i,t}$ and $PIS_{i,t}$

2 World development indicators (WDI) is the World Bank's premier compilation of cross-country comparable data on development. Experience Stories Explore Data.

3 Kaufman D. Kraay A. and Mastruzzi M. (2003): "Governance Matters III: Governance Indicators for 1996-2002". https://econpapers.repec.org/paper/wpawuwpma/0308006.htm

4 Mtiraoui A.: "Corruption, institutional quality, human capital and economic growth in the region of MENA: The dynamic panel data (GMM)". International Journal of Current Research in Life Sciences. Vol. 4, No. 10, pp. 404-412.

5 Mtiraoui, A. and al. (2019), Islamic Financial Development Between Political Stability and Economic Growth in the MENA Region: Estimate a Model of Simultaneous Equations. http://dx.doi.org/10.2139/ssrn.3472879

When; (i = 1.16; N = 464; t = 1.29)

$\varepsilon_{i,t}$, $\mu_{j,t}$, *and* $\omega_{k,t}$ are respectively the random variables of equations A, B and C.

3.4.1. Method used: Panel data

Empirical studies have examined very simple models limited to an equation, generally linear where there is an endogenous variable or to be explained. We have assumed $Y_{i,t}$ which is explained by a set of exogenous variables and a random perturbation (residue).

We choose the ordinary least squares method and we then talk about the simultaneous equation model to show the effects of the migration (MGR) and Unemployment (UNE) on economic growth (GDP) in the context of political instability (PIS) in The MENA Region. Then the modeling is done by three phases namely:

* Design, that is, writing or specifying the model.
* Estimation of the model's equations, using appropriate techniques.

Two interesting review articles are those of Hausman (1983), who deals with traditional literature, and Phillips (1958), who deals with the more specific field of small-sample theory in models of simultaneous equations, a topic we will not address at all.

3.4.1.1. Endogenous problem

The study of several economic models such as growth, corruption and human capital requires taking into account the problem of endogenity as long as the tested variables interact simultaneously.

3.4.1.2. REG3 method (Three-stage least-squares regression)

In our case, the model presented is over-identified. The econometric method adopted was the REG3 method (*Three-stage least-squares regression*). This method is suitable for dealing with this kind of model. Indeed, the REG3 estimation method is based on the principle of applying the ordinary least squares method in three steps. One technique for solving endogeneity problems is to introduce the variables that cause these problems as instrumental variables. However, the version used in our study is that of *STATA 15.1*. Using the SLS 3 method, processing with the Stata software allows us to fully resolve the results to be criticized.

3.4.2. Preliminary tests

3.4.2.1. Stationarity tests

We know in advance that to verify the stationarity of panel data, we can use 1st generation stationarity tests. These types of 1st generation tests affecting panel data are the tests of Levin and Lin (1992); Pesaran (1997); and Hadri (2000). This being the case, it is important to point out that for the first generation tests, they are only applicable on the balanced panels, that is to say without missing data, as is the case for our variables.

So using the Pesaran test (1997), we find that all the variables used are all stationary in level.

3.4.2.2. Collinearity study between the independent variables

We assume, in this work, that the bias due to this problem is zero. The second difficulty arises when there is a strong correlation between the explanatory variables. A strong correlation leads to poor estimates of the coefficients because the determinant of the matrix (XX') will be almost equal to zero; with (X): The matrix of explanatory variables.

3.4.2.3. Multicolinearity problem and model selection

- Principle: The explanatory variables are highly correlated with the explained variable. They must be weakly correlated with each other;
- Consequences of multicollinearity: Among the consequences existing in this framework, it is the increase in the estimated variance of certain coefficients and also the instability of the estimators of the least squares coefficients. Therefore, in the case of perfect multicollinearity, the matrix (X'X) is singular, the estimation of the coefficients is then impossible;
- Klein's test: This is not a statistical test in the sense of a test of hypotheses but simply a criterion of presumption of multicollinearity. There is an appearance of multicollinearity if the coefficient of determination of the complete model (R^2) is less than the correlation coefficients ($r_{2xi,\ xj}$) and we have to compare the R to the correlation coefficients ($r_{xi,\ xj}$) which appear in the coefficient matrix correlation;
- To correct the regression chain: This is a purely numerical response which consists in transforming X'X into (X'X + αI) where α is a constant chosen arbitrarily. We thus increase the first diagonal and the "*numerical*" effects of multicollinearity are reduced.
- Other methods: The first method is step-by-step regression which procedure is identical to the previous one, except that after the incorporation of a new explanatory variable, the Student's t of each of the previously selected explanatory variables are examined and the variables whose Student's t is less than the critical threshold are eliminated.
- Problem of identification of the equations of the model: The conditions of identification of a model are determined equation by equation. Three scenarios can arise.
- The model is under-identified, if an equation in the model is under-identifiable (i.e., there are fewer equations than parameters to be identified in the structural form). In such a situation, the system is impossible to solve.
- The identified model, when all the equations are identifiable "correct".
- The model is over-identified, if the equations of the model are either identifiable "correct" or over-identifiable.

When the model is under-identified, it is impossible to estimate its parameters and the modeling must be re-specified. The conditions for identifying a model are the subject of a sometimes complex development.

3.4.2.4. Exclusion restrictions

In our model, the variable "GDP" appears at the level of the third equation as an endogenous variable and, respectively, at the level

of the second and the first equation as an exogenous variable. Likewise, the variable "MGR" appear at the first equation as exogenous variables and inflation UNE appears at the level of the second equation as an endogenous variable and GDP appears at the level of the first equation as an endogenous variable.

3.4.2.5. The necessary conditions: Order conditions[6]

In our case, we note for the model to be studied, that all the equations are over-identified. Indeed, we have three endogenous variables in the model (i.e., W = 3) "MGR", "UNE" and "GDP" and five exogenous variables: "TRADE", "HK" "INV", "FDI", "PIS, IQG", "INF" and "GC".

- The first equation has seven exclusion restrictions and no constraint restrictions applying the identification conditions, the variables appearing in the human capital equation give: W' = 1, K' = 5 and r = 0 with W' is the number of endogenous variables appearing in an equation and K' is the number of exogenous variables in an equation. Let therefore: W - W' + K - K' = 3 - 1 + 11– 5 = 8 > W - 1 = 3 - 1 = 2, the first equation is therefore over-identified.
- The second equation has seven exclusion restrictions but no constraint restrictions. We therefore have: W = 3, K = 11, W' = 1, K' = 4 and r = 0, which gives us: W - W' + K – K' = 3 - 1 + 11-4 = 9 > W - 1 = 2, the second equation is therefore over-identified.
- The third equation has six exclusion restrictions but no constraint restrictions.

6 When the model has linear restrictions, we have to add their number in the second part of the equality so we have to compare W - 1 and W - W '+ K - K' + r.

Table 1: The descriptive statistics for the MENA region

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
GDP	464	4.673665	5.750309	−42.45112	38.20071
UNEMP	464	68.07699	5.18222	48.475	77.375
MGR	464	24.25975	12.17149	6.09751	60.6836
FDI	464	2.128212	3.483336	−5.288191	33.56602
INV	464	1.546995	5.145646	0.079052	26.61561
TRADE	464	3.430188	10.46891	0.1377244	57.995
HK	464	19.13649	12.23885	0.07931	60.6836
GC	464	0.5665916	0.1020679	0.3055556	0.8733797
INF	464	0.1104163	0.5671336	0.0000177	11.98022
IQG	464	−0.0974875	0.6956885	−1.489997	1.91651
PIS	464	0.5519355	0.1317139	0.1666667	0.8733797

Source: The output of Stata15.1 made by the authors. MENA: Middle East and North Africa

So we have W = 3, K = 11, W' = 1, K' = 5 and r = 0, which implies W-W'+ K- K' = 3 - 1+ 11– 5 = 8 > W - 1 = 2, the third equation is therefore over-identified. Since in our model all the equations are over-identified, the model will therefore be over-identified.

4. ANALYSIS AND PRESENTATIONS OF RESULTS

4.1. Descriptive Analyzes

4.1.1. Descriptive measures

*The average: Allows to identify the value of the observations distributed.

*The standard deviation: Allows you to determine the fluctuations of observations around the arithmetic mean.

*The coefficient of variation: Allows you to gauge what the average is worth with regard to all the observations.

4.1.2. Matrix tables

Let's interpret the relationships between GDP (Gross Domestic Product), IQG (Innovation), UNEMP (Unemployment), and MGR (Migration) based on the correlation coefficients provided (Tables 1 and 2):

There is a positive correlation of 0.126 between GDP and IQG. This suggests a weak positive relationship, indicating that higher GDP is associated with a slightly higher level of innovation. The relationship coefficient between GDP and UNEMP is −0.005, indicating a very weak negative relationship. This suggests that there is nearly no linear correlation between GDP and unemployment. The correspondence coefficient between GDP and MGR is −0.016, indicating a very weak negative relationship.

This suggests that there is nearly no linear correlation between GDP and migration. The correlation coefficient between IQG and UNEMP is −0.031, suggesting a very weak negative relationship. This implies that a slightly higher level of innovation is associated with a slightly lower unemployment rate. The relation coefficient between UNEMP and MGR is 0.277, indicating a weak positive relationship. This suggests that a higher unemployment rate is associated with a slightly higher level of migration.

Table 2: Correlation matrix

Variables	GDP	CHGE	MGR	FDI	INV	TRADE	HK	GC	INF	IQG	PIS
GDP	1.000										
UNEMP	−0.005	1.000									
MGR	−0.016	0.277	1.000								
FDI	0.091	0.165	0.131	1.000							
INV	0.002	0.357	0.342	−0.085	1.000						
TRADE	−0.008	0.108	0.253	−0.068	0.961	1.000					
HK	0.013	0.065	−0.164	0.316	0.136	0.194	1.000				
GC	0.076	−0.244	−0.131	−0.225	0.106	−0.211	−0.154	1.000			
INF	−0.026	0.117	−0.041	−0.027	−0.047	−0.045	−0.026	0.035	1.000		
IQG	0.126	−0.031	−0.027	0.084	0.056	0.079	0.252	0.404	−0.021	1.000	
PIS	−0.021	0.086	0.118	−0.185	−0.081	−0.083	−0.062	−0.477	−0.032	−0.169	1.000

Source: The output of Stata15.1 made by the authors

4.2. Presentation and Discussion of the Results

4.2.1. Presentation of results

Table 3 shows Interaction Between Migration and Economic Growth Through Unemployment in the Context of Political Instability in the MENA Region during the period 1990 to 2020 using the simultaneous equation model.

4.2.2. Discussion of results

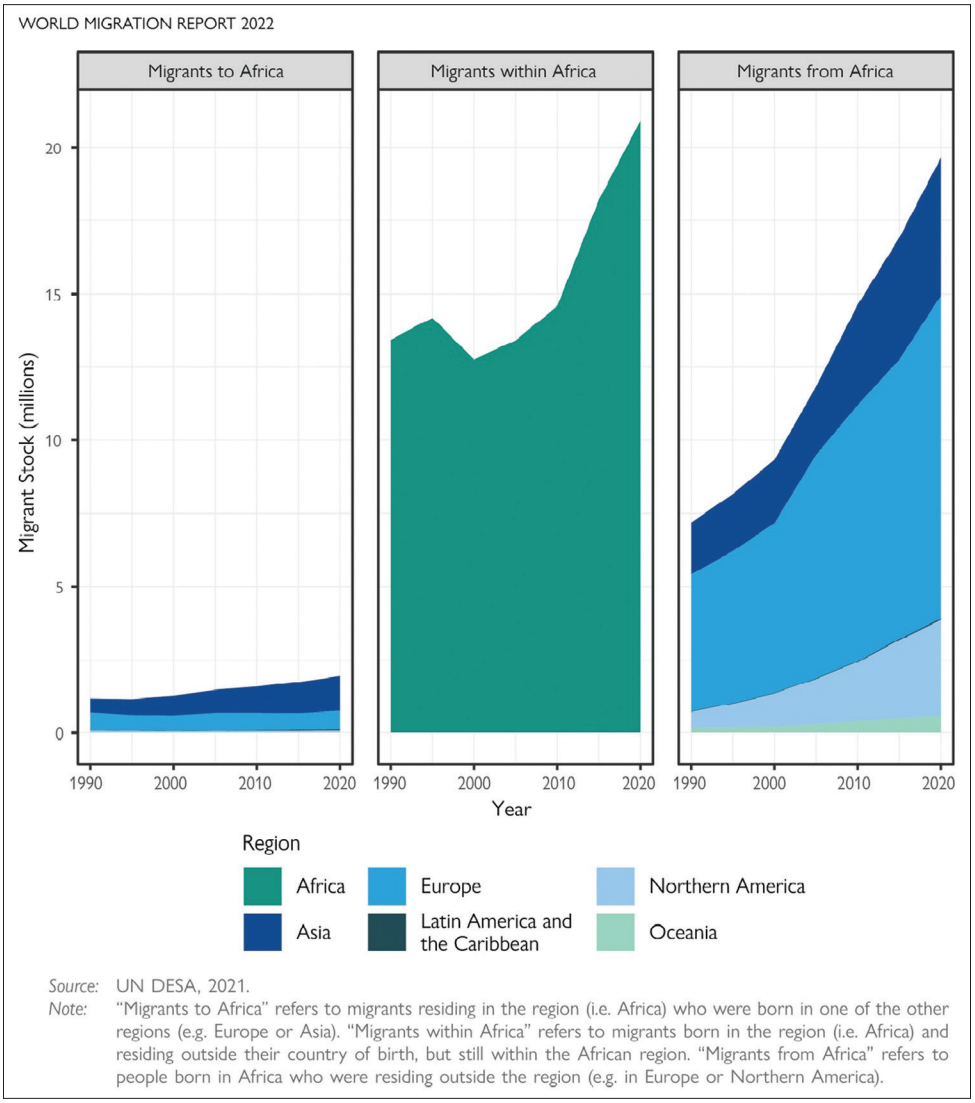
We can recall that the aim of this paper is to test the direct and indirect impact of the migration (MGR) and Unemployment (UNE) on economic growth (GDP) in the context of political instability (PIS) in The MENA Region. Otherwise, we clarify "*Interaction Between Migration And Economic Growth Through Unemployment In The Context Of Political Instability In The MENA Region*" applying a model to simultaneous equations over the period from (2090-2020) (Table 3).

According to the results found, the first equation (A) of the model shows that the migration (MGR) as an endogenous element to be explained and which plays a primordial role in growth, can explain the nature of the relationship between the migration (MGR) and macroeconomic variables. In fact, the growth rate per capita (GDP) has a negative (−1.464) and significant effect at 5% on the migration (MGR). So when the growth rate increases 5% it will have a negative evolution 3 points for the migration (MGR) indicator.

Moreover, this significant and positive relationship between the two variables is confirmed in the last equation (C) as a reciprocal relationship since the negative increase the migration (MGR) by 1% disfavors an increase in Economic growth 0.5 points of the initial situation. This implies that the indicator (MGR) is not a catalyst for growth (GDP) in this region MENA.

In this context, these results do not confirm the contribution of economist and researcher at the Center for Global Development Michael Clemens (2023) contributed to the literature on migration and development, highlighting the potential of migration to stimulate economic growth in countries of origin and destination.

Figure 1: Migrants to, within and from Africa, (1990-2020)[7]



Source: World Migration Report (2021)

7. https://worldmigrationreport.iom.int/world-migration-report-2022-selected-infographics

Table 3: Analysis of the results of the simultaneous equation model

Variables	MGR	UNE	GDP
CONS	(30.093)*	(47.598)***	(15.908)**
	1.81	(5.79)	2.60
MGR	--------	(0.576)**	(−0.524)***
	……	2.56	−3.31
UNE	(0.844)*	-------	(−0.0193)**
	1.86	……	−2.02
GDP	(−1.464)**	(−1.852)**	--------
	−2.55	−2.26	……
PIS	(6.648)*	---------	--------
	1.72	……	…….
IQG	-------	(−0.964)**	--------
	……	−1.99	……
INV	------	---------	(0.119)*
	…….	……	1.78
HK	--------	----------	(−0.022)
	……	……	−0.85
TRADE	(0.024)	--------	------
	0.39	……	…….
FDI	---------	----------	(0.202)*
	……	…….	1.76
INF	-------	(0.331)	(0.119)*
	…….	0.44	1.82
GC	----------	(−4.036)**	-------
	……	−1.97	……
Obs.	464	464	464
Prob.	0.0002	0.0008	0.0007
R^2	0.63	0.43	0.57

Source: The output of Stata15.1 made by the authors. Notes: The terms in parentheses correspond to T-Student and ***,**,*: Significant at a threshold of 1%, 5% and 10% respectively.

In Furthermore, the estimation of the model at the first level (A) shows that there is a positive (0.844) and significant effect of 10% between migration (MGR) and unemployment (UNE) which reflects an increase in migration (MGR) by 1 point when unemployment (UNE) increases by 10%. This result is fully confirmed in the second equation (B) in a reciprocal articulation (0.576) with a significance of 5% between unemployment (UNE) and migration (MGR).

Likewise, the negative indirect link (−0.524 * 0.576) between migration (MGR) and economic growth (GDP) via unemployment (UNE) is significant at (1% * 5%) and vice versa. the negative indirect link (−1.464 * 0.576) between GDP and (MGR) via (UNE) is significant (5% * 5%). The unemployment situation (UNE) has a detrimental effect on migration (MGR) which is consistent with the work of Manon Domingues Dos Santos (2006) supporting the idea that the positive relationship between unemployment (UNE) and migration (MGR).

The interaction between the three indicators remains ambiguous, especially when the phenomenon of instability persists. In this sense, political instability (PIS) is positively (6.648) correlated with migration (MGR) and negatively (−0.964) with unemployment (UNE) if we talk about the quality of governance (QGI) as a determinant of job creation.

This relationship essentially depends on the indicator of political Instability (PIS) has a positive impact (1.191) and significant on the migration (MGR) political instability therefore discourages. In this sense, the estimation of equation (B) results that the indicator of governance quality (IQG) is negatively colored (−0.964) and effect of 5% with Unemployment (UNE). Thus, the quality of governance (IQG) has an indirect impact correlated negatively (−0.964* 0.844) and statistically significant (5% * 10%) with growth (GDP). These results found are confirmed in equation (C) given the negative (−0.0193) and significant impact of 5% unemployment (UNE) on growth economic (GDP). However, the empirical works confirmed the contribution of Shiferaw (2023).

In total, it is therefore necessary to mention that the politic instability situation a key element to orient the majority of economic activities and also target theses migration (MGR) and unemployment (UNE) to not stimulate the growth of GDP per capita in our study region (MENA) when Political instability (PIS) therefore discourages.

5. CONCLUSION

This Work is to show the direct and indirect effects of the migration phenomenon on economic growth through unemployment in a context of political instability while using to the simultaneous equation model and for the period 1990-2020. The interaction between migration, economic growth, and unemployment in the context of political instability is undeniably a complex and multifaceted issue, and this complexity is particularly pronounced in the Middle East and North Africa (MENA) region. Several key points can be highlighted to better understand this intricate relationship:

5.1. Interconnected Factors

Migration, economic growth, unemployment, and political instability are interlinked in a cyclical manner. Political instability can hinder economic growth and job creation, leading to unemployment and prompting individuals to migrate in search of better opportunities. Conversely, large-scale migration can strain host countries' resources, potentially contributing to social and political instability.

5.2. Economic Impact

Migration can have both positive and negative economic impacts. On one hand, remittances from migrants can inject funds into their home countries, stimulating local economies. On the other hand, the emigration of skilled workers (brain drain) can impede economic development, while the influx of migrants in host countries can strain resources and labor markets.

5.3. Unemployment Dynamics

High unemployment rates in the MENA region often drive individuals to seek opportunities abroad. The inability to find work can be a source of social unrest, exacerbating political instability. Simultaneously, host countries in the region may grapple with the challenge of integrating migrant populations into their labor markets.

5.4. Political Instability's Role

Political instability in the MENA region, whether stemming from conflicts, governance issues, or other factors, can deter foreign investment and economic growth. This instability can also disrupt labor markets, leading to job losses and pushing more people to consider migration as a coping strategy.

5.5. Policy Considerations

Effective policymaking is crucial to address these challenges. Policies that promote economic growth, job creation, and political stability can reduce the incentives for migration. Additionally, countries can work on enhancing social safety nets, skills development programs, and labor market reforms to mitigate unemployment issues.

5.6. Regional and Global Cooperation

Given the transnational nature of migration, regional and international cooperation is vital. Collaborative efforts can help manage migration flows, share the responsibility of hosting refugees, and create opportunities for economic development.

In the MENA region, addressing the complex interplay of migration, economic growth, unemployment, and political instability requires a comprehensive and multifaceted approach. Policymakers, researchers, and stakeholders must consider the unique circumstances and challenges of each country within the region while working collectively to foster stability, economic prosperity, and opportunities for both local populations and migrants.

While they do not generate carry-over effects on the economy as a whole thanks to the complementarities described in this article, they only generate an additional growth of the extensive type and strongly reversible in the case where productive capital falls would relocate elsewhere.

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