Journal of Economics and Behavioral Studies (ISSN: 2220-6140)
Vol. 17, No. 1, pp. 9-20, March 2025

The Impact of Foreign Direct Investment on Unemployment in Mena Region

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Abstract: This paper examines the impact of foreign direct investment on unemployment in the MENA (Middle East and North Africa) region from 2011 to 2021. To achieve this, the study employed fixed effect and random effect estimators. The findings reveal that FDI, GDP growth, and population growth have negative coefficients and a significant impact on unemployment, whereas government expenditures and exports have negative coefficients but no significant impact on unemployment. This suggests that FDI, GDP growth and population growth reduce unemployment in the MENA region. Since the countries in this region have experienced high concentrations of unemployment, the government should focus on implementing policies that develop the skills and training of the people to prevent mismatches and encourage the private sector to create new jobs. In addition, the government should develop policies that facilitate the access and operation of FDI investors, as this will further assist in lessening unemployment in the MENA region.

Keywords: *FDI, GDP growth, MENA region, panel data, unemployment.*

1. Introduction

There are four major macroeconomic issues, which include unemployment, inflation, Economic growth, and the balance of payments. Both developing and industrialized nations are increasingly dependent on foreign direct investment (FDI) for the transfer of resources. The FDI inflows offer various tangible and potential advantages, such as the transfer of technological knowledge, the creation of employment opportunities, and the enhancement of managerial expertise and productivity. The lack of capital in least-developed countries and the potential benefits from these activities make them crucial for promoting growth and development (Gizaw, 2015; Bakar, Raji, & Adeel-Farooq, 2019). Numerous African countries have implemented a multitude of policy reforms to establish a favorable investment climate, aiming to attract a significant influx of foreign direct investment (Nikola & Pavlos, 2017).

It is widely believed that FDI and international commerce are crucial drivers of economic growth and effective means of alleviating unemployment (Alalawneh, & Nessa, 2020). FDI has a significant role because it promotes private investments, generates employment opportunities, and enables the relocation of information and skills (Ibrahim, & Raji, 2018). There is a lack of agreement on how FDI affects host economies. Several recent studies have decided to examine the impacts of FDI on various economic factors. While the researchers widely recognize the correlation between economic growth and investments, addressing the association concerning FDI and unemployment is a complex task. According to Pandya (2010), certain economists contend that FDI inflows only benefit the labor market when it comes to skilled workers. On the other hand, Hale and Xu (2016) argue that FDI generally has a positive effect on overall employment and productivity in developing nations, but its impact in advanced countries is more complex. The current study seeks to examine the influence of FDI on unemployment rates in the MENA region and to comprehend the causal connections between FDI, economic growth, government expenditure, unemployment, and exports. FDI plays an essential role in encouraging the development of the infrastructure and industries necessary for economic growth, which in turn increases productivity and creates jobs (Adeel-Farooq, Bakar, & Raji, 2018; Dritsakis & Stamatiou, 2017).

Unemployment is a crucial indicator for any country worldwide. Romer et al. (2012) define unemployment as the state in which individuals actively seek job opportunities but are currently unemployed. Unemployment significantly affects the economies of both advanced and emerging nations, resulting in many socioeconomic challenges. A high unemployment rate signifies a persistent scarcity of available job opportunities, resulting in increased poverty and insufficient living conditions (Alhdiy et al. 2015). It can heighten an individual's susceptibility to criminal activity, hence potentially destabilizing economic equilibrium (Jawadi et al. 2021).

Unemployment is an underutilization of human resources, resulting in a waste of resources. More so, insufficiently utilized resources in the production process lead to suboptimal outcomes (Dornbusch et al., 2011). Unemployment has been described to be a state of imbalance when the number of available workers exceeds the number of job opportunities. It arises when there is an excessive increase in the labor force or insufficient growth in employment (Hjazeen et al. 2021). It can be influenced by economic crises defined by deteriorating macroeconomic indicators such as reduced economic growth, devalued currency, and reduced purchasing power. This was evident during the COVID-19 pandemic-induced crisis (OECD, 2020).

The global unemployment rate had a slight decline to 6.2 percent in 2021; however, it remains significantly higher than the pre-pandemic record of 5.4 percent. In 2021, there were an additional 28 million individuals who were unemployed, compared to the number in 2019. The International Labour Organisation (ILO) predicts that unemployment will continue to exceed 2019 levels until at least 2023. Nevertheless, it is important to acknowledge that the unemployment rate fails to fully reflect the full employment consequences of the crisis, as a significant number of individuals who exited the workforce have not re-joined (ILO, 2022).

In the last ten years, including the COVID-19 pandemic period, governments in the MENA area have faced substantial challenges in dealing with high levels of unemployment (Alalawneh & Nessa, 2020). The International Monetary Fund (IMF) has reported that these countries have the highest unemployment rates globally (Abdulai, 2022). The Middle East and North African countries, along with other developing nations, face several economic disparities and developmental obstacles. The most significant is the imperative to address the issue of unemployment reduction. These nations aim to alleviate foreign direct investment (FDI) to bolster economic expansion, enhance trade, and lessen unemployment.

The countries possess a common set of attributes, with the most significant being their status as developing nations that do not heavily rely on oil exports. They aim to attract foreign direct investment as a substitute for loans from external sources to address the issue of rising unemployment rates. Additionally, these countries are actively striving for economic openness and offering various exclusions and motivations for foreign financing interest, particularly in initial sectors (Adeel-Farooq, Bakar, & Raji, 2017; Mohamed, 2020). During the previous three decades, all these OIC members have demonstrated political and economic stability. They benefit from the development of human capital and the trade of skilled labor to the Arab Gulf countries. Based on these common traits, the study predicts that FDI's impact on unemployment will be similar in each of these nations (Alalawneh & Nessa, 2020).

In contemporary years, there has been an expanding focus on capital movements and their impacts due to the acceleration of globalization trends. Many emerging countries, without sufficient domestic savings to enable economic development, rely on foreign resources to fill the gap (Abonazel, & Shalaby, 2020). Many economic variables, such as a country's GDP, trade deficit, inflation, productivity, and poverty rate, are seen to benefit from foreign direct investment. In addition, the unemployment rate will decrease as a direct result of these investments. When people who are competent and eager to work can't find a job, they are unemployed. People who don't take part in making anything pay a hefty price in social and economic terms. The real rate of national production falls short of the potential rate of national output in economies where unemployment is high because resources are not being used effectively (Alabed, et al. 2022).

Due to its expanding economy and substantial infrastructure investments, Saudi Arabia is widely considered the primary recipient of FDI in the MENA region (Ehmaidat & Jajuga, 2023). The Saudi Arabian General Investment Authority's summer 2019 reports a significant 24% growth in FDI inflows during the first quarter of 2019. All through, the initial six months of the year, there was an 85% increase in new licenses granted to foreign investors. Additionally, the National Competitiveness Center successfully implemented economic reforms, achieving a 55% success rate. Significant investment agreements are being finalized, and large-scale projects are moving forward. International investors started to set up shop in greater numbers; notable recent investments have come from the USA, UK, France, Egypt, China, and India, among other nations. Remarkably, the two main sources of foreign direct investment in the country are the United States and China. Attracting "quality FDI," which is defined as international investors with ties to the local economy of the host nation, must be the Kingdom of Saudi Arabia's top priority (Alkofahi, 2020). High-quality FDI actively supports the creation

of meaningful and valuable employment opportunities, raises the skill level of the economies receiving it, and makes it easier for technology, knowledge, and expertise to be transferred (Moran et al., 2017).

Following the contradictory outcomes on the link involving FDI and unemployment, for instance, in Arab countries, research examines the macroeconomic effect of FDI on unemployment rates. The research finds that FDI has a positive influence on reducing national unemployment in Jordan, Morocco, and Tunisia, both individually and collectively. However, in Egypt, FDI hurts unemployment (Alalawneh & Nessa, 2020). Therefore, there is a research gap to examine the issues or aggregated character of host nation macroeconomic factors. This study explores the connection between FDI and unemployment in the member nations of the MENA region. Specifically, it examines whether FDI among other determinants has a mitigating effect on unemployment in the region.

The global competition to attract foreign investment and stimulate local investment has significantly increased during the past decade. Due to significant changes in the framework of international economic exchange, governments have made efforts to enhance their economic and legislative systems to attract foreign investors and promote global investment localization (Anowor et al. 2019). Most countries reduced restrictions on the movement of capital to facilitate significant FDI inflows.

The unemployment rates in the MENA countries have been relatively high over the past decade, particularly among youth, and the COVID-19 pandemic has further exacerbated the issue. Therefore, understanding the influences of factors such as FDI, economic growth, population growth, government expenditure, and exports that can mitigate the rate of unemployment in the region will help to provide better recommendations for policymakers to address the problem. The result is likely to offer useful hints to policymakers, scholars, and professionals who seek to comprehend how to improve the region's labor market in terms of job opportunities.

2. Literature Review

The primary focus of several studies has been to determine the influences of FDI on various economic factors. The studies conducted in different countries provide varying perspectives on the correlation involving FDI and unemployment rates. In the case of Saudi Arabia, Alkofahi (2020) utilized the Ordinary Least Squares Model (OLS) to investigate the effect of FDI on unemployment from 2005 to 2018. The study found that FDI inflows and total output had a negative and significant impact on the unemployment rate in the country. This suggests that an increase in FDI and overall economic output contributed to the reduction of unemployment in Saudi Arabia. In Pakistan, Zeb et al. (2014) conducted research covering the years 1995–2011 using multiple regression analysis. Their findings indicated that FDI acted as an important factor in reducing unemployment in the country, supporting the idea that FDI had a positive impact on the job market in Pakistan.

Several studies have discovered the association between FDI and unemployment in different countries. Zdravković et al. (2017) concluded that the long-term impact of FDI on unemployment in transition nations is weak or non-existent. Furthermore, studies carried out in the Western Balkan region of Albania, Macedonia, and Bosnia and Herzegovina demonstrate a statistically insignificant effect of FDI on unemployment (Kirkpatrick, 2016). However, studies conducted in Pakistan reveal that FDI and foreign remittances have significant impacts on reducing unemployment, but their effects are statistically insignificant in the short run (Maqbool et al., 2013; Mazher et al., 2020).

Johnny et al. (2018) conducted research on Nigeria from 1980 to 2015, using FDI and capital formation as explanatory variables, and the unemployment rate as the explained variable. Their analysis includes unit root tests, cointegration tests, and ordinary least squares tests. Results revealed a negative but statistically insignificant association between FDI and Nigeria's unemployment rate. This suggests that, during the study period, FDI did not play a role in reducing unemployment in Nigeria. Another study (Muhd et al., 2016) found that FDI, the number of foreign workers, and GDP significantly influenced Malaysia's unemployment rate, as determined using the ARDL model, based on annual data from 1980 to 2012.

In Bahrain, a study found that fixed capital formation and government spending have a significant impact on unemployment (Alrayes & Wadi, 2018). In Nigeria, data spanning from 1980 to 2013 revealed that capital

investment acts as a catalyst for reducing job loss in both the short and long run, while recurrent expenditure is statistically insufficient to do so (Onodugo et al., 2017). A study from 1990 to 2019 in Jordan estimated the impacts of government spending on unemployment. The researcher discovered a strong negative and statistically significant association between government spending and the unemployment rate, as well as a considerable positive impact on joblessness in the short run (Saraireh, 2020). A study used Blanchard and Perotti's (2002) structural vector autoregressive model to evaluate the effects of fiscal policy shocks on the unemployment rate in Egypt. They used annual time series data from 1976 to 2018 and determined that an increase in government spending lowered the unemployment rate, whereas an increase in tax revenue raised it (Omran & Bilan, 2020).

Several studies have investigated how various countries' unemployment rates relate to their population growth rates. Using panel data regression analysis spanning 2010–2015, researchers in Indonesia's Special Province Yogyakarta discovered that a rise in the population substantially decreased the rate of unemployment (Feriyanto, 2018). An analysis of panel data covering the years 2001–2012 in the BRIC nations (China, Russia, India, and Brazil) indicated that inflation and population growth were the main drivers of increasing unemployment rates (Gur, 2015). A key component impacting unemployment in Bahrain using to ARDL model, is the country's growing population, which has a beneficial effect on the jobless rate (Manaa & ul Haq, 2020).

From 1999 to 2013, researchers in the Kingdom of Saudi Arabia identified the factors that affected the unemployment rate. According to the regression results, the unemployment rate was positively affected by population growth, and negatively by GDP and population expansion (Haque et al., 2017). From 1990 to 2020, researchers in Zanzibar analyzed the impact of population growth on unemployment rates. According to the findings, the unemployment rate rose by 5.2% due to population growth, whereas it fell by 0.3% due to GDP per capita and 0.7% due to inflation (Ali, Omar, & Yusuf, 2021). There is a long-term correlation between unemployment, economic growth, education, female population, and urban population in Jordan, according to Hjazeen et al. (2021). It was shown that economic growth had a negative link with unemployment in Jordan. On the other hand, education, the female population, and the urban population had positive correlations with unemployment.

A study used yearly data from 1991 to 2019 to examine the Algerian economy using Okun's law. Using the ARDL bounds testing technique model and the gap version of Okun's coefficients. The results showed that Okun's law was true for the Algerian economy. The factors in the gap version also showed that the GDP gap significantly and negatively affected unemployment rates (Louail & Benarous, 2021). When looking at the correlation between GDP and unemployment, the data suggests a medium-run equilibrium where regional output changes are correlated with regional unemployment changes. In addition, there is an asymmetry in the medium run between the effects of a GDP expansion and an increase in unemployment; a reduction in GDP has a smaller absolute value influence on unemployment than an expansion in GDP (Palombi et al., 2015).

Doğan (2012) investigated the relationship between unemployment and several macroeconomic shocks from 2000: Q1 to 2010: Q1. The study found that unemployment and exports were negatively impacted by GDP growth, export growth, and inflation, whereas interbank government spending and money growth had favorable effects. In a study by Omotayo (2018), both the unemployment rate and the trend of Nigeria's non-oil exports were examined. An additional focus of the study was on how non-oil exports relate to Nigeria's jobless rate. This study utilized the autoregressive distributed lag (ARDL) model to examine the effect of non-oil exports on the unemployment rate in Nigeria from 1981 to 2017. Global product, export inflation, and public spending were the non-oil export factors. Regression results confirmed that non-oil exports from Nigeria did not affect the country's unemployment rate.

Various scholars in diverse countries, including developed and underdeveloped nations, have investigated the issue of unemployment and foreign direct investment in previous studies. However, this study considers other variables such as exports and population growth. It also focuses on the impact of FDI, GDP growth, and government expenditure on unemployment. The geographical area of this current study is the MENA region because of the existence of high unemployment rates that have occurred in recent years, due to the impact of COVID-19 and the ongoing conflicts between Ukraine and Russia, Israel, and Palestine.

3. Method of Estimation and Data Structure

Method of estimation and model

In this study, we establish the following model to test the following variables where FDI and unemployment are the independent variables and a dependent variable respectively, while the rest of the variables are control variables. Some of these variables have been used in previous studies, such as Azhar (2023) and Alalawneh and Nessa, (2020). Hence, we estimated the following model,

$UNEt = \alpha + \beta FDI_t + \gamma GDP_t + \lambda PG_t + \varphi GE_t + \omega EXP_t + \mu_t$

$UNE = F (FDI, GDP, PG, GE, EXP)$

$UNE = B_0 + B_1FDI + B_2GDP + B_3PG + B_4GE + B_5EXP + e$

UNE= unemployment, FDI = foreign direct investment, GDP = gross domestic growth, PG = population growth, GE = government expenditure, EXP= export, e= error.

The study utilizes the Levin-Lin (LLC) and Im-Pesaran-Shin (IPS) tests for panel data analysis. The IPS test can be combined with any parametric unit-root test if the panel is balanced and the t-statistics for the unit-root in each cross-section have an equal distribution, ensuring the same variance and mean. The Central Limit Theorem (CLT) might then be utilized. The IPS test is commonly employed in practice due to its simplicity and ease of use, although it requires a balanced panel (Raji, Adeel-Farooq, & Ahmad, 2024). Next, to examine the relationship between variables, the paper employed panel data regression models. The study conducted fixed effect estimators, random effect estimators, and pooled OLS models. For model selection purposes, the study used the Breusch Pegan LM test and the Hausman test. While the Breusch Pegan test is used to select between the fixed effect estimator and pooled OLS model, the Hausman test is used to select between the fixed effects model and the random effects model.

Data sources and structure

This paper aims to study the influence of FDI on unemployment in the Mena area. Our observation covers yearly data from 2011 to 2021 for 12 nations in MENA. All the data are collected from World Development Indicators (WDI). The study employed panel data for the 12 nations in the MENA region. The following Table 1 shows the description of variables and their sources.

Table 1: Description of Variables and Sources

Variable	Unit	Description	Source
Unemployment	(% total labor force)	The unemployed are people of working age who are without work, are available for work, and have taken specific steps to find work (Reserve Bank of Australia, 2019).	WDI
FDI	FDI net inflows (% of GDP)	Foreign Direct Investment (FDI) offers essential resources to developing countries, including technology, capital, entrepreneurship, and skilled labor, which are crucial for generating employment opportunities and consequently reducing unemployment (World Bank, 2022).	WDI
GDP	GDP growth (annual %)	Gross Domestic Product (GDP) is the aggregate value in dollars of all completed products and services produced within a country during a certain period (OECD, 2010).	WDI
Population growth	PG (annual)	Population growth refers to the change in the size of a population over a specific period. We can measure it by calculating the change in the number of individuals	WDI

		within the population per unit of time. (World Bank,2022).	
Government expenditure	GE (% of GDP)	Government expenditure (GE) is a public expenditure that refers to the financial resources allocated by the government to acquire commodities and deliver services, including but not limited to education, healthcare, and social welfare (World Bank, 2022).	WDI
Exports	EXP (% of GDP)	Exports include the economic value of all goods and additional market-based services supplied to foreign countries (World Bank, 2022).	WDI

Note: WDI stands for World Development Indicators

Figure 1 shows the graphical relationship between individual regressor and the response variable, the unemployment rate in the Mena region.

4. Results and Discussion

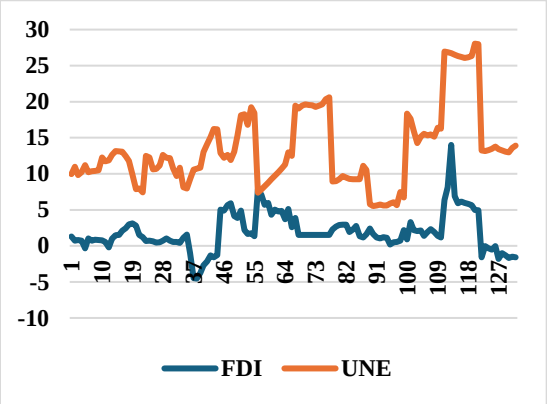
This section discusses the results of the relationship between the independent variables such as FDI, GDP growth, population growth, government expenditure, and exports and the dependent variable of unemployment in the MENA region. Furthermore, the study conducted descriptive statistics, panel unit root tests, variance inflation factor, cross-sectional dependencies, regression analysis, and causality tests. To begin with descriptive statistics, Table 2 shows the results of the descriptive statistics of all the variables which consist of the mean, median, standard deviation, minimum, and maximum of all variables in the model. Export has the highest mean value means that it is a significant contributor to the economy while GDP has the lowest value indicating slow or modest economic growth. Apart from unemployment, all the variables have a kurtosis value greater than 5 which means that all variables have significant outliers except unemployment which has a normal distribution.

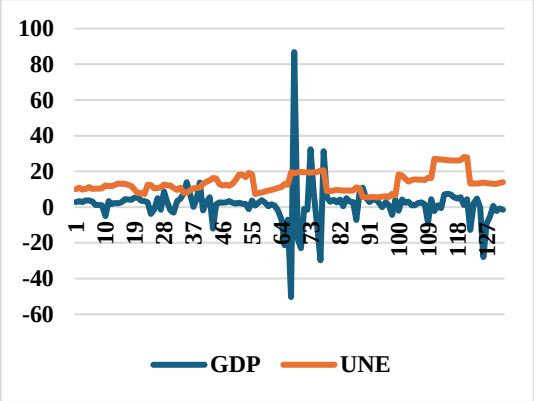
Table 2: Results of descriptive statistics

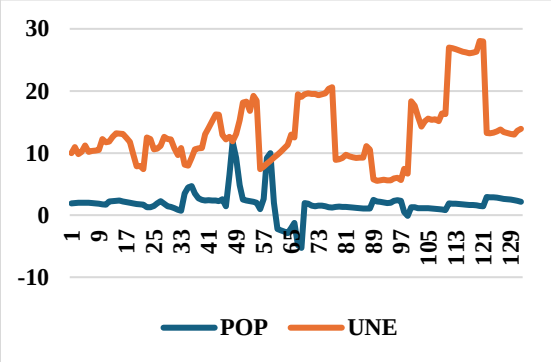
	UNE	FDI	GDP	PG	GE	EXP
Mean	13.461	1.923	1.607	1.869	18.604	38.106
Median	12.460	1.539	2.530	1.856	17.999	32.401
Maximum	28.048	14.000	86.826	11.794	61.166	166.717
Minimum	5.520	-4.541	-50.338	-5.280	2.360	4.809
Std dev	5.471	2.620	11.567	2.067	8.513	31.366
Skewness	1.012	0.849	2.161	1.182	2.148	2.809
Kurtosis	3.585	5.799	27.694	11.374	9.813	10.768
Observations	132	132	132	132	132	132

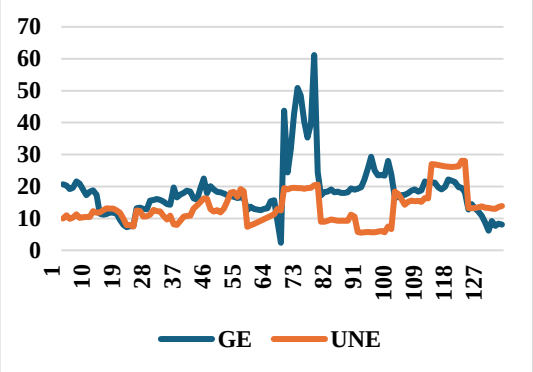
Note: UNE= unemployment, FDI = foreign direct investment, GDP = gross domestic growth, PG = population growth, GE = government expenditure, EXP= export.

Figure 1: Graphical representation of the relationship between each regressor and unemployment rate









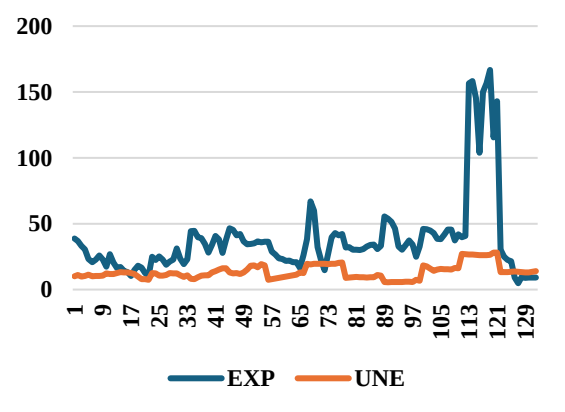


Table 3: Results of LLC Test **Results of IPS Test**

Variable	Level	1st difference	Decision	Level	1st difference	Decision	VIF
UNE	0.39143	-4.94575***	I(1)	1.31059	-1.353939**	I(1)	-
FDI	-6.21859***	-12.3623***	I(0)	-2.97807***	-6.99495***	I(0)	1.39
GDP	-6.42786***	-11.8956***	I(0)	-3.75830***	9.389404***	I(0)	1.06
POP	-13.5439***	-58.0246***	I(0)	-9.24056***	-14.3883***	I(0)	1.02
GE	-4.34445***	-7.73636***	I(0)	-2.69169**	-5.28580***	I(0)	1.09
EXP	-6.61051***	-6.16515***	I(0)	-3.62190***	-3.59271***	I(0)	1.49

Note: ***,**,* indicate level of significance at 1%, 5% and 10% respectively.

Table 3 shows the outcomes of the LLC and IPS tests regarding panel unit root tests. The results indicate that all variables are stationary at I (0) except unemployment, which is at I (1). Next, the study conducts a test for

multicollinearity and Table 3 shows the results of VIF, which confirm that all variables have values less than threshold 5, indicating that there is no problem with multicollinearity in the model.

Table 4: Results of Cross-sectional Dependence

Test	Statistic	d.f	Prob
Pesaran CD	1.710921	66	0.087**

Note: ***, **,* indicate level of significance at 1%, 5% and 10% respectively.

In addition, the study examines the cross-sectional dependencies among MENA countries, and the Pasaran (2004) test was utilized. The results in Table 4 reveal that there is no cross-sectional dependency among the residuals of MENA countries. Next, the study tests whether pool OLS is more appropriate than a random effect estimator. To do this, the Breusch Pegan Langrage Multiplier test was conducted, and the result is reported in Table 5.

Table 5: Results of the LM Test

Test Summary	Cross Section	Prob
Breusch-Pegan LM Test	285.63	0.000***

The Breusch-Pegan LM test clarifies the best model between pooled OLS and random effect estimator, and it showed a statistically significant result, which means rejection of the null hypothesis of pooled OLS and accept random effect estimator.

Table 6 shows the results of the Hausman test to identify the most suitable model between the fixed effect model and the random effect model. The Hausman test results show that the probability value is 0.000, which is less than 0.05. This suggests that the random effect model is rejected in favor of the fixed effect model. This study applies the fixed effect model and Table 6 also outlines the outcomes of the estimators.

Table 6: Results of fixed effect and random effect estimators

Fixed Effect Model			Random Effect Model	
Variable	**Coefficient**	**Prob**	**Coefficient**	**Prob**
C	15.367	0.000***	14.660	0.000***
FDI	-0.364	0.000***	-0.316	0.003**
GDP	-0.026	0.036**	-0.025	0.048**
POP	-0.245	0.000***	-0.256	0.000***
GE	-0.022	0.584	-0.002	0.948
EXP	-0.007	0.398	-0.0005	0.947
R^2	0.940			
Adj R^2	0.932			
Hausman test	Chi sq statistic	Chi sq d.f.	Prob	
	17.609	5	0.003***	

Note: ***, **, * indicate level of significance at 1%, 5% and 10% respectively. The dependent variable is unemployment.

The R-squared value of 0.940 implies that 94% of the variations in unemployment are explained by the variables that were selected, such as FDI, GDP growth, population growth, government expenditure, and exports. With an R-square of 94%, it shows that the model is well-fitted. The adjusted R-squared value of 0.932 also suggests that the selected variables account for 93.2% of the unemployment variation.

According to the results, FDI and POP are significant at 1%, while GDP is significant at 5%. However, government expenditure and exports are not significant enough to affect unemployment. The empirical result from the model reveals that FDI has a negative and significant impact on unemployment in the Mena region. This indicates that an increase in FDI by one unit decreases unemployment by 0.364 units. This result corresponds to the hypothesis and assumptions that foreign direct investment leads to economic benefits for workers, such as higher real wages, improved productivity, and the formation of vertical and horizontal integrations. It also

promotes the development of supportive projects and the creation of new job opportunities. The findings of this study align with prior research, such as Dritsakis and Stamatiou (2017), Makun and Azu (2015), Irpan (2016), and Zeb et al. (2014), which found that FDI lowers unemployment. However, the results contradict some previous studies, such as Alamoudi, (2017), Kurtovic et al (2015) and Bayar (2014).

On the other hand, GDP growth has a negative and significant effect on unemployment. This means that as GDP rises by 1 unit, unemployment reduces by 0.026 unit, holding other factors constant. The results of the research support Okun's law regarding the correlation between economic growth and unemployment. The rise in GDP in the MENA countries effectively decreased unemployment. This aligns with the findings of Hjazeen et al. (2021) but contradicts those of Hassan and Nassar (2015). Sustainable economic growth is a key factor in enhancing living standards. Each of the MENA countries has implemented both fiscal and monetary policies that have led to an increase in GDP and a decrease in unemployment.

According to the results, population growth is found to have a negative and significant effect on unemployment. This indicates that when the population rises by 1 unit, unemployment decreases by 0.245 units while other factors remain constant. This study is aligned with others like Raouf (2022), Ali and Ahmed (2023), and Yusuf and Mogadishu (2021). The study's findings align with the Keynesian Theory of Unemployment, which claims that population growth is the primary driver of increasing unemployment levels. Consequently, the study affirms the favorable effect of population growth on unemployment in the region.

Table 7: Results of pairwise Granger causality test

Null hypothesis	F statistic	Prob
PG ≠ UNE	2.43345	0.092**
UNE ≠ PG	0.02956	0.970
EXP ≠ UNE	1.32211	0.271
UNE ≠ EXP	8.37020	0.000***
EXP ≠ FDI	6.61230	0.0020***
FDI ≠ EXP	6.83317	0.0016***
PG ≠ GDP	3.17366	0.0460**
GDP ≠ PG	11.8670	2.E-05***
GE ≠ GDP	3.20090	0.0448**
GDP ≠ GE	7.00877	0.0014***
GE ≠ PG	3.92137	0.0228**
PG ≠ GE	0.78978	0.4567

Note: ***, **, * indicate level of significance at 1%, 5% and 10% respectively. To conserve the space, any pair of variables not significant is not included in the table. ≠ indicates “not granger cause”.

Table 7 illustrates the Granger causality test. The result shows that PG and EXP have a unidirectional relationship with unemployment that is, PG causes unemployment and unemployment causes EXP. In addition, other variables like EXP & FDI, PG & GDP, and GE & GDP have a bi-directional relationship which means that the variables cause each other. There is a unidirectional relationship between GE & PG with GE causes PG.

5. Conclusion and Implications of Results

This study analyzed the influence of FDI on unemployment in the Mena area. It used some factors that affect unemployment in the region, such as foreign direct investment, GDP growth, population growth, government expenditures, and exports. So, the study shows that FDI, GDP growth and population growth have a negative and significant effect on unemployment; in contrast, government expenditure and exports have an insignificant effect on unemployment in the MENA zone. The persistent challenge of unemployment necessitates proactive measures from government agencies. To effectively address this issue, a multifaceted approach focusing on foreign direct investment (FDI), local enterprise development, and strategic industry support is essential. Herein, several key strategies are outlined to promote employment and economic growth. Firstly, implementing policies to encourage FDI in technology, research and development, and innovation sectors can significantly reduce unemployment. Governments should provide incentives for the transfer of advanced technologies and foster collaboration with local educational institutions. This collaboration can cultivate a proficient workforce

equipped to meet the demands of these high-growth industries. Secondly, the development of laws that promote partnerships between international investors and local small and medium-sized enterprises (SMEs) is crucial.

In addition, provision for local collaborations, offering financial assistance, and facilitating joint ventures may be helpful. These measures can strengthen domestic enterprises, enhance their capabilities, and create a more robust job market. Cluster development strategies represent another vital initiative to attract FDI to specific locations or industries. This approach involves designating industrial areas, improving infrastructure, and streamlining regulatory procedures. By concentrating resources and efforts, governments can create attractive investment environments that stimulate economic activity and job creation. In addition, establishing and enforcing regulations that encourage diversification away from traditional sectors, such as oil, is imperative. Allocating resources to infrastructure, providing incentives, and creating a conducive business environment for non-traditional industries can foster a more resilient and varied economic landscape. This diversification can lead to sustained employment opportunities across multiple sectors. Creating incentives and support systems for industries with high job potential, such as manufacturing, construction, and services, is also essential. Measures such as tax incentives, financial aid, and simplified regulatory processes can facilitate growth in these industries, leading to increased employment. Lastly, allocating funds to infrastructure projects can directly boost economic growth and employment. Infrastructure developments, such as building and transportation projects create immediate job opportunities and enhance logistics and connectivity, making the region more attractive to various sectors. In conclusion, reducing unemployment requires a comprehensive and strategic approach by government agencies. By encouraging FDI, supporting local enterprises, promoting industry diversification, and investing in education and infrastructure, governments can create a conducive environment for job creation and economic growth. These actions can lead to a more resilient and dynamic economy with ample employment opportunities for its workforce.

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