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An Empirical Investigation of the Relationship Between Foreign Direct Investment and Unemployment Rate in Azerbaijan: An ARDL approach

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Abstract

This paper aims to examine the effect of FDI on the unemployment rate in Azerbaijan from 1993 to 2022. The Augmented Dickey–Fuller (ADF) unit root test, Phillips-Perron (PP) unit root test, ARDL co-integration test, and Granger Causality test have been employed for the statistical analysis. The results of the ARDL approach indicated a significant relationship between FDI and the unemployment rate. The outcomes of the long-run analysis noted a negative and significant relationship between FDI and unemployment. In contrast, the short-run test showed a negative but insignificant relationship between FDI and unemployment. Moreover, the findings of the Granger causality test showed no causal link running from FDI to unemployment, meaning the null hypothesis that FDI does not Granger cause unemployment should be accepted. This suggests that FDI leads to employment in Azerbaijan. Conversely, a causal relationship running from unemployment to FDI was confirmed, indicating that the null hypothesis that unemployment does not Granger cause FDI should be rejected, and the alternative hypothesis that unemployment does Granger cause FDI must be accepted. This implies that the unemployment rate influences FDI inflow into the country. Hence, it has been demonstrated that FDI inflows decreased Azerbaijan's unemployment rate during the examined period.

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1. Introduction

Foreign Direct Investment (FDI) has been recognized as a significant engine for worldwide prosperity and growth over the past several decades (Belkania & Karimov, 2018; Karimov & Belkania, 2018; Karimov & Huseynova, 2024). It is a pillar of global economics and business in which capital moves across national boundaries to develop or acquire enterprises in other countries (Karimov 2020a; Karimov et al., 2020). FDI has played an essential role in transforming the global economic landscape, facilitating knowledge transfer, stimulating economic growth, and boosting trade between nations (UNCTAD, 2020). As the world becomes more interconnected, studying the patterns, drivers, and repercussions of FDI is critical for policymakers, scholars, and practitioners in global economics.

Unemployment is a serious economic and societal concern that governments worldwide face (Blanchard & Summers, 1986). The ongoing desire to achieve full employment and reduce unemployment is an important issue for legislators and researchers. In recent years, the influence of FDI on unemployment has received greater scrutiny. Numerous research investigations have been conducted to explore the link between FDI and employment rates in recipient countries. FDI is defined as the infusion of capital and knowledge from overseas investors (Karimov, 2020b; Karimov et al., 2023; Lipsey, 2004; Moran, 2001). Addressing this relationship is critical not only for academic research but also for developing effective labor market policies and economic growth strategies.

As an engine of globalization, FDI provides both benefits and challenges to host countries' labor markets (UNCTAD, 2019). On one hand, FDI may help create jobs by establishing new firms, expanding existing ones, and transferring innovative technology and skills (Driffield & Taylor, 2000). On the other hand, technological advancements may bring new labor market conditions, such as wage disparities and shifts in the demand for various skill levels, which could impact employment. The relationship between FDI and unemployment is complex, influenced by various factors such as the type of industry, level of technology, and overall state of the economy.

Azerbaijan has attracted substantial FDI, owing mostly to its abundant oil resources, particularly in the Caspian Sea. The oil and gas industry has been a major driver of FDI in the country, with multinational energy companies investing in the development of oil and gas fields, pipelines, and related infrastructure. In recent years, Azerbaijan has attempted to diversify its economy and encourage FDI in non-energy sectors such as agriculture, tourism, information technology, and manufacturing. As shown in Figure 1 below, most of the investment in Azerbaijan comes to the oil sector.

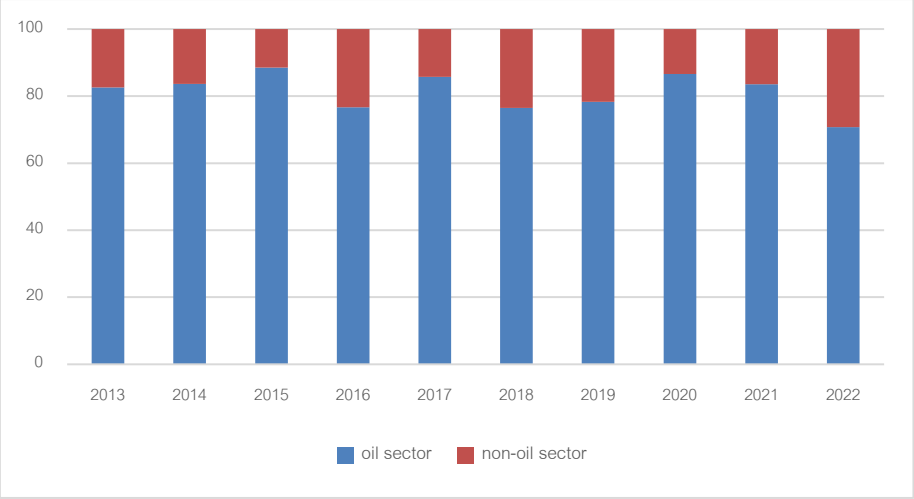

Figure 1: Share of inward FDI flow by sector in Azerbaijan (%)

Source: The State Statistical Committee of the Republic of Azerbaijan

Figure 1 illustrates the distribution of foreign direct investment (FDI) between the oil and non-oil sectors in Azerbaijan from 2013 to 2022, measured in million USD. The data clearly shows that the majority of foreign investors in Azerbaijan were attracted to the oil industry rather than the non-oil sector. Specifically, 81.4% of foreign investments were directed toward the oil industry, while the remaining 18.6% was allocated to the non-oil sector. In recent years, the number of people employed by foreign companies in Azerbaijan has steadily increased. This trend suggests that FDI may have a positive influence on Azerbaijan's unemployment rate (see Table 1).

Table 1: Trend of the stock of employees hired by foreign companies in Azerbaijan (persons)

Sectors	2018	2019	2020	2021
Agriculture	363	631	480	327
Industry	3,556	3,525	3,758	3,610
Mining	1,615	1,658	1,736	1,387
Manufacturing	1,820	1,844	1,901	2,096
Energy	0	1	3	4
Wather supply	120	22	118	123
Construct.	1,879	2,055	2,660	2,838
Trade	3,613	4,267	4,116	4,569
Transportation and storage	909	990	1041	977
Tourism	1,023	828	1,133	1,180
Information and communication	348	360	422	591
Real estate activities	277	313	293	318
Education	348	365	276	285

Sectors	2018	2019	2020	2021
Health	431	423	418	384
Other	5,861	5,878	5,391	5,242

Source: The State Statistical Committee of the Republic of Azerbaijan

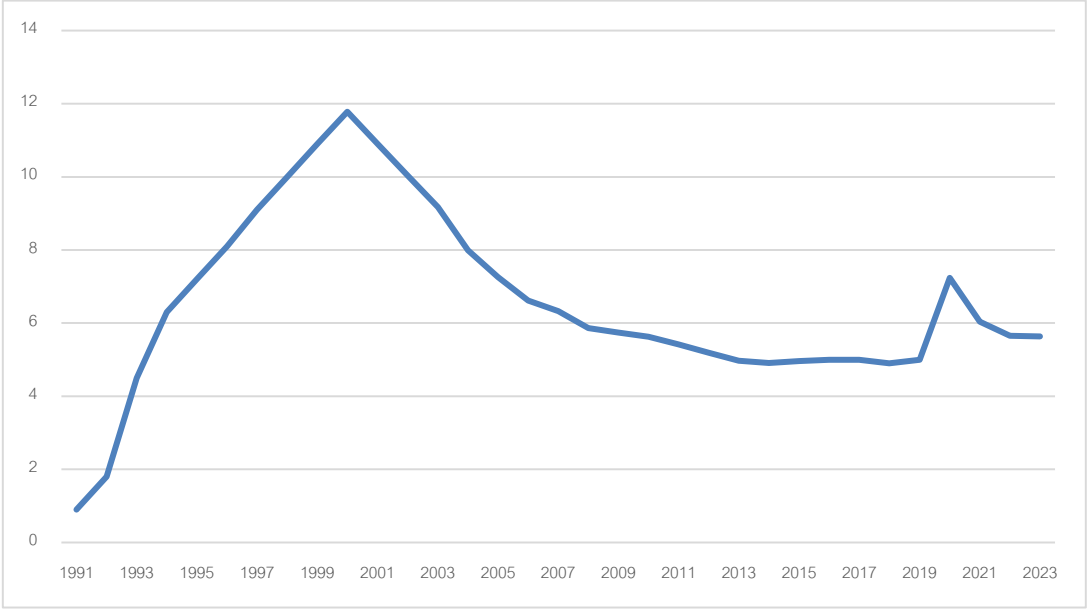

Figure 2: Unemployment rate (percentage of total population)

Source: The State Statistical Committee of the Republic of Azerbaijan

As shown in Figure 2, the unemployment rate in Azerbaijan escalated from 1991 until 2000, after which it began to decline until 2020. This trend can be attributed to the collapse of the USSR and the subsequent transformation from a centrally planned economy to a market economy. From 2020 to 2022, a slight increase in the unemployment rate can be observed, likely due to the Covid-19 pandemic. Finally, a decrease in the unemployment rate is evident from 2022 to 2023, reflecting the economy's recovery process after the pandemic.

The administration has adopted several measures to improve the investment climate. To stimulate FDI, the state has established investment promotion agencies (AzPromo) and special economic zones (U.S. Department of State Report, 2021). These organizations provide information and assistance to prospective investors, streamline administrative procedures, and offer incentives and tax benefits in specific industries. Additionally, the President of the Republic has approved Strategic Road Maps, including the "Strategic Road Map for the production of consumer goods at the level of small and medium enterprises in the Republic of Azerbaijan" and the "Strategic Road Map of the prospects of the national economy," to enhance the country's investment climate and attract more investors into the economy.

Furthermore, Azerbaijan has negotiated bilateral investment treaties with numerous countries to provide legal guarantees and assurances to international investors, aiming to reduce risks associated with FDI. Azerbaijan currently holds bilateral investment agreements with Austria, Czech Republic, Hungary, Poland, the

Belgium-Luxembourg Economic Union, China, Croatia, Romania, Finland, France, Georgia, Germany, Türkiye, Greece, Switzerland, Spain, Iran, Israel, Jordan, Kazakhstan, South Korea, Kuwait, Latvia, the United Kingdom, Lithuania, Moldova, Montenegro, Russia, San Marino, Serbia, Ukraine, UAE, Syria, Tajikistan, Kyrgyzstan, and Uzbekistan (U.S. Department of State Report, 2021).

Moreover, Azerbaijan has free trade agreements (FTAs) with Russia, Ukraine, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Moldova, and Belarus. Under these FTAs, goods can be imported from these countries free of customs duties (U.S. Department of State Report, 2021).

Azerbaijan also maintains agreements on double taxation with Canada, Austria, Finland, France, Great Britain, Netherlands, Germany, Belgium, Norway, Italy, Hungary, Sweden, Switzerland, Bosnia & Herzegovina, Spain, China, Croatia, Czech Republic, Poland, Denmark, Estonia, Lithuania, Greece, Latvia, Japan, Malta, Luxembourg, North Macedonia, Moldova, Montenegro, Bulgaria, Romania, San Marino, Russia, Belarus, Ukraine, Saudi Arabia, Serbia, Slovenia, South Korea, Georgia, Iran, Pakistan, Kazakhstan, Tajikistan, Türkiye, UAE, Jordan, Kuwait, Uzbekistan, and Vietnam (U.S. Department of State Report, 2021).

Azerbaijan has established a comprehensive foundation for FDI promotion through its extensive network of Bilateral Investment Treaties (BITs), Free Trade Agreements (FTAs), and Double Taxation Agreements (DTAs). These agreements were conceived as a platform for legal protection of foreign investors and to reduce investment risks, thereby attracting FDI into the country.

The objective of this research is to contribute to a greater understanding of how FDI can be utilized to create jobs and boost the economy while considering the potential challenges it may pose to the labor market. This study aims to provide significant insights for policymakers, entrepreneurs, and researchers addressing the serious issue of unemployment in Azerbaijan. The novelty of this research lies in its being the first study on this topic regarding Azerbaijan that employs an ARDL approach and Granger causality test for the past decades.

2. Literature Review

2.1 Theoretical Literature Review

Endogenous growth theory proposes that economic growth is dependent on internal factors such as human capital, innovation, and knowledge accumulation rather than external forces like the accumulation of physical capital or natural resources. FDI promotes economic growth by facilitating knowledge transfer, developing human capital through training, encouraging technological advancement, increasing competition and efficiency in local markets, contributing to infrastructure development, and potentially decreasing unemployment rates in host countries (Howitt, 2010).

In his General Theory of Employment, Keynes (1936) emphasized the direct link between investments and unemployment. John Maynard Keynes suggested that foreign direct investment (FDI) may help reduce unemployment by raising aggregate demand. This occurs when foreign firms invest in a country, creating new employment and increasing demand for goods and services. However, economists' views on the influence of FDI on employment vary significantly. Baldwin (1995) identified three major concerns in these discussions:

1. The extent to which foreign direct investment substitutes for domestic investment.
2. The extent to which foreign direct investment supports growth in intermediate and capital goods exports.
3. Whether the direct investment comprises the construction of new facilities or merely the acquisition of existing resources.

Overall, the effects of FDI on employment may be summarized as follows (Moosa, 2002):

- FDI can either explicitly or implicitly increase employment by constructing new infrastructure or improving employment allocation.
- FDI can also maintain employment by acquiring and restructuring enterprises.
- FDI may reduce employment by selling and shutting down production facilities.

In addition to the advantages provided by FDI, there are also some significant disadvantages. One of the most important of these is the potential transfer of control over key sectors of the country's economy to foreign entities through privatizations (the independence effect). By providing direct control over company management, FDI can potentially dominate the economy by taking over crucial sectors. This could jeopardize the economic and political independence of the host country, as decisions affecting the country's economy might be made without a commitment to the country's interests (Bose, 2012; Ma**č**ek & Ovin, 2014; Tenuche, 2010).

Another negative effect is that new enterprises established with FDI often bring their own advanced technology, potentially making the host country dependent on the technology of the investing country. As countries become technologically dependent, they may shift their R&D spending towards maintaining this technology dependency. Domestic companies unable to produce their own technology may lose significant competitive advantage to multinational companies in the domestic market, potentially forcing them out of the industry over time and allowing foreign investors to become monopolistic powers. Moreover, environmental degradation (air, land, and water pollution) is another negative aspect of FDI in host developing countries (Bose, 2012; Ma**č**ek & Ovin, 2014; Tenuche, 2010).

2.2 Empirical Literature Review

The relationship between FDI and unemployment has recently become a popular topic for extensive research. Several studies have investigated this relationship in various contexts:

Strat et al. (2015) analyzed the relationship between FDI inflows and unemployment for the period 1991-2012 in the most recent thirteen member states of the EU. Using the Toda-Yamamoto procedure to investigate causality, they found no causal relationship between FDI and unemployment. Their results suggest that FDI inflows will not decrease the unemployment rate in these EU member states.

Sabado et al. (2023) examined the relationship between FDI inflows and unemployment rate from 1980 to 2019 in the Philippines. Using OLS regression analysis, they found a significant and positive relationship between FDI inflows and unemployment rate. Conversely, the relationship between FDI outflows and

unemployment rate was significant but negative. Their results suggest that FDI inflows will decrease the unemployment rate, while FDI outflows will increase it in the Philippines.

Tanaya and Suyanto (2023) investigated the short-run and long-run impact of FDI on youth unemployment rate in Indonesia from 1991 to 2019. Using the ARDL technique, they found a negative and significant relationship between FDI and unemployment rate in the short run, but a positive and significant relationship in the long run. This suggests that FDI inflows will increase unemployment in the short run but decrease it in the long run in Indonesia.

Karimov et al. (2020) examined the relationship between FDI inflows and unemployment in Turkey for the period 1980-2017. They employed the Augmented Dickey–Fuller (ADF) unit root, Phillips–Perron (PP) unit root, Johansen co-integration, and Granger causality tests. Their findings revealed co-integration between FDI and unemployment rate, and a unidirectional causality running from FDI to unemployment rate. This suggests that an increase in FDI inflows into the Turkish economy will decrease the unemployment rate.

Hakim et al. (2023) investigated the impact of FDI on host countries' employment rates using meta-regression and Bayesian Model Averaging analyses. Their findings confirmed that FDI has a positive impact on host countries' employment rates.

Gökçeli (2023) examined the impact of FDI inflows on unemployment rate in Türkiye for the period 1992-2020. Using a vector autoregressive model, the results indicated an insignificant relationship between FDI inflows and the service sector, but a significant relationship between FDI inflows and the manufacturing sector.

Bayar (2017) examined the impact of FDIs and domestic investments on unemployment rate in 21 emerging economies from 1994 to 2014. Using panel data analysis, CIPS unit root, Westerlund-Durbin-Hausman's co-integration, and Augmented Mean Group estimator tests, the study found co-integration between the analyzed series. Moreover, FDIs were found to have a positive impact on unemployment rate in the long run, while domestic investments had a negative impact.

3. Research Methodology

3.1 Data

For the empirical section of the study, yearly time-series data was used. The data was obtained from the World Bank Database for the period from 1993 to 2022. The number of observations in the statistical tests is 30. The Eviews-12 program was applied to evaluate the article's econometrics. The variables utilized in the model are as follows (see Table 2).

Table 2: Description of data

Variables	Abbreviation	Measurement unit	Source
Unemployment, total (% of total labor force) (dependent)	UEMP	Percentage change	World Bank
Foreign Direct Investment net inflows (% of GDP) (independent)	FDI	Percentage change	World Bank
Inflation, consumer prices (annual %) (explanatory)	CPI	Percentage change	World Bank

3.2 Estimation Methods

3.2.1 Augmented Dickey and Fuller, Phillips and Perron Unit Root Tests

The stationary state is the primary concept employed in time series studies. When the samples are non-stationary, the outcome of the regression can be erroneous. To avoid this error, every variable must be examined using unit root tests. To determine the time series stationarity, the Phillips and Perron (Phillips & Perron, 1988) and Augmented Dickey-Fuller (Dickey & Fuller, 1979; Said & Dickey, 1984) unit root tests will be performed.

3.2.2 Autoregressive distributed lag (ARDL) approach

Various co-integration approaches are used in time-series studies to evaluate long-term relationships across the series. The Johansen co-integration (Johansen, 1988), Engle and Granger co-integration (Engle & Granger, 1987), and Johansen and Juselius co-integration (Johansen & Juselius, 1990) analyses are three of the best-known and most frequently used co-integration analyses. The major drawback of these analyses is that they require all variables to be stationary at level in order one (I(1)).

Pesaran and Shin (1995), Pesaran and Smith (1998), and Pesaran et al. (2001) addressed this problem by creating the ARDL co-integration test. The ARDL approach has a significant advantage over existing types of co-integration tests because all series can be integrated in order 1 I(1), order 0 I(0), or a combination of the two, but cannot be integrated in order 2 I(2). Unlike previous co-integration analyses, the ARDL approach can be performed on limited samples. Considering all these factors, we chose the ARDL approach for the quantitative section of the research. The developed ARDL statistical model is shown in equation (1):

$$\Delta UEMP_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta UEMP_{t-i} + \sum_{i=0}^{m} \alpha_{2i} \Delta FDI_{t-i} + \sum_{i=0}^{m} \alpha_{3i} \Delta CPI_{t-i} + \alpha_4 UEMP_{t-1} + \alpha_5 FDI_{t-1} + \alpha_6 CPI_{t-1} + \mu_t \quad (1)$$

where

Δ = first difference operator;

μ_t = the error term;

m = the optimal lag length.

The ARDL technique can be used to study long-run and short-run interactions. The null hypothesis indicates that there is no evidence of co-integration within the analyzed series, while the alternative hypothesis implies that there is co-integration among the series under consideration. The presence of co-integration between the examined series should be determined according to the F-statistics and critical values of upper bounds. If the value of the F-statistic is higher than the critical values of the upper bound, there is evidence of co-integration between the analyzed variables. Conversely, if the value of the F-statistic is lower than the critical values of the upper bound, the absence of co-integration between the investigated series should be accepted.

3.2.3 Granger causality test

After the co-integration of the variables in the present study has been validated, the Granger causality test will be utilized to determine the causality relationship. Granger causality investigates the causal relationship between two variables in a time series to discover if one series has significance for estimating the other (Granger, 1969). The null hypotheses of Granger causality are as follows:

- X does not Granger cause Y
- Y does not Granger cause X

The p-value needs to be considered when accepting or rejecting the null hypotheses (no Granger causality between the examined variables). The null hypothesis must be accepted if the p-value $\geq$ 0.05. On the other hand, if the p-value < 0.05, the null hypothesis that there is no presence of Granger causality among variables will be rejected, and the alternative hypothesis that there is a presence of Granger causality between the examined variables will be accepted.

There are two forms of Granger causality: unidirectional and bidirectional. Unidirectional causality is when there is only one-way Granger causality running among variables. Bidirectional causality is when there is Granger causality running from X to Y and from Y to X.

4. Empirical Results

This section presents and discusses the empirical results. Table 3 provides the descriptive statistics and correlation matrix for the dataset used in the study.

Table 3: Descriptive statistics and correlation matrix (UEMP, FDI, CPI)

	UEMP	FDI	CPI
Mean	6.906733	13.17364	112.1405
Median	6.125000	7.611295	4.877279
Maximum	11.78000	55.07288	1662.216
Minimum	4.500000	-5.683970	-8.525170
Std. Dev.	2.147858	14.94492	363.4008
Skewness	0.865320	1.490709	3.483793
Kurtosis	2.478817	4.766359	14.01039

Jarque-Bera	4.083430	15.01110	212.2198
Correlation matrix			
UEMP	1		
FDI	0.470926	1	
CPI	-0.164518	-0.212230	1

The correlation matrix results demonstrate a positive and significant link between FDI and UEMP. On the other hand, a negative and insignificant relationship is observed between CPI and both UEMP and FDI. The correlation matrix and descriptive statistics provide preliminary information on the relationship between variables. Moreover, econometric approaches will be applied to gain a better understanding of the relationships among the variables.

4.1 Findings of ADF and PP unit root tests

Before proceeding with the co-integration analysis, the stationarity of the input data needs to be checked. To employ the ARDL test, the series should be stationary at level or first difference. If the series are stationary at the second difference, then the ARDL approach should not be employed.

Table 4: Outputs of ADF and PP unit root tests

Variables	ADF (Intercept and trend)		PP (Intercept and trend)	
	At level	At 1st difference	At level	At 1st difference
UEMP	[-2.780]	[-3.792] **	[-2.889]	[-3.771] **
	(0.215)	(0.032)	(0.180)	(0.033)
FDI	[-2.391]	[-4.524] ***	[-3.927] **	-
	(0.375)	(0.006)	(0.023)	
CPI	[-3.117]	[-7.342]***	[-4.814] ***	-
	(0.121)	(0.000)	(0.714)	

Note: In the ADF and PP unit root tests, the parentheses indicate p-values, brackets express t-statistics, and asterisks (***, **) denote statistical significance at the 1% and 5% levels, respectively. The critical values for this test at the 1% and 5% significance levels are -4.32 and -3.58, respectively.

The null hypothesis of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests is that a unit root exists at levels or first difference. To reject the null hypothesis and accept the alternative hypothesis that there is no unit root at level or first difference, the t-statistics must be greater than the critical values at level or first difference, and the p-value must be less than 0.05. Based on the results of the Augmented Dickey-Fuller unit root test, all series are stationary at the first difference. The findings of the Phillips-Perron unit root test show that UEMP is stationary at the first difference, while FDI and CPI are stationary at level (Table 4).

4.2 The results of ARDL approach

Based on the results of the ARDL bounds analysis, the F-statistic (7.205202) is greater than the lower and upper bounds at the 1%, 5%, and 10% significance levels, confirming that there is co-integration within each of the studied variables (Table 5).

Table 5: The results of ARDL cointegration test

Estimated equation			$UEMP_t = f(FDI_t, CPI_t)$	
Autoselected lag structure			(4,4,4)	
Cointegration	*F* statistic	Significance	Critical values	
			lower bounds I(0)	upper bounds I(1)
Yes	7.205202	10%	2.63	3.35
		5%	3.1	3.87
		1%	4.13	5
R-squared			0.978385	
Adjusted R-squared			0.950874	
F-statistic			35.56404	
Prob(F-statistic)			0.000000	
Durbin-Watson stat			2.278732	

4.3 The findings of long-run and short-run analysis

After determining the existence of co-integration between the studied variables, long-run and short-run analyses were performed to determine if the investigated variables have a long-run, short-run, or both links. According to the results of the long-run test, the relationship between FDI and UEMP was statistically significant and negative (coefficient is -0.187014 and probability value is 0.0000, < 0.05), indicating that FDI will decrease the unemployment rate in the long run. On the other hand, the results of the long-run test showed that the relationship between CPI and UEMP in the long run was also statistically significant and negative (coefficient is -0.210588 and probability value is 0.0017, < 0.05). Thus, a 1% increase in FDI decreases the UEMP by 0.18%, while a 1% growth in CPI decreases the UEMP by 0.21%.

The results of the Error Correction Model (ECM) indicated no relationship between FDI and UEMP in the short run (probability value is 0.4524, > 0.05). However, the findings of the ECM denoted a statistically significant and negative relationship in the short run between CPI and UEMP (coefficient is -0.107831 and probability value is 0.0004, < 0.05). As a result, a 1% increase in CPI reduces UEMP by 0.11%. Moreover, the coefficient of the ECM, CointEq(-1), is negative in sign (-0.970794) and statistically significant (probability value is 0.0001, < 0.05), indicating that the unemployment rate adjusts towards its long-term equilibrium at the rate of 97% (Table 6).

Table 6: Long-run and short-run analysis

Long-run analysis			Short-run analysis		
Variable	Coefficient	T statistic and Prob.	Variable	Coefficient	T statistic and Prob.
FDI	-0.187014	[10.17524]** (0.0000)	D(FDI)	-0.020142	[-0.779052] (0.0024)
CPI	-0.210588	[-4.104295]** (0.0017)	D(CPI)	-0.107831	[-5.015439]** (0.0004)
Constant	5.394370	[15.62209] (0.0000)	CointEq(-1)	-0.970794	[-6.056487]** (0.0001)

4.4 The findings of diagnostic tests

The next step is to perform some diagnostic tests to ensure that the constructed model is functioning correctly. All of the null hypotheses were accepted based on the diagnostic test results (p-values greater than 0.05), indicating that the developed model is accurate (see Table 7).

Table 7: The findings of diagnostic tests

Diagnostic test	X^2	P-value	Hypothesizes	Conclusion
The Breusch-Godfrey Serial Correlation LM Test	0.259261	0.7772	There is no serial correlation	Accepted
The Breusch-Pagan-Godfrey`s heteroskedasticity test	0.905875	0.5767	There is no heteroscedasticity	Accepted
The Jarque-Bera Normality Test	1.848219	0.3968	There residual is normally distributed	Accepted
The Ramsey RESET test	0.108616	0.7485	The model is stable	Accepted

The CUSUM test will be used in the next stage to verify the structural robustness of the model. The CUSUM stability test findings showed that the anticipated model is stable throughout the specified time range (see Figure 3).

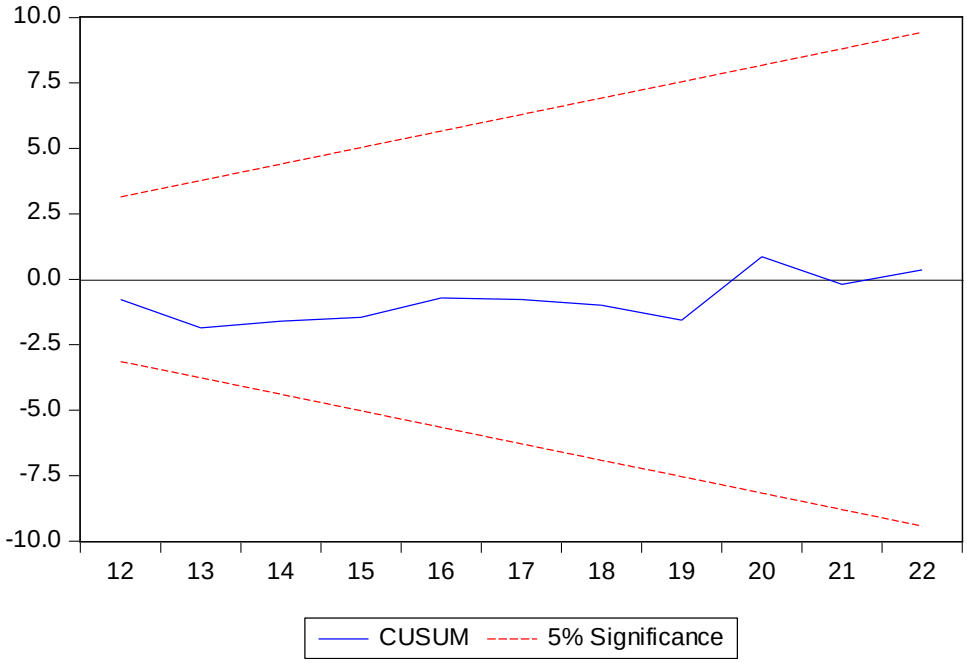

Figure 3: The findings of CUSUM test

4.5 The findings of Granger Causality test

The ARDL bound testing technique can discover co-integration among the examined series; however, it is unable to determine the direction of the relationship between the investigated series. Therefore, the Granger Causality test was required to identify the causality link among the examined series.

Table 8: The results of Granger Causality test (UEMP and FDI)

Null Hypothesis	F-statistic	Prob.
FDI does not Granger Cause UEMP	0.00892	0.9911
UEMP does not Granger Cause FDI	5.13690	0.0143

The findings of the Granger Causality test showed no causality link running from FDI to UEMP (p-value > 0.05, which means the null hypothesis that FDI does not Granger cause UEMP should be accepted). This indicates that FDI does not cause employment in Azerbaijan. On the other hand, the causal relationship running from UEMP to FDI was confirmed (p-value < 0.05, which means the null hypothesis that UEMP does not Granger cause FDI should be rejected and the alternative hypothesis that UEMP does Granger cause FDI must be accepted). This means that the unemployment rate causes FDI inflow in Azerbaijan. Overall, according to the results of the Granger Causality test, FDI does not lead to employment in Azerbaijan, but the unemployment rate leads to FDI inflow into the country (see Table 8).

5. Conclusions

The objective of this study was to investigate how foreign direct investment (FDI) inflows affect unemployment in Azerbaijan. Considering the theories about FDI and unemployment relationships (Baldwin, 1995; Keynes, 1936; Moosa, 2002), it can be stated that FDI has a favorable influence on unemployment in host nations based on the form of investment and the focused sector. Additionally, further empirical analyses were necessary to validate our assertions.

The ARDL co-integration analysis findings demonstrated a positive and significant link between the studied variables (FDI and UEMP). Furthermore, the long-run analysis findings showed a negative and significant link between FDI and UEMP, whereas the short-run analysis outcomes showed an insignificant and negative relationship among the examined variables. Consequently, in accordance with the long-run and short-run study outcomes, foreign direct investment inflows enhance Azerbaijan's employment rate only in the long term. Moreover, the Granger causality test results demonstrated that FDI causes employment and the unemployment rate causes FDI inflow in Azerbaijan. The results of this research align with the studies of Bayar (2017), Gökçeli (2023), Hakim et al. (2023), Karimov et al. (2020), Sabado et al. (2023), and Tanaya & Suyanto (2023).

An increase in employees hired by foreign companies indicates the positive impact of FDI on the unemployment rate in Azerbaijan in recent years (see Table 1). On the other hand, the main problem for Azerbaijan is that the amount of foreign direct investment is mostly focused on the traditional (oil) sector, with 81.4% of foreign investments (see Figure 1). Based on the results of this investigation, the policymakers of Azerbaijan should focus on attracting the attention of investors to more labor-intensive sectors such as agriculture, services, and manufacturing.

To address the problem of attracting foreign investors to non-oil sectors, the state adopted a special investor attraction program, such as Strategic Road Maps. After these development programs, a slight increase in foreign investments in the non-oil sector was detected, but not in sufficient amounts (see Figure 1). Thus, policymakers of Azerbaijan should focus on creating suitable corporate income taxation (CIT), implementing more liberalization reforms, developing programs for jointly hiring employees supported by the state, providing state support for R&D works and startup projects, and allocating subsidies for foreign investors to solve the issues with foreign investment attraction into the country.

In summary, according to the statistical results and literature review, it has been confirmed that foreign direct investment inflows would favorably affect Azerbaijan's unemployment rate. However, due to Azerbaijan's post-Soviet status, it was not possible to find data before 1993. Additionally, this research analyzed the relationship between FDI and unemployment rate in general, without sectoral division. Future studies would benefit from analyzing the effect of FDI on the unemployment rate by sectors in more detail.

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