



## AN EMPIRICAL TEST OF THE PHILLIPS CURVE WITH GENDER DIFFERENCES IN TÜRKİYE

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### Abstract

The potential existence and structure of the relationship between inflation and unemployment is a frequently examined topic in literature. A.W.H. Phillips (1958) explored the correlation between these two significant economic variables in the context of the United Kingdom, highlighting the trade-off relationship between them. This seminal work has led various economists to rigorously investigate the same phenomenon across different countries and country groups. The primary reason for this intense scrutiny is the assertion that monetary policies implemented in response to economic shocks may push these two variables in opposite directions. In this regard, the significant shocks experienced in Türkiye in recent years concerning inflation and unemployment have made it particularly intriguing to test the validity of the Phillips Curve for Türkiye. This study tests the validity of the Phillips Curve relationship for Türkiye. Utilizing monthly data from 2005 to 2023, the unemployment rates are modeled separately for male and female unemployment rates, distinguishing this study from others. The analysis employs the Johansen Cointegration Test and concludes that the Phillips Curve theory holds true for Türkiye. In light of the findings, there is a noteworthy presence of both a more significant and higher-level correlation between male unemployment rates and the producer price index.

**Anahtar Kelimeler:** Phillips Curve, Unemployment, Inflation, Cointegration Test  
**JEL Sınıflandırması:** E24, E31, J16

## TÜRKİYE'DE CİNSİYET FARKLILIKLARI BAZINDA PHİLLİPS EĞRİSİNİN AMPİRİK TESTİ

### Öz

Enflasyon ve işsizlik arasındaki ilişkinin olası varlığı ve yapısı literatürde sıkça incelenen bir konu olarak ön plana çıkar. A.W.H. Phillips (1958)'in bu iki önemli ekonomik değişken arasındaki korelasyonu İngiltere için incelemesi ve aralarındaki değiş-tokuş ilişkisini ortaya koyması farklı iktisatçıların farklı ülke ve ülke grupları için de aynı sınamayı yoğun bir biçimde ortaya koyması ile sonuçlanmıştır. Bunun en temel nedeni olarak tecrübe edilen bir iktisadi şok sonrası uygulanacak para politikalarının, örneğin, bu iki değişkeni zıt yönlere itecek olması iddiasıdır. Bu anlamda özellikle son yıllarda Türkiye'de enflasyon ve işsizlik gibi önemli iki iktisadi değişkende yaşanan ciddi şoklar Phillips Eğrisinin geçerliliğinin Türkiye için test edilmesini de ilgi çekici bir hale getirmiştir. Çalışmada Phillips'in adını verdiği bu ilişkinin geçerliliği Türkiye için test edilmiştir. 2005-2023 aylık veriler kullanılarak işsizlik oranları kadın ve erkek işsizlik oranları verileri olarak ayrı ayrı modele atanmış ve diğer çalışmalardan farklılaşmıştır. Johansen Eş bütünleşme testinin kullanıldığı analizde Phillips Eğrisi teorisinin Türkiye için geçerli olduğu sonucuna ulaşılır. Ayrıca elde edilen bulgular ışığında erkek işsizlik oranları ile üretici fiyat endeksi arasında hem daha anlamlı hem de daha yüksek seviyede bir ilişkinin varlığı dikkat çekmektedir.

**Keywords:** Phillips Eğrisi, İşsizlik, Enflasyon, Eşbütünleşme Testi  
**JEL Classification:** E24, E31, J16

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## 1. Introduction

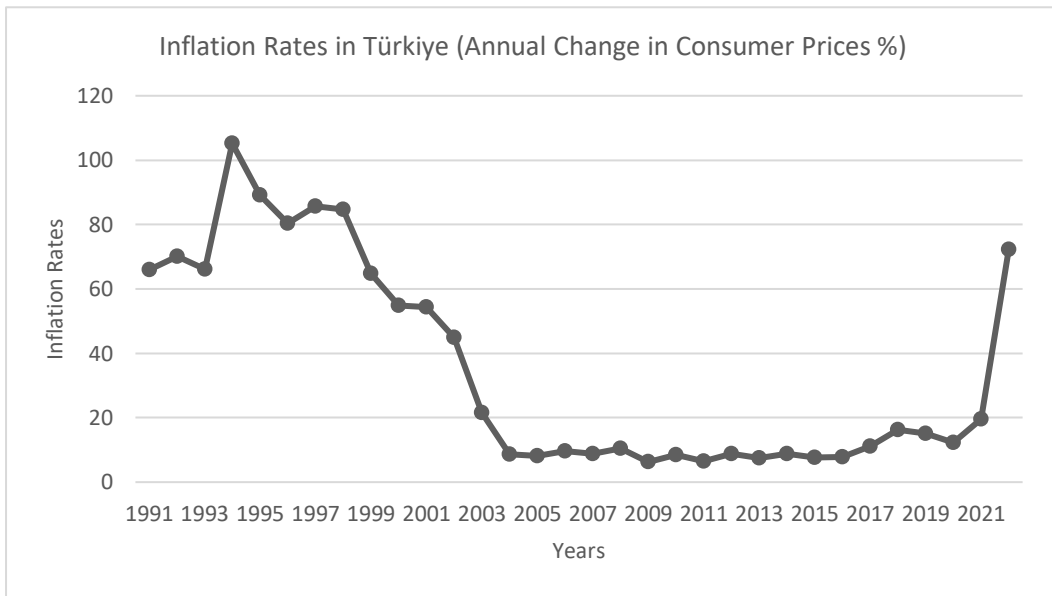
Macroeconomic variables experiencing fluctuations in the face of internal and external economic shocks are not accepted by any economic authority. Within the stable and balanced structure of the economy in the literature, the two main variables most likely to be affected by these fluctuations can be listed as inflation and unemployment. While the lowest possible values for these two fundamental variables signify stable price levels and full employment, they are considered essential for healthy growth rates. Although Fisher (1973) claimed in his study that he was the first to propose the existence of a relationship between these two variables, the possible relationship between inflation and unemployment became a popular research topic in the literature after A.W. Phillips's study in 1958. In his study focusing on the United Kingdom, Phillips identified a non-linear inverse relationship between unemployment and inflation rates between 1861 and 1957. In the economic literature, this negative relationship between inflation and unemployment in the short term has become a popular concept known as the Phillips Curve. The identification of the trade-off relationship between these variables in many countries has ensured the recognition of this concept as an important economic theory. Another reason for the formation of this popularity is the economic dilemma it embodies. According to Phillips's theory, achieving low unemployment rates will occur under conditions of high inflation, which is among the primary macroeconomic goals. Price level stability is also widely accepted as a fundamental macroeconomic objective. At this point, economic decision-makers are forced to make a choice between inflation and unemployment. Additionally, the Phillips Curve is considered a reflection of a relationship valid in the short term. The trade-off between inflation and unemployment values in the short term will begin to move outside each other's spheres of influence in the long term. However, it should not be overlooked that unemployment rates exhibit a hysteric nature for many economies. The fact that unemployment rates can have a sticky character contradicts the natural rate of unemployment (NRU) convergence hypothesis. Therefore, it can be said that the phenomenon of choosing between unemployment and inflation, which lies at the center of the Phillips Curve theory, defines a challenging process to be undertaken by policymakers.

While the validity of the Phillips Curve across different countries sparks curiosity among economists, it is also acknowledged as a controversial topic. The diverse structures exhibited by different countries and their dynamic nature under the influence of unique internal and external factors can be cited as one of the fundamental reasons for this. Understanding the relationship between the two fundamental economic indicators, inflation and unemployment, which directly influence policy-making processes of economic decision-makers, is crucial for Türkiye as well as for other countries. In this regard, testing the existence of the Phillips Curve for Türkiye will be critical in determining and implementing policies following a potential economic recession. For many years, Türkiye has been struggling with inflation and unemployment, which have become almost chronic issues. Thus, it is essential for Türkiye to clarify the relationship between these two problems, making the topic even more compelling. The primary reason for this is that Türkiye's fragile economic structure leads to immediate adverse effects on inflation and unemployment data following both local and global economic shocks. Naturally, understanding the behavior of these variables in advance of an unwanted economic shock will guide the policies to be developed subsequently. In some countries, the problem of unemployment exhibits a hysteresis pattern and does not return to its natural rate. Therefore, policies developed in light of this reality will help address the problem more effectively and accurately. By taking into account Türkiye's economic structural characteristics and variability, this analysis aims to contribute to the development of strategies for ensuring economic stability and promoting sustainable growth. Additionally, the exploration of the Phillips Curve theory through the lens of gender differences in this study may facilitate policymakers in making more precise, rational, and balanced decisions.

## 2. Understanding Inflation and Unemployment Dynamics in Türkiye

Inflation and unemployment are considered pivotal elements of macroeconomic stability in all economies, including the Turkish economy. These two primary macroeconomic variables continue to play a critical role in evaluating economic performance and policymaking processes in the Turkish economy. Türkiye has been a country grappling with high inflation since its establishment. Overall economic uncertainty, monetary policy ambiguities, fiscal indiscipline, and internal-external shocks have contributed to the persistence of high inflation until recent years. The outbreak of the pandemic in recent times, with its global ramifications, has significantly affected not only Türkiye but also other countries. The economic and social measures taken during this period, along with imposed restrictions, have adversely impacted the Turkish economy from various perspectives.

Graph 1: Yearly Changes in Inflation Rates in Türkiye

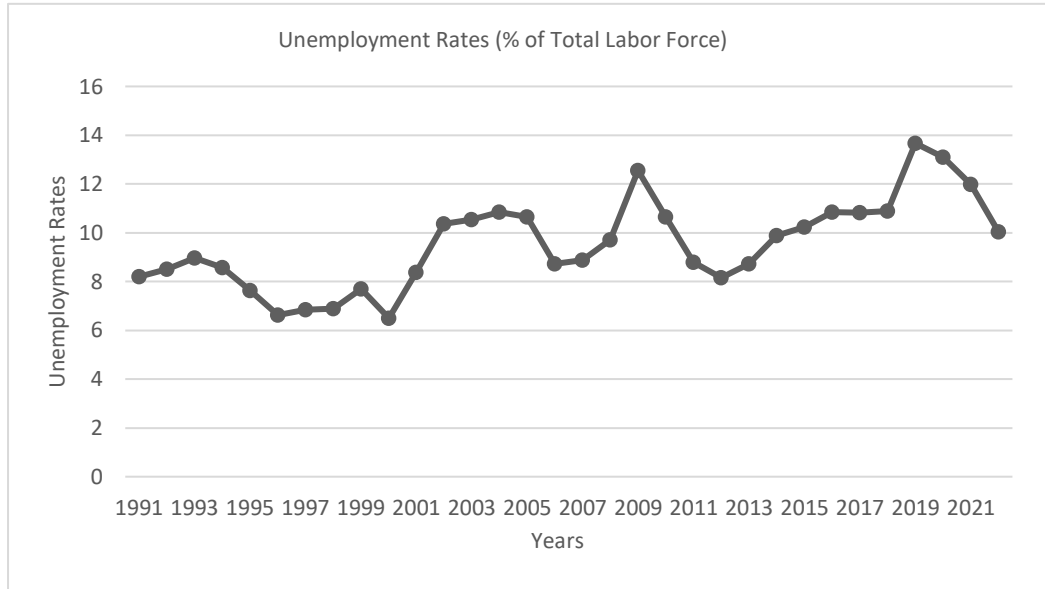


Source: (World Bank,2024).

As seen in Graph 1 above, although the Turkish economy partially managed to reduce inflation in the early 2000s through various policies, the recent resurgence of inflation in Türkiye has necessitated a reassessment of economic management and policy strategies for combating inflation and reforming the economy. In short, the prevailing inflationary environment has highlighted the need for more effective anti-inflation policies. One of the main reasons for this is that inflation, beyond being merely an economic indicator, has significant social and political ramifications. High inflation often diminishes consumers' purchasing power, lowers living standards, and can lead to inequalities in income distribution. Moreover, the disruptive effects of inflation-related uncertainties can adversely affect economic decision-making processes about the future. This, in turn, can threaten economic growth and stability, negatively impacting other economic variables over time. It is evident that unemployment in Türkiye has also been a similarly challenging economic variable undergoing similar processes for many years. Since the 2000s, global economic dynamics have undergone significant changes under the influence of various factors, substantially affecting labor markets. During this period, factors such as global crises, pandemic processes, technological advancements, the widespread adoption of digitalization, and changes in consumer habits have led to significant fluctuations in unemployment rates. The radical increase in unemployment rates among different groups has adversely affected economic development and welfare levels in both Türkiye and other countries.

In Graph 2, changes in unemployment levels in Türkiye from the 1990s to the present are presented. A trend similar to the Phillips Curve theory is observed in the graph; during the 2000s when inflation rates were relatively under control, unemployment rates remained high, but it can be said that in the recent inflationary environment, unemployment rates have entered a downward trend.

Graph 2: Unemployment Rates in Türkiye



Source: (World Bank,2024).

### 3. Literature Review

The structure and strength of the potential relationship between unemployment and inflation vary across different studies, making it difficult to achieve a consensus on this issue. Research has shown significant differences among studies due to variations in time periods, countries or groups of countries analyzed, and the analytical methods employed. These differences have led to variability in the findings obtained. The inception of the nexus between unemployment and inflation within economic discourse traces back to the 1950s. However, the scrutiny surrounding the validity of the Phillips curve intensified notably post the 1970s. A sample dataset derived from investigations probing the existence of the Phillips curve is methodically delineated in the subsequent table. Numerous studies have tested the validity of the Phillips curve, demonstrating that its applicability extends beyond unemployment and inflation data to various other variables that might reveal the potential existence of this negative relationship. This study, however, seeks to distinguish itself from prior research by analyzing labor force data separately by gender. The goal is to reveal any potential differences in outcomes for Türkiye that might arise from the varying labor force participation rates of women and men, as observed in many other countries.

Table 1: Literature Review

The Author(s) Of The Study	Time Interval	Countries And/Or Country Groups	Metadology	The Obtained Result
Arabaci, Ö., & Eryiğit, K. Y. (2012).	1991-2010	Türkiye	Threshold Regression Analysis	It elucidates a robust non-linear correlation between genuine economic activity and inflation within the framework of the Turkish economy.

Table 1 (Continued): Literature Review

The Author(s) Of The Study	Time Interval	Countries And/Or Country Groups	Metadology	The Obtained Result
Rasna, F. E. (2010).	1995-2010	Bangladesh	The Johansen multivariate Cointegration test and Granger Causality test	The absence of a long-term Phillips curve is observed, as the study reveals a unidirectional, positive causality from inflation rate to unemployment rate.
Al-zeaud, H., & Al-hosban, S. (2015).	1976-2013	Jordan	VECM, and linear and non-linear ordinary least square regression tests	The study offers compelling empirical evidence substantiating the presence of the Phillips Curve. The study concludes of a sustained long-term trade-off relationship and detects a causal link between the unemployment rate and the inflation rate.
Furuoka, F. (2007).	1973-2004	Malaysia	Vector Error Correction Model (VECM) analysis	Diverse outcomes are derived from the various scenarios formulated Phillips curve allow for a time-varying NAIRU for Australia.
Crump, R. K. et al. (2024).	1960-2021	United States	Cross-sectional Time Series Analysis	In the Euro Area, a statistically significant inverse correlation is observed between unemployment and inflation.
Gruen, D., et al. (1999).	1960-1990s	Australia	Time Series Analysis	The study found that Phillips curve models are not helpful in explaining inflation dynamics during specific period.
Hindrayanto, et al. (2019).	1985–2017	Euro Area	Time Series Analysis	There exists a positively correlated long-term relation between inflation and unemployment.
Chletsos, M., Drosou, V., & Roupakias, S. (2016).	1960-2013	US,Canada	OLS method	The findings indicate the presence of a sustained and causal linkage between inflation and unemployment during the stipulated timeframe. Mixed results are found.
Beyer, A., & Farmer, R. E. (2007).	1970-1999	US	VECM Cointegration Analysis	More significant results are obtained regarding the relationship between inflation and unemp.
Dritsaki, C., & Dritsaki, M. (2013).	1980-2010	Greece	VAR Cointegration test	
Buthelezi, E. M. (2023).	2008-2022	South Africa	Markov-switching dynamic regression	

Table 1 (Continued):Literature Review

The Author(s) Of The Study	Time Interval	Countries And/Or Country Groups	Metadology	The Obtained Result
Liargovas, P., & Psychalis, M. (2022).	1990s-2018	Greece and Selected European Countries	OLS and VAR analysis	Negative correlation is underlined between inflation and unemployment.
Ratner, D., & Sim, J. (2022).	1980-2018	United States	Time Series and Cross Sectional Analysis	The weakening of labor's bargaining power has resulted in the Phillips Curve theory losing its validity."
Nazif Çatik, A. et al. (2011).	1996-2007	Türkiye	ARDL Approach and ECM	No empirical support is identified for a long-term association between inflation and output.
Eser, F., et.all (2020).	1990s-2019	18 Euro Area Countries	Panel Regression Analysis	The Phillips Curve theory provides meaningful insights for understanding the ECB's monetary policy
Del Negro, et. all (2020).	1964-1989 1989-20019	United States	VAR and Estimated DSGE Model	Despite the presence of many unanswered questions, the Phillips Curve theory can still be considered valid.

#### 4. Data, Methodology, and Empirical Findings

In the 1950s, the primary concerns of the global economy were inflation and unemployment. These two phenomena have often yielded unsuccessful results when attempted to be reduced simultaneously. During this period, the most significant macroeconomic research topics focused on simultaneously reducing inflation and unemployment. The Phillips Curve, introduced by William Phillips, demonstrated an inverse relationship between inflation and unemployment. Therefore, according to the Phillips Curve, it is not feasible to implement policies aimed at reducing both unemployment and inflation rates simultaneously. Phillips suggested that policymakers should prioritize either inflation or unemployment when implementing policies. In this section of the study, the source of the data used in the analysis, descriptive statistics, unit root test results, and Johansen cointegration test results for the established model are presented sequentially. The study examined the validity of the Phillips Curve among women and men in Türkiye using an econometric approach. Variables such as the producer price index and male and female unemployment rates is used in the analysis. The analysis, taking gender differences into account, utilized monthly data from 2005 to 2023 to test the validity of the Phillips Curve in Türkiye. Relevant information about the variables is presented in tabular form.

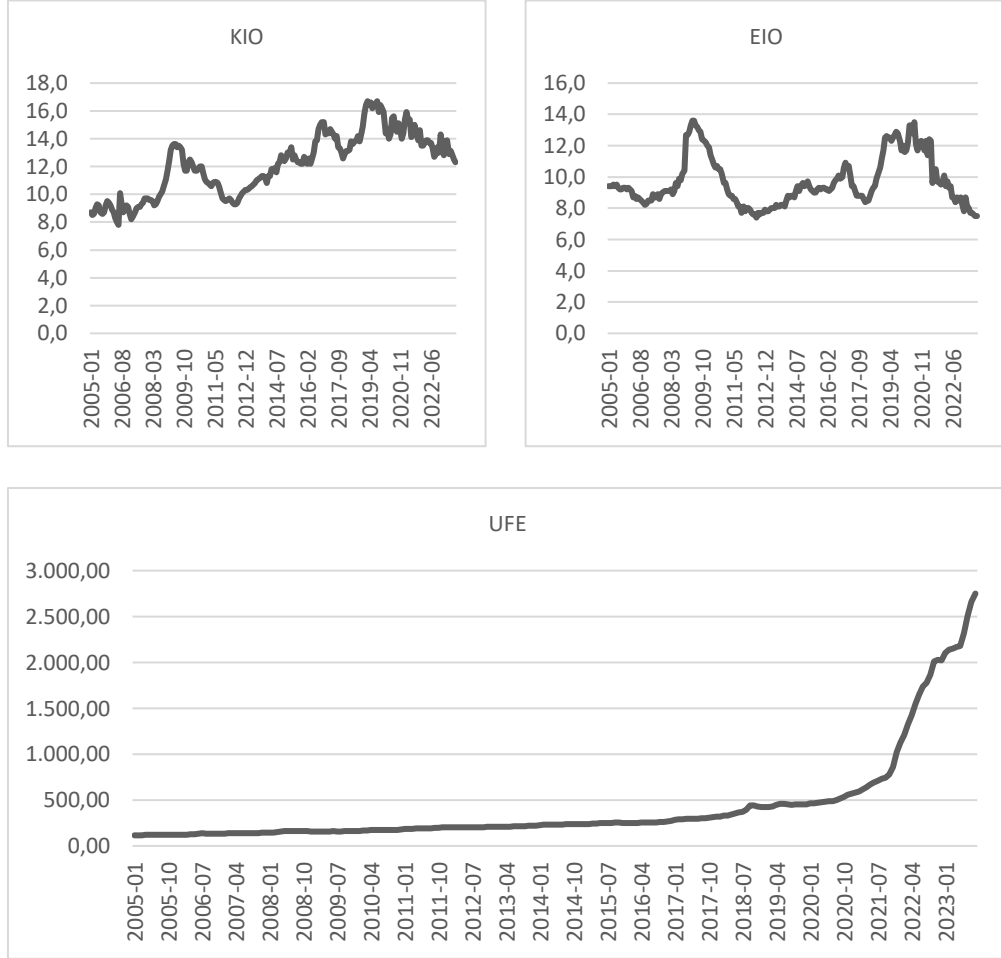
Table 2: Information of Variables

Variable	Renamed Form	Period
Producer Price Index	UFE	January 2005- September 2023
Unemployment Rate in Men	EIO	January 2005- September 2023
Unemployment Rate in Women	KIO	January 2005- September 2023
<b>The Mathematical Equation of the Models</b>		
1 <sup>st</sup> Model	$LUFE_t = \beta_0 + \beta_1 EIO_t + \epsilon_t$	
2 <sup>nd</sup> Model	$LUFE_t = \beta_0 + \beta_1 KIO_t + \epsilon_t$	

Time series graphs of the data used in the analysis are highly effective in understanding the magnitude of increases and decreases of variables within the specified time interval, as well as

indicating the direction of these changes. The following graphs present the time series of the KIO, EIO, and UFE variables.

Graph 3: Time Series Graphs of the Data



It is well-known in the literature that the Engle-Granger and Johansen cointegration tests are widely used to uncover the potential existence of cointegration relationships among variables. In this study, the presence of a long-term relationship is tested using the Johansen cointegration test, which is a variant of VAR analysis. The Johansen cointegration test is applied within a multivariate analysis framework (Johansen, 1991). This test aims to reveal a significant long-term relationship between the dependent and independent variables included in the model. Therefore, the objective is to identify the number of cointegration relationships among the variables. However, the Johansen cointegration test argues that there cannot be a significant relationship among variables that are not stationary at the same level. In this context, determining whether the variables are  $I(0)$ , meaning stationary at level, or  $I(1)$ , meaning stationary at their first differences, is of great importance for the application of the test. This is because having the data be stationary at the first difference level is considered a prerequisite for applying the test. Therefore, if it is concluded that all variables used in this study are stationary at their first differences, the Johansen cointegration test can be applied to determine the number of cointegration relationships between the dependent and independent variables.

The descriptive statistics for the producer price index, unemployment rate in men, and unemployment rate in women used in the study are provided in the table below:

Table 3: Descriptive Statistics of the Analyzed Data Sets

	UFE	EIO	KIO
Mean	2.456281	9.707556	12.13378
Median	2.369179	9.3	12.3
Max	3.43933	13.6	16.7
Min	2.059961	7.4	7.8
Std. Dev	0.334192	1.604009	2.247224
Skew	1.323649	0.862443	0.029272
Kurtosis	4.109833	2.673797	2.017314
Jar.-Ber	77.24919	28.89035	9.085299
Prob	0	0.000001	0.010645
Sum	552.6632	2184.2	2730.1
Sum. Sq	25.01733	576.3172	1131.203
Obs.	225	225	225

When examining the table above, it can be observed that in the period between January 2005 and September 2023, the unemployment rate among women in Türkiye has been higher than that among men in the labor market. Before conducting econometric analysis on the variables of producer price index, female unemployment rate, and male unemployment rate, they need to undergo unit root testing. Below are ADF and PP Unit Root Test results for the three relevant variables.

Table 4: ADF and PP Unit Root Test Results with Constant Term

ADF Unit Root Test Results (Model with Constant Term and Trend)		
Variables	ADF Test Statistics (Level)	ADF Test Statistics 1 <sup>st</sup> difference
EIO	-2.051728 (0.5693)	-6.620821 (0.0000)*
KIO	-2.066513 (0.5612)	-15.01712 (0.0000)*
LUFE	1.967258 (1.0000)	-6.919102 (0.0000)*
PP Unit Root Test Results (Model with Constant Term and Trend)		
Variables	PP Test Statistics (Level)	PP Test Statistics 1 <sup>st</sup> difference
EIO	-1.885976 (0.6585)	-15.85419 (0.0000)*
KIO	-2.124376 (0.5290)	-15.01714 (0.0000)*
LUFE	2.334036 (1.0000)	-7.110643 (0.0000)*

Note: The symbol '\*' represents the significance level at the 1% confidence interval.

Upon examining the statistics provided in the table above, it is concluded that the producer price index, female unemployment rate, and male unemployment rate variables do not contain unit roots on I(1), and therefore, they are stationary. Since the variables are stationary at the same level, the Johansen Cointegration Test has been applied to determine the long-term cointegration relationship between them.

Before conducting the Johansen Cointegration Test, it is necessary to determine the lag length separately for each model established in economic analysis.

The determination of the appropriate lag length for the model examining the relationship between male unemployment rate and producer price index was based on the Akaike Information Criterion, Schwarz Information Criterion, and Hannan-Quinn Information Criterion. In the study, both the Akaike and Hannan-Quinn information criteria suggested the 4th lag length to be appropriate, while the Schwarz Information Criterion suggested the 2nd lag length. As the Akaike Information Criterion yielded the smallest value among the relevant information criteria, the 4th lag was chosen as the suitable lag length.

According to the results of the model analyzing the relationship between female unemployment rate and producer price index, the Schwarz Information Criterion and Hannan-Quinn Information Criterion suggest the 2nd lag length to be appropriate, while the Akaike Information Criterion indicates the 3rd lag length as suitable. Like the previous table, in this table



as well, the Akaike Information Criterion yields the smallest value among the information criteria. Therefore, the 3rd lag length recommended by the Akaike Information Criterion is chosen as the appropriate lag length.

Table 5: Determination of Appropriate Lag Length for LUF E and EIO Variables

Lag	Logl	Lr	FPE	AIC	SC	HQ
0	-474.016	0	0.299356	4.469631	4.501192	4.482386
1	596.937	2111.738	1.33E-05	-5.5487	-5.45402	-5.51044
2	646.0625	95.94465	8.74E-06	-5.97242	-5.814611*	-5.90864
3	651.5996	10.71033	8.61E-06	-5.98685	-5.76592	-5.89757
4	663.8648	23.49384	7.97e-06*	-6.064458*	-5.78041	-5.949663*
5	664.9668	2.090245	8.19E-06	-6.03725	-5.69007	-5.89694
6	665.3563	0.731417	8.47E-06	-6.00335	-5.59305	-5.83753
7	670.5815	9.714404	8.38E-06	-6.01485	-5.54143	-5.82352
8	672.8375	4.151815	8.52E-06	-5.99847	-5.46193	-5.78164
9	673.7728	1.703819	8.77E-06	-5.9697	-5.37003	-5.72735
10	679.3374	10.03203	8.64E-06	-5.98439	-5.3216	-5.71653
11	681.4468	3.76313	8.80E-06	-5.96664	-5.24072	-5.67327
12	687.2146	10.18170*	8.66E-06	-5.98324	-5.1942	-5.66436

Table 6: Determination of Appropriate Lag Length for LUF E and KIO Variables

Lag	Logl	Lr	FPE	AIC	SC	HQ
0	-487.932	0	0.341141	4.600296	4.631857	4.613051
1	574.7142	2095.358	1.64E-05	-5.34004	-5.24536	-5.30177
2	623.067	94.43545	1.08E-05	-5.7565	-5.598690*	-5.692722*
3	628.4269	10.36748	1.07e-05*	-5.769266*	-5.54834	-5.67998
4	632.0841	7.005361	1.07E-05	-5.76605	-5.482	-5.65125
5	633.825	3.302117	1.10E-05	-5.74484	-5.39766	-5.60453
6	639.6314	10.90393*	1.08E-05	-5.7618	-5.3515	-5.59598
7	641.8671	4.15651	1.10E-05	-5.74523	-5.27181	-5.55391
8	644.656	5.132729	1.11E-05	-5.73386	-5.19732	-5.51702
9	646.3662	3.115303	1.13E-05	-5.71236	-5.11269	-5.47001
10	647.5342	2.105651	1.16E-05	-5.68577	-5.02298	-5.41791
11	648.7043	2.087537	1.20E-05	-5.6592	-4.93328	-5.36583
12	650.7218	3.561422	1.22E-05	-5.64058	-4.85155	-5.32171

For each of the two models established in the study, the Johansen Cointegration Test was applied separately. Firstly, the Johansen Cointegration Test was conducted to investigate the presence of a long-term cointegration relationship between male unemployment rate and producer price index. According to the results of the Johansen Cointegration Test, both the trace test statistic and the Maximum Eigenvalue test statistic indicate the existence of a long-term relationship.

A similar situation is observed in the model established between female unemployment rate and producer price index. According to both the results of the trace test statistic and the Maximum Eigenvalue test statistic, there is a cointegration relationship between the variables.

Determining the direction of the relationship between variables becomes crucial for assessing the validity of the Phillips curve, especially through the normalized long-term coefficients. Significant econometric results have been obtained both in the model established between male unemployment rate and producer price index, and in the model established between female unemployment rate and producer price index. Additionally, another significant finding is the negative relationship observed between male unemployment rate and producer price index, as well as between female unemployment rate and producer price index.

Table 7: The Trace Test Statistic and The Maximum Eigenvalue Test Statistic for EIO and KIO

LUFE EIO		Trace Test	
Eigenvalue	Statistic	Critical Value	Prob.
0.046662	12.57037	12.3209	0.0454
<b>Maximum Eigenvalue Test</b>			
Eigenvalue	Statistic	Critical Value	Prob.
0.046662	10.51281	11.2248	0.0665
LUFE KIO		Trace Test	
Eigenvalue	Statistic	Critical Value	Prob.
0.048065	12.74349	12.3209	0.0425
<b>Maximum Eigenvalue Test</b>			
Eigenvalue	Statistic	Critical Value	Prob.
0.048065	10.88609	11.2248	0.0573

Notes: The symbols \*\*\*, \*\*, and \* indicate the significance levels at 10%, 5%, and 1%, respectively

Normalized Long-Term Coefficients

$$\text{LUFE} = -0,1778 \text{ EIO} \quad (1)$$

$$(0,02244)$$

$$\text{LUFE} = -0,10125 \text{ KIO} \quad (2)$$

$$(0,02942)$$

The obtained results indicate that the Phillips Curve is valid for both males and females based on gender-specific analysis. When analyzing the relationship between female and male unemployment rates and the producer price index, it is found that females have a lesser impact on the producer price index compared to males. Additionally, it is observed that males have both a more significant and higher-level effect econometrically, and this effect is negative.

## 5. Conclusion

Understanding the relationship between inflation and unemployment, two fundamental economic indicators that directly influence the policy-making processes of economic decision-makers, is crucial for Türkiye as it is for other countries. Testing the existence of the Phillips Curve in Türkiye is essential for determining and implementing policies in the aftermath of a potential economic recession. Given that Türkiye has been struggling with inflation and unemployment for many years, reaching an almost chronic level for these two issues, it is imperative to gain a clearer understanding of their relationship, making this topic even more interesting. The main reason for this is that Türkiye's fragile economic structure makes it susceptible to adverse effects on inflation and unemployment data immediately following both local and global economic shocks. Knowing the nature of these variables in advance after an undesirable economic shock will undoubtedly guide the policies to be formulated later. The period covered by the data used in this study, spanning from the early 2000s to approximately 2015, when inflation remained low, followed by a shift in the Turkish economy toward a high-inflation environment post-2015, makes the study's findings particularly compelling. Moreover, it is known that in some countries, the unemployment issue exhibits a hysteresis effect and does not return to its natural rate.

The KIO and EIO data used in this study indicate the presence of a unit root process. Consequently, unemployment in Türkiye appears to exhibit a persistent or 'sticky' characteristic. Therefore, following an economic shock, the tendency of unemployment data to converge toward the natural rate implies a challenging or problematic adjustment process. In this context, economies with a hysteresis structure may experience an economic environment where unemployment generates additional costs. To mitigate or prevent this situation, countries like Türkiye, where female labor force participation rates are notably low, could implement incentive

policies to promote greater female employment. Such policies might include legislative reforms, public provision of vocational training, and expanded remote work opportunities. Therefore, policies created in light of this reality will yield more effective and accurate results, helping to solve this problem.

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