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THE ROLE OF INFLATION, GROWTH, DIRECT INVESTMENTS AND REAL EXCHANGE VARIABLES IN THE UNEMPLOYMENT PROBLEM: AN EMPIRICAL RESEARCH ON THE TURKISH ECONOMY

Utku Altunöz*

Sinop University, Sinop, Turkiye

Abstract

Regardless of the level of development, one of the most priority problems of economies is unemployment, which has both economic and social consequences. A more serious problem is that youth unemployment occupies a significant place in unemployment figures, which is a chronic macroeconomic problem in the Turkish economy. The aim of this study is to analyze the macroeconomic determinants of unemployment in Turkey in the period 2007:01-2023:08. In the study where the ARDL bounds test was preferred, the dependent variable was determined as unemployment figures, while inflation, growth, real exchange rate and foreign direct investors were the independent variables. According to the results, there is a negative relationship between growth and foreign direct investments and unemployment, while there is a positive relationship between other variables and unemployment.

Keywords

Unemployment rate, economic growth, direct foreign investment, inflation rate, exchange rate.

1. Introduction

Unemployment remains a persistent challenge for economies around the world, impacting the well-being of individuals and the overall stability of nations. The Turkish economy, like many others, has grappled with the complex interplay of various economic factors contributing to its unemployment problem. This empirical research seeks to delve into the dynamics of unemployment in the context of the Turkish economy, with a particular focus on the roles played by inflation, economic growth, foreign direct investments and real exchange rate variables.

The relationship between inflation and unemployment has long been a subject of economic scrutiny, reflecting the trade-off depicted by the Phillips curve. Additionally, the influence of economic growth on employment levels is pivotal, as a growing economy often leads to increased job opportunities. Understanding the interaction between these factors and their collective impact on unemployment is crucial for formulating effective economic policies.

Foreign direct investments (FDIs) have become a vital component of the modern global economy. Analyzing the effect of FDIs on unemployment in Turkey can shed light on the potential benefits or challenges associated with foreign capital inflows. Moreover, real exchange rate fluctuations can significantly influence a nation's trade balance and consequently, its employment dynamics. Investigating the causal relationships and

*Corresponding Author: Utku Altunöz, e-mail: utkual@hotmail.com

interdependencies among these variables is essential for crafting informed economic policies that aim to mitigate unemployment and promote sustainable economic growth.

In this empirical research, we employ econometric methods and statistical analyses to explore the intricate relationships between inflation, growth, foreign direct investments, real exchange rates and unemployment in the Turkish economy. By examining empirical evidence and drawing meaningful conclusions, this study aspires to contribute valuable insights to policymakers, economists and researchers striving to address the persistent unemployment issue and bolster Turkey's economic prospects.

2. Macroeconomic Indicators Related to Unemployment in Theory

One of the significant macroeconomic indicators associated with unemployment is growth. In a study conducted by Okun (1962), every 1% increase in real GDP above the trend value of 2.25% reduces the unemployment rate by 0.5 percentage points. The aforementioned values in this study are indicated for the US economy under conditions where the annual population growth rate is around 1%. Even though the Okun's Law, which claims a low unemployment rate in years with a high growth rate, has been accepted in the economic literature for many years, recent empirical studies have begun to debate that growth does not affect unemployment. Especially until the 1990s, although the Okun coefficient increased in many countries, the relationship between growth and employment has weakened in many developed economies, especially in the USA, in the subsequent years. In this context, the reduced response of employment developments to the growth rate is referred to in the literature as jobless growth (Caballero & Hammour, 1998; Khemraj *et al*., 2006; Onaran, 2008; Navyar, 2017; Dada, 2018). Another policy tool that is assumed to have a negative relationship with unemployment and is implemented to reduce it is inflation. Studies that have aimed to explain the relationship between inflation and unemployment bring to the forefront the work of A.W. Phillips in 1958. His study, which explained the relationship between these two variables, introduced the Phillips Curve into the literature. In the 1970s, following the collapse of the Bretton Woods system and the subsequent oil crisis, stagflation was observed, where inflation and unemployment occurred simultaneously. Therefore, despite the numerous theoretical and empirical studies conducted since the 1970s to examine the relationship between unemployment and inflation, the investigation of the inflation-unemployment relationship continues to be of importance today.

Direct foreign investment is another macroeconomic variable that has an effect on the unemployment issue. This effect occurs in two ways: directly and indirectly. While direct effects manifest themselves in the labor market, indirect effects emerge by creating positive externalities through encouraging new investments (Çil, 2022). Direct foreign investments contribute to both the quantitative and qualitative increase in employment through the transfer of technology in the sector where the investment is made, enhancing human capital development. In particular, direct foreign investments, which cause investments in labor-intensive sectors especially in developing countries, contribute to the reduction of unemployment.

One of the most important variables for unemployment in open economies is the exchange rate. From a theoretical perspective, the equilibrium real exchange rate and the natural rate of unemployment are undoubtedly determined by many institutional and economic factors. However, it has been proven in both theoretical and empirical studies that the real exchange rate is a significant macroeconomic variable affecting unemployment (Bilgin, 2004). In open economies, consumers can choose goods produced

both domestically and abroad (Lindblad & Sellin, 2003). In this context, the real exchange rate affects unemployment through three different channels: the factor intensity channel, the macroeconomic channel and the growth channel (Boz, 2015). The factor intensity channel focuses on the effect of the real exchange rate on labor intensity, while the macroeconomic channel focuses on the role of the real exchange rate in determining employment levels and economic activity in the short term. The growth channel, on the other hand, focuses on the impact of the real exchange rate on the increase in Gross Domestic Product and the rate of new job creation.

3. The Relationships Between Unemployment, Inflation, Direct Investments, and Real Exchange Rate Variables in Turkey

The growth performance of the Turkish economy is volatile and far from being stable and sustainable. Particularly noticeable are the periods of significant growth performances followed by negative growth rates, especially before economic crises.

Table 1. GDP and CPI in Turkey (1994-2022)

Years	GDP	CPI(%)
1994	-5,5	130
1995	7,2	81,5
1996	7	75,7
1997	7,5	101,6
1998	3,1	65,9
1999	-3,4	68,9
2000	6,6	39
2001	-6	68,5
2002	6,4	29,7
2003	5,6	18,4
2004	9,6	9,3
2005	9	7,72
2006	7,1	9,65
2007	5	8,39
2008	0,8	10,1
2009	-4,7	6,53
2010	8,5	6,40
2011	11,1	10,4
2012	4,8	6,16
2013	8,5	7,40
2014	5,2	8,17
2015	6,1	8,81
2016	3,2	8,53
2017	7,5	11,9
2018	2,8	20,3
2019	0,9	12,2
2020	1,8	14,67
2021	11	36
2022	3,9*	64

Source. Compiled by the author from TURKSTAT (Turkish Statistical Institute) and the 2022 growth figure is as of the 3rd quarter. The unemployment figure is as of November 2022

As seen from Table 1, there has been an unstable growth performance in the period from 2013 to 2022. The most significant factor causing this situation has been the influx of hot money attracted by the allure of growth. Additionally, increases in capacity utilization rates have resulted in jobless growth. In particular, the annual low growth in domestic demand has led to the general growth figures falling below expectations. However, the increase in government consumption expenditures has played a significant role in revitalizing the economy. Although Turkey's economy has seen substantial growth rates since the 2000s, the nature of this growth, which creates unemployment instead of employment, is a subject of debate.

Unemployment is one of the most significant macroeconomic issues for the Turkish economy. In this context, it is closely related to speculative growth financed through global financialization and speculative movements. In the context of achieving macroeconomic goals, economic growth is the most crucial indicator. The stability of this variable for the Turkish economy can be observed in Table 2.

Table 2. Unemployment and Labor Force Participation Rates in Turkey between 2000-2010

	Unemployment Rate %	**Labor Force Participation Rate %**
2000	6,5	49,9
2001	8.4	49.8
2002	10.5	49.6
2003	10.5	48.3
2004	10.8	46.3
2005	10.6	46.4
2006	10.2	46.3
2007	10.3	46.2
2008	11	46.9
2009	14	47.9
2010	11.9	48.8
2011	11.9	48.9
2012	9	49.9
2013	9.3	51.1
2014	9.9	50.5
2015	10,3	51,3
2016	10,9	52
2017	10,9	51
2018	11	52,5
2019	10,6	52
2020	14,7	53
2021	12	52
2022	10,4	53

Note. Labor Force Participation, Unemployment and Employment Rates (Overall)
Source. Compiled using data from TURKSTAT Household Labor Force Surveys

It can be observed that the decrease in unemployment rates, resulting from the recorded growth in Table 2, was not sustained in the following years and there was no

significant decline in unemployment. Especially, in 2009, due to the impact of the 2008 crisis, unemployment reached its highest level. However, the labor force participation rate has followed a less volatile course. Another problematic area in Turkey's labor market is youth unemployment. Despite the increase in the number of higher education institutions, Turkey has not been able to reach the desired level in terms of youth unemployment.

The inflation rates, which have been unable to fall below the threshold of 5%, a crucial point for maintaining price stability, during the 2000s, started to climb back into double digits in 2017. This increase can be attributed to several factors that have been closely monitored since 2017. The rapid depreciation of the Turkish Lira, the transition to a presidential government system in Turkey, the decline in foreign direct investments, and the deterioration of Turkey's credit ratings have all played a role in this trend. Additionally, discussions questioning the independence of the Central Bank, which has gained strength in recent years and is responsible for formulating and executing monetary policies, have become an important topic for understanding the journey of inflation.

Since the introduction and implementation of the "New Economic Policies" in 2021, inflation has continued to rise rapidly, reaching record levels of current account deficits. Globally, inflation triggered by increases in imported food and energy prices has also influenced the inflation dynamics in Turkey. In contrast to the global trend, Turkey is attempting to combat inflation with measures such as interest rate cuts alongside these "New Economic Policies," resorting to various precautionary measures like deposit protection against exchange rate fluctuations.

As of October 2022, the current inflation rate in Turkey stands at 85.51%, underscoring the significance of inflation as a critical issue in the country's economic landscape.

With its impressive growth performance and a series of structural reforms implemented over the past decade, Turkey has successfully captured the attention of numerous international investors. According to EY, in 2021, Turkey advanced two positions to become the fifth most sought-after International Direct Investment (IDI) destination in Europe with 264 projects, and despite the significant impacts of Covid-19, it increased its share in Europe's total IDI from 3.7% in 2020 to 4.5% in 2021. Furthermore, Turkey experienced a 27% increase in total IDI projects among developing European countries in 2021, solidifying its position as the most preferred IDI destination. The total FDI inflow in Turkey stood at only 15 billion US dollars until 2002. However, during the period from 2003 to 2021, this figure surged to levels around 240 billion US dollars. While the finance and manufacturing industries have been the leading sectors attracting the most FDI in Turkey, efforts aligned with the 2023 vision have resulted in significant diversification in Turkey's FDI distribution among sectors.

4. Data, Econometric Method and Empirical Results

In the analysis part of the study, the econometric relationships between Unemployment and selected macroeconomic indicators are analyzed using quarterly data for the years 2000: Q1-2022: Q4. In this context, the variables under analysis, their abbreviations and the sources obtained can be tracked in Table 2.

In Table 3, the variables of unemployment, inflation, growth and foreign direct investments have been seasonally adjusted using the "Census X12" method. The exchange rate has been included in the analysis as the real effective exchange rate based on the Consumer Price Index (CPI). Although the analysis was intended to observe the effects of the 1994 crisis, quarterly unemployment data prior to 2000 could not be

accessed due to the implementation of the Address-Based Population Registration System that year. Therefore, the analysis has been initiated from the year 2000. The logarithms of the variables have been taken and are presented in log form.

Table 3. Abbreviations of Variables and Obtained Sources

Variable	Abbreviation	Source Obtained
Unemployment	unemp	Turkish Statistical Institute
Inflation	CPI	Central Bank of the Republic of Turkey
Gross domestic Product	GDP	Turkish Statistical Institute
Real Exchange	reer	Central Bank of the Republic of Turkey
Foreign Direct Investment	FDI	Central Bank of the Republic of Turkey

3.1. Unit Root Analysis

In econometric analyses, the non-stationarity of time series at levels can lead to the problem of spurious regression. Given that the years under analysis for Turkey include significant political and economic events, it is necessary to analyze the structural breaks in the time series. For this purpose, in addition to the traditional Augmented Dickey Fuller (ADF) unit root test, the Lumsdaine and Papell (LP) test, which allows for breaks, will also be applied to the variables. The ADF test is presented in equation (1).

$$\Delta Y_t = \alpha + \beta t + \gamma Y_{t-1} + c \sum \Delta Y_{t-1} + u_t \quad (1)$$

$$H_0: \gamma = 0 \;\; ve \;\; \mathrm{H}_1: \gamma \neq 0$$

If the null hypothesis is rejected in the ADF unit root test, it is concluded that the Y series is stationary at level. However, if the null hypothesis can not be rejected, it is understood that the Y series is not stationary and carries a unit root. Another unit root test used in the analysis is the Lumsdaine and Papell (1997) test. In unit root tests for macroeconomic series with long durations, single breaks can affect the unit root tests and reduce the power of tests such as the ZA test. In this context, the more recent Lumsdaine and Papell (1997) test, which allows for two breaks in the series, is preferred. In the Lumsdaine-Papell (LP) test, the models of the ZA test are extended to allow for two breaks and are named Model AA and Model CC. Model AA allows for two breaks only at the level, while Model CC allows for two breaks both in slope and level. Models (AA) and (CC) are shown in equations (2) and (3), respectively.

$$\Delta y_t = \mu + \beta_t + \alpha y_{t-1} + \theta_1 DU1_t + \emptyset_1 DT2_t + \sum_{i=1}^{k} d_i \Delta y_{t-i} + \varepsilon_t \quad (2)$$

$$\Delta y_t = \mu + \beta_t + \alpha y_{t-1} + \theta_1 DU1_t + \emptyset_2 DT1_t + \theta_2 DU2_t + \\ + \emptyset_1 DT2_t + \sum_{i=1}^{k} d_i \Delta y_{t-i} + \varepsilon_t \quad (3)$$

The unit root test results are shown in Table 4.

In Table 4, both unit root tests were conducted with variables under three models: constant, constant and trend and none and trend. It was observed that some variables are stationary at the level, while others are stationary at the first difference. Having the same level of stationarity is a requirement for traditional cointegration tests, but the boundary test approach eliminates this requirement. In this context, the model to be applied can be followed in equation (4).

Table 4. ADF and LP Unit Root Test Results

Variable	At level	Model	ADF	LP
logunemp	level	constant	-1,20	-4,11
logunemp	First difference	constant	-8,22*	-7,11*
logunemp	level	Constant+trend	-2,00	-4,56
logunemp	First difference	Constant+trend	-10,18*	-5,21**
logunemp	level	None+trend	0,87	-3.56
logunemp	First difference	None+trend	-12,22*	-5.50*
logCPI	level	constant	-5,00	-6,88*
logCPI	First difference	constant	-25,15	-9,72*
logCPI	level	Constant+trend	-7,44	-7,78*
logCPI	First difference	Constant+trend	-58,18	-11,19*
logCPI	level	None+trend	1,00	-5,12
logCPI	First difference	None+trend	-30,74**	-7,17*
logGDP	level	constant	0,65	-5,18
logGDP	First difference	constant	-8,09**	-11,80*
logGDP	level	Constant+trend	-2,84	-6,32
logGDP	First difference	Constant+trend	-10,90*	-10,05*
logGDP	level	None+trend	2,10	-2,00
logGDP	First difference	None+trend	-3,28*	-9,90**
logreer	level	constant	-2,18	-4,12
logreer	First difference	constant	-11,18*	-6,12*
logreer	level	Constant+trend	-4,11	-5,87
logreer	First difference	Constant+trend	-9,80*	-7,89*
logreer	level	None+trend	-0,46	-4,11
logreer	First difference	None+trend	-8.08*	-7,41
logFDI	level	constant	-0,90	-6,15
logFDI	First difference	constant	-9,19*	-8,33*
logFDI	level	Constant+trend	-3,75*	-7,12
logFDI	First difference	Constant+trend	-9,09*	-4,44*
logFDI	level	None+trend	6,90	-3,13
logFDI	First difference	None+trend	-2,78**	-9,56*

Note. * and ** represent significance at the 1% and 5% levels, respectively

$$\Delta \text{logunemp} = \alpha_0 + \sum_{i=1}^{m} \beta_1 \Delta lnCPI_{t-1} + \sum_{i=0}^{n} \beta_{2i}\, lnGDP_{t-1} + \\ + \sum_{i=0}^{p} \beta_{3i} \Delta reer_{t-1} + \delta_1 lnFDI_{t-1} + \varepsilon_t \quad (4)$$

In the information criteria considered for the unconstrained error correction models to be established, the delay length with the smallest critical value is selected as the appropriate delay length. In addition, if the smallest selected value has an autocorrelation problem, the next smallest value is accepted as the lag length. This situation repeats itself as the autocorrelation problem persists. The delay lengths reached by using the Akaike information criterion and the Schwarz information criterion can be seen in Table 5.

According to the results in Table 5, the minimum lag length for which the critical value is obtained is determined as 1. The statistics presented are from the Breusch-Godfrey LM Test. The obtained results indicate that there is no autocorrelation relationship among the variables.

Table 5. Determining Appropriate Delay Length

M	AIC	SIC	$X^2\ BREUSCH-GODFREY$
1*	**2.00**	**6,81**	**4.371***(0.200)**
2	3.31	6.90	8.001 (0.223)
3	3.89	7.09	5.879**(0.214)
4	3.91	7.02	5.1290**(0.356)
5	4.21	8.19	3.019*(0.521)
6	4.12	6.99	3.320*(0.200)
7	3.87	7.18	2.110**(0.319)
8	5.22	6.89	1.217**(0.227)
9	5.54	7.24	2.514**(0.156)

Note. *, ** and *** indicate the appropriate delay length selected at 1%, 5% and 10% respectively. Values in parentheses indicate probability values.

In ARDL analysis, to analyze the cointegration status of the current account and credit volume variables, it is necessary to investigate whether the variables are in a cointegrating relationship in the boundary test analysis with the determined lag length. In this context, the F-test is used. If the determined F-statistic value is greater than the upper bound, the null hypothesis is rejected. This implies the presence of a cointegrating relationship among the variables. If the F-value is less than the upper bound, the null hypothesis is accepted. If the F-value falls between the lower and upper bounds, no conclusion can be drawn.

This F-test is a crucial step in determining whether there is a long-term relationship (cointegration) among the variables in your analysis. The F statistics test result can be seen in Table 6.

Table 6. Boundary Test Results

F Statistic and critical values						
	10%		5%		1%	
k		$I(I)$	$I(0)$	$I(I)$	$I(0)$	$I(I)$
1	5,819	6,711	6,716	7,980	8,91	9,314
$R^2 = 0{,}59$		*F Stat. 5,827(0,00)*		*Breusch − Godfrey LM*: 0,28(0,11)	*Ramsey Reset:1,81(0,06)*	
Adjusted $R^2 = 0{,}48$		*ARCH-LM:2,16(0,10)*		*Jarque-Berra :0,061(0,74)*		

Note. The numbers in parentheses indicate probability values. ***,** and * indicate significance at the 1%, 5% and 10% levels, respectively.

The F-statistic value of 8.617 obtained in Table 6 is above the upper critical value of 7.980 at the 5% significance level. According to this result, the null hypothesis stating that there is no long-term level relationship is rejected. In other words, there is a long-term relationship among the variables. Furthermore, when examining the diagnostic test results: The Breusch-Godfrey LM Test indicates that there is no autocorrelation problem. The ARCH LM Test suggests that there is no issue with changing variances. The Jarque-Bera Normality test indicates that the error term follows a normal distribution. The Ramsey Reset test suggests that there are no model specification errors.

Table 7. Long-Run ARDL Estimation

$Variable$	$Coefficient$	$t-statistic$	$Probability$
CPI	0,65	-3,00	0,05
GDP	-1.81	-2,02	0,00
$reer$	-0,33	-2,54	0,05
FDI	-1,01	0,90	0,02
C	0,11	0,10	0,09

When looking at the real exchange rate variable, the coefficient of 0.33 being negative indicates that a higher level of real exchange rate (meaning a lower value of the national currency) has a positive impact on employment, reducing unemployment. The effect of the Consumer Price Index (CPI) on the unemployment rate is in line with expectations and statistically significant. The CPI coefficient is found to be 0.65. This means that if the CPI index increases by 1%, the unemployment rate will increase by 0.65%. In this context, it indicates that the classical Phillips curve is not applicable.

The coefficient of growth (-1.81) implies that a 1-unit increase in economic growth will reduce the unemployment rate by (-1.81) units. At this point, it is understood that Okun's Law is valid. Finally, it is understood that a 1-unit increase in foreign direct investments directly reduces unemployment by (1.01) units.

Table 8. Long-Run Diagnostic Test Results

Diagnostic Tests			
$R^2 = 0{,}66$	*F Stat.: 5,008(0,00)*	$Breusch-Godfrey\ LM$: 0,20(0,10)	*Ramsey Reset:1,88(0,01)*
$Adj.R^2 = 0{,}58$	*ARCH-LM:2,12(0,10)*	*Jarque-Berra :0,083(0,60)*	

In the model applied to diagnostic results, the Breusch-Godfrey LM Test indicates that there is no autocorrelation problem. Similarly, the ARCH LM Test suggests that there is no issue with changing variances. The Jarque-Bera Normality test indicates that the error term follows a normal distribution and the Ramsey Reset test suggests that there are no model specification errors.

Table 9. Short Run ARDL Estimation

$Variable$	$Coefficient$	$t-statistic$	$Probability$
CPI	0,30	-2,32	0,05
GDP	-1.12	-2,32	0,00
$reer$	-0,12	-199	0,05
FDI	-0,81	0,81	0,02
C	0,11	0,10	0,09
ECT	-0,27	-1,11	-3,21

In Table 9, the obtained short-term forecast results show parallels with the long-term forecast results. It's important to note that in the short term, the effects are relatively weaker, while in the long term, they become stronger. The error correction term is within the expected range, ranging from negative to between 0 and 1. This implies that short-term imbalances are expected to converge to the long-term equilibrium in approximately 4 periods.

Table 10. Short-Run Diagnostic Test Results

Diagnostic Tests			
$R^2 = 0{,}67$	*F Stat 4,000(0,00)*	*Breusch − Godfrey LM*: 0,20(0,10)	*Ramsey Reset:1,90(0,01)*
$Adj.R^2 = 0{,}61$	*ARCH-LM:2,08(0,10)*	*Jarque-Berra :0,045(0,55)*	

In the model applied to diagnostic results, the Breusch-Godfrey LM Test indicates that there is no autocorrelation problem. Similarly, the ARCH LM Test suggests that there is no issue with changing variances. The Jarque-Bera Normality test indicates that the error term follows a normal distribution, and the Ramsey Reset test suggests that there are no model specification errors.

Causal analysis in econometric studies is preferred to understand whether two variables are in a causal relationship. Granger causality is defined as "If the forecast of Y is more successful when using the past values of X compared to not using the past values of X, then X is said to be the Granger cause of Y." If this statement holds true, the causality relationship is expressed as X→Y. The Granger causality test is based on the regression models in Equations (5) and (6).

$$Y_t = \sum_{i=1}^{m} \alpha_i Y_{t-i} + \sum_{j=1}^{m} \beta_j X_{t-j} + u_{1t} \quad (5)$$

$$X_t = \sum_{i=1}^{m} \phi_i X_{t-i} + \sum_{j=1}^{m} \gamma_j X_{t-j} + u_{2t} \quad (6)$$

Equation (5) and (6) represent error terms as "u" while expressing lag lengths with "m" in the context of these equations.

Table 11. Granger Causality Estimations

Causality Direction			**F Stat.**	**Probability**
unemp	→	CPI	2,32*	0,000
CPI	→	unemp	8,26*	0,000
unemp	→	GDP	12,14	0,671
GDP	→	unemp	8,00*	0,000
unemp	→	reer	15,22	0,878
reer	→	unemp	6,11*	0,000
unemp	→	FDI	18,33	0,897
FDI	→	unemp	5,14*	0,000

Note. * indicates that the coefficients are statistically significant at the 1% level of significance.

According to the Granger causality results obtained in Table 11, the variables of unemployment and inflation are mutually causal, indicating that when unemployment decreases, it influences reducing inflation due to supply and demand decreases. Similarly, changes in inflation, according to the Philips curve theory, directly affect unemployment. The relationship between unemployment and growth is two-sided, with both variables being interrelated as advocated by Okun's Law. While there is a causality relationship from the real exchange rate to unemployment, no causality relationship from unemployment to the real exchange rate has been found. Similarly, unemployment is not the cause of foreign direct investments, but foreign direct investments are the cause of unemployment. CUSUM and CUSUMSQ tests, shown in Figure 1, are conducted to test the structural breaks and stability of the parameters in the econometric analysis, in other words, to determine the stability of the model.

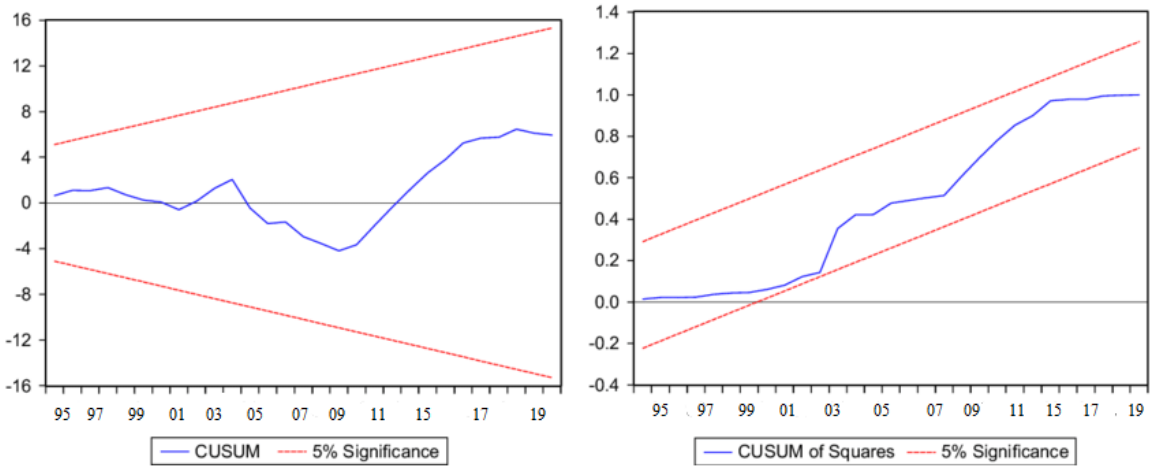

Figure 1. CUSUM and CUSUMQ Tests

According to Figure 1, it can be understood that the continuous line remains within the boundaries indicated by the dashed lines at the 5% significance level, indicating that the parameters are stable and there is no structural change.

5. Conclusion

Our analysis has provided valuable insights into the relationships between key economic variables and unemployment. The negative coefficient associated with the real exchange rate variable suggests that a depreciating national currency, as indicated by a higher real exchange rate, positively impacts employment by reducing unemployment. Furthermore, the impact of the Consumer Price Index (CPI) on the unemployment rate, with a coefficient of 0.65, aligns with expectations and carries statistical significance. This implies that a 1% increase in the CPI index corresponds to a 0.65% increase in the unemployment rate, challenging the classical Phillips curve framework.

Our findings have also confirmed the validity of Okun's Law, as evidenced by the coefficient of growth (-1.81). This suggests that a 1-unit increase in economic growth leads to a reduction in the unemployment rate by (-1.81) units, highlighting the inverse relationship between growth and unemployment.

Moreover, the direct impact of foreign direct investments (FDIs) on unemployment, with a coefficient of (1.01), underscores the potential role of FDIs in reducing unemployment in the Turkish economy. These results underscore the complexity of the economic dynamics affecting unemployment, providing valuable insights for policymakers and researchers alike. Further exploration and policy considerations considering these findings are warranted to promote sustainable economic growth and mitigate unemployment challenges in Turkey.

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