LINEAR AND NONLINEAR ANALYSIS FOR TESTING THE HYSTERESIS HYPOTHESIS IN TÜRKİYE

Fatma İdil BAKTEMUR [1]

Abstract

Unemployment is an important socioeconomic problem. Economic shocks especially affect the economies of developing countries negatively. The hysteresis hypothesis expresses the view that temporary shocks can have a permanent effect on unemployment rates. The hysteresis hypothesis can be considered as an objection to the natural rate hypothesis. From a unit root perspective, if the series contain a unit root, hysteresis hypothesis is valid. If not, hysteresis hypothesis is not valid. This study aims to test the hysteresis hypothesis by using data covering the period of 2014M01-2023M07 in the Turkish economy. In the study, general unemployment and youth unemployment rates have been discussed. Some of the most commonly used linear and nonlinear unit root tests in applied studies have been included in the study in order to make comparisons. By detecting that the series are nonstationary according to linear and nonlinear unit root tests, it can be inferred that hysteresis hypothesis is valid in Türkiye. This shows that the effects of shocks are permanent. Effective policies against unemployment need to be developed.

Keywords   : *Unemployment, Hysteresis, Linear Unit Root, Nonlinear Unit Root*

JEL Classification : *C22, E24*

---

[1] Assistant Professor, Osmaniye Korkut Ata University Faculty of Economics and Administrative Sciences Department of Econometrics, idilbaktemur@gmail.com, ORCID: 0000-0003-2455-5898.

TÜRKİYE'DE HİSTERİ HİPOTEZİNİN TEST EDİLMESİNE YÖNELİK DOĞRUSAL VE DOĞRUSAL OLMAYAN ANALİZ

Öz

İşsizlik önemli bir sosyoekonomik sorundur. Ekonomik şoklar özellikle gelişmekte olan ülke ekonomilerini olumsuz etkilemektedir. Histeri hipotezi, geçici şokların işsizlik oranları üzerinde kalıcı bir etkiye sahip olabileceği görüşünü ifade etmektedir. Histeri hipotezi doğal oran hipotezine bir itiraz olarak değerlendirilebilir. Birim kök açısından bakıldığında seri birim kök içeriyorsa histeri hipotezi geçerlidir. Aksi takdirde histeri hipotezi geçerli değildir. Bu çalışma, Türkiye ekonomisinin 2014M01-2023M07 dönemini kapsayan verileri kullanarak histeri hipotezini test etmeyi amaçlamaktadır. Çalışmada genel işsizlik ve genç işsizlik oranları ele alınmıştır. Uygulamalı çalışmalarda sık kullanılan doğrusal ve doğrusal olmayan birim kök testlerinden bazılarına karşılaştırma yapılabilmesi amacıyla çalışmada yer verilmiştir. Doğrusal ve doğrusal olmayan birim kök testlerine göre serilerin durağan olmadığı tespit edilerek Türkiye'de histeri hipotezinin geçerli olduğu sonucuna varılabilmektedir. Bu da şokların etkilerinin kalıcı olduğunu göstermektedir. İşsizliğe karşı etkili politikaların geliştirilmesi gerekmektedir.

Anahtar Kelimeler   : *İşsizlik, Histeri, Doğrusal Birim Kök, Doğrusal Olmayan Birim Kök*

JEL Sınıflandırması   : *C22, E24*

INTRODUCTION

Unemployment is an important socioeconomic problem. Among macroeconomic goals, the goal of achieving full employment is an important policy priority for most developing countries (Sodipe & Ogunrinola, 2011). The term unemployment can be used in relation to any of the factors of production that are idle and not used appropriately. However, if employment is not created for everyone who can work, unemployment will arise and increase. If production operates below capacity or the workforce is not fully used in production, it is considered as underemployment (Kenny, 2019). Increasing employment is one of the primary macroeconomic policies.

Unemployment after crisis situations is explained by three different approaches: Natural rate approach, structuralist approach and unemployment hysteresis approach.

According to the natural rate approach, the effect of structural changes is temporary and after the shock, the unemployment rate will converge to a value called the natural rate and return to its previous level (Yılancı, 2009). In the structuralist approach, structural breaks are effective in the unemployment rate and it is stated that the process is a static process with structural breaks (Özcan, 2012).

Following the first and second oil crises, the theory of hysteresis, which models extraordinary persistence in unemployment series, has put the natural unemployment rate theory to the test (Papell et al., 2000). As a concept, "hysteresis" lacks a consensus definition, but the general argument is that it is incompatible with a constant natural rate of unemployment (Gustavsson & Osterholm, 2007).

Two directions of hysteresis research appear to be extremely fruitful. Both investigate the labor market and the correlation between unemployment and compensation setting. First, membership theories are founded on the distinction between insiders and outsiders and explore the notion that firms' incumbent workers, as opposed to the unemployed, predominantly determine wage levels. Second, duration theories are based on the distinction between short-term and long-term unemployment and investigate the notion that long-term unemployment exerts little influence on wage setting (Blanchard & Summers, 1986).

Given the underlying assumptions of the hysteresis hypothesis in relation to unemployment, it can be inferred that if unemployment follows an integrated process of order 1 (I(1)), the shocks

impacting the unemployment series will result in lasting effects. Consequently, these effects will cause a shift in the equilibrium level of unemployment from one state to another. On the contrary, if unemployment follows an I(0) process, the impact of the shock will only be temporary, hence reducing the necessity for policy intervention as unemployment will ultimately go back to its equilibrium level. The I(0) process is sometimes referred to as the natural rate of unemployment hypothesis (NAIRU) due to its characterization of unemployment dynamics as a mean reversion process. Due to the fact that hysteresis is associated with nonstationary unemployment rates, unit root tests have been extensively utilized to examine its validity (Chang et al., 2005).

This study aims to reveal the validity of the hysteresis hypothesis by using monthly data covering the period 2014M01-2023M07 concerning the Turkish economy. The first section of the study focuses on the hysteresis theory, second section on the literature review, and the third section on the method and application. The final section briefly summarizes the results obtained from the study and includes discussion.

I. THE THEORY OF HYSTERESIS

The concept of hysteresis has been introduced by New Keynesian. According to the New Keynesian view, there is no single rate expressed as the natural unemployment rate in the economy. For example, as a result of a long-lasting crisis, the natural unemployment rate is higher; as a result of a short-term crisis, the natural rate will be lower (Paya, 2013).

In the case of the hysteresis, the unemployment rate attracts the NAIRU, and demand policy that influences unemployment will also (indirectly) influence the NAIRU (Stockhammer & Sturn, 2012). The long-term unemployment rate is also changing upwards. The main reason is the existence of unions.

The European experience has spurred the development of alternative unemployment theories based on the notion that the equilibrium unemployment rate is contingent on the actual unemployment rate's past. These theories may be called hysteresis theories, after the term used in the physical sciences to describe situations in which equilibrium is path-dependent. Two routes of hysteresis research appear to be extremely fruitful. Both investigate the labor market and the correlation between unemployment and compensation setting. First, membership theories are founded on the distinction between insiders and outsiders and explore the notion that firms' incumbent workers, as opposed to the unemployed, predominantly determine wage levels. Second, duration theories are based on the distinction between short-term and long-term unemployment and investigate the notion that long-term unemployment exerts little influence on wage setting (Blanchard & Summers, 1986).

The essential point is that there is a fundamental asymmetry between employed insiders and job-seeking outsiders in the wage-setting process. Outsiders are disenfranchised, and wages are determined so as to guarantee the employment of insiders. Shocks that result in a decline in employment alter the number of insiders and, consequently, the equilibrium wage rate, resulting in hysteresis. Therefore, membership considerations can explain why the equilibrium unemployment rate tends to reflect the actual unemployment rate (Blanchard & Summers, 1986).

In the case of the hysteresis, current unemployment tends to increase the natural unemployment rate. The natural unemployment rate follows the present unemployment rate's trajectory. The presence of unemployment hysteresis will cause a leftward tilt in the Phillips curve. In addition, unemployment hysteresis and the insiders and outsiders model imply that, as the experience of outsiders increases, the differences between insiders and outsiders will disappear in the long run, and the differences between groups with different levels of experience and, consequently, high productivity differences will diminish. In the case of unemployment hysteresis, expansionary policies will reduce current unemployment rates, causing the natural unemployment rate to occur at a lower level. As a result of increasing demand, expansionary policies may cause inflation to rise, but once the unemployment rate stabilizes at a reduced level, inflation will decline.

II. LITERATURE REVIEW

In the literature, there are a number of studies investigating the hysteresis hypothesis. Some of the literature reviews are presented below.

In the study of Chang et al. (2005) when Panel SURADF experiments are performed, the hysteresis hypothesis is confirmed for all European nations with the exception of Belgium and the Netherlands. Gustavsson and Österholm (2006) conclude that unemployment hysteresis finds less support for Australia, Canada, Finland, Sweden and the USA when nonlinearities are accounted for in comparison to the standard ADF test. Gomes and Silva (2008) confirm hysteresis hypothesis for Brazil and Chile by using LM unit root test.

When the threshold effect holds, Lin et al. (2008) discover strong evidence of the existence of nonlinear stationary in Australia, Canada, Finland, France, Germany, Ireland, Japan, the Netherlands, and the United States. The hysteresis hypothesis is further supported by the fact that the unemployment rate exceeds the limits of the band in Australia, Finland, France, Germany, Japan, and the United States when the Caner and Hansen threshold unit root test is rigorously applied.

The study of Bolat et al. (2014) indicates that the unemployment rates for the 17 Eurozone nations are not stationary and are consistent with the hysteresis hypothesis for both the panel unit root tests of Ucar and Omay and the SPSM without Fourier. They report the results of the Panel KSS test using a Fourier function and discover that the unemployment rates in eleven countries are stationary, in accordance with the natural rate hypothesis. Six countries, namely the Netherlands, Slovakia, Slovenia, Italy, Portugal, and Cyprus, exhibit hysteresis effect in their unemployment rates.

Saraç (2014) suggests that the hysteresis effect at unemployment in Türkiye is valid only in one regime. Ağazade (2016) shows that natural rate hypothesis is not valid for Türkiye and provides substantial support for the hysteresis effects observed in all unemployment indicators.

Using a nonlinear quantile unit root test, Bahmani-Oskooee et al. (2018) determine that the unemployment rate of the U.S. economy as a whole exhibits hysteresis effect during recessionary periods. Nineteen of the fifty-two states exhibit hysteresis behavior between 1976 and 2016. For the remaining 33 states, four categories of behavior are identified. Some states exhibit stationarity in nearly all quantiles. Some exhibit hysteresis during recessionary periods, while others exhibit it during expansionary periods. Tekin (2018) detects hysteresis with Fourier functions for Türkiye.

Yaya et al. (2019) proposes ANN-ADF test. Using France, Italy, the Netherlands, Sweden, and the United Kingdom as examples, the empirical findings indicate that there is still hysteresis in these countries. Both the ARNN-ADF and fractional integration unit root test batteries fail to reject the hypothesis of unemployment hysteresis across all countries.

In the study of Omay et al. (2020) the empirical results support the stationary nature of the unemployment rate in 47 states. The results validate the natural rate hypothesis for labor markets in the majority of U.S. states. Awolaja et al. (2021) implement the Panel SUR test with Fourier and ESTAR nonlinearities. Twelve MENA economies corroborate the hysteresis hypothesis. The hysteresis effect on female unemployment is discovered by Şak (2021). No hysteresis effect is identified in the model with intercept for male unemployment and total unemployment. Uğur and Atılgan (2021) detect hysteresis effects by using Panel LM unit root test for BRICS-T countries. Mota and Vasconcelos (2022) discover significant hysteresis effects in the sectoral employment dynamics. Telli Üçler (2022) determines that general unemployment data contains more hysteresis than youth unemployment data. Kilic et al. (2023) use advanced quantile unit root tests. The findings provide new evidence for resolving the enigma of unemployment hysteresis in emerging markets.
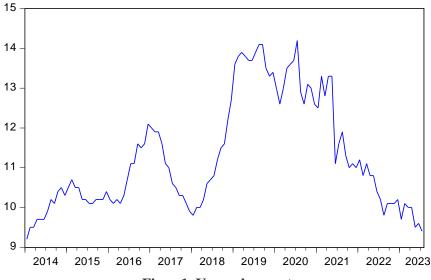
Table 1. Literature Review

Study	Country	Period	Method	Hysteresis
Chang et al. (2005)	10 European countries	1961-1999	Panel SURADF test	+ (except Belgium and the Netherlands)
Gustavson & Österholm (2006)	Australia, Canada, USA Finland, Sweden,	1978:2–2005:1 1976:1–2005:1 1948:1–2005:1 1960:1–2004:12 1970:1–2004:12	KSS unit root test	Less support
Gomes & Silva (2008)	Brazil, Chile	1980-2002	LM test	+
Lin et al. (2008)	OECD	Different time periods between 1978-2005	Nonlinear unit root test	+ for Denmark and Portugal
Bolat et al. (2014)	17 Eurozone	2000-2013	Nonlinear panel unit root test	+ for the Netherlands, Slovakia, Slovenia, Italy, Portugal, and Cyprus,
Saraç (2014)	Türkiye	2005-2013	Linear and nonlinear unit root tests	+ Only in one regime
Ağazade (2016)	Türkiye	2005-2015	Nonlinear unit root tests	+
Bahmani-Oskooee et al. (2018)	U.S	1976-2016	Nonlinear quantile unit root tests	+ over recessionary periods
Tekin (2018)	Türkiye	2005-2017	Fourier unit root test	+
Yaya et al. (2019)	France, Italy, the Netherlands, Sweden and the United Kingdom	1983-2018	ARNN-ADF test	+
Omay et al. (2020)	U.S	1976-2017	Linear and nonlinear unit root tests	-
Awolaja et al. (2021)	MENA	1991-2019	Panel-SUR based unit root test	+ for 12 MENA countries
Şak (2021)	Türkiye	1988-2018	Nonlinear unit root test	+ for female unemployment
Uğur & Atılgan (2021)	BRICS-T	1991-2020	Panel LM unit root test	+
Mota & Vasconcelos (2022)	Portugal	2000-2021	FM-OLS	+ in the employment
Telli Üçler (2022)	Türkiye	2005-2022	Linear unit root tests	+
Kilic et al. (2023)	18 countries	1990-2020	quantile unit root tests	-

III. METHOD AND APPLICATION

The study includes the general unemployment and youth unemployment rate data for Türkiye. Considering that most studies are based on the linear approach, this study uses the nonlinear approach with an updated dataset. The given data (2014M01-2023M07) were taken from the CBRT (Central Bank of the Republic of Türkiye) EVDS Electronic Data Delivery System. Series are seasonally adjusted.

Figure 1 and 2 describe the time path of the series.
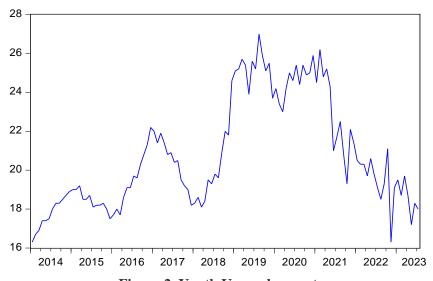
Figue 1. **Unemployment**

Figure 2. **Youth Unemployment**

The graphs above show general unemployment and youth unemployment series between 2014 and 2023. It appears that youth unemployment rates are higher than general unemployment rates.

The first stage of the application of the study includes the descriptive statistics for the unemployment series. Table 2 summarizes descriptive statistics.

Table 2. Descriptive Statistics for the General and Youth Unemployment Rate

Statistics	Unemployment (%)	Youth Unemployment (%)
Mean	11.272	20.795
Median	10.800	19.800
Maximum	14.200	27.000
Minimum	9.200	16.300
Standard Deviation	1.400	2.813
Skewness	0.655	0.551
Kurtosis	2.086	2.022
JB (probability)	0.002	0.005

The maximum value (14.2) in the general unemployment rate was realized in 2020, and the minimum value (9.2) was realized in 2014. As for youth unemployment, the maximum value (27) was realized in 2019 and the minimum value (16.3) was realized in 2014. The mean values for general unemployment and youth unemployment are 11.272 and 20.795 respectively.

The hysteresis hypothesis can be tested with unit root tests. Linear and nonlinear unit root tests were included in the study in order to make comparisons.

The regression for the ADF test is shown below (Dickey & Fuller, 1979).

$$\Delta y_t = \psi * y_{t-1} + \sum_{i=1}^{\rho-1} \psi_i * \Delta y_{t-i} + \mu + \gamma t + u_t \tag{1}$$

$$u_t \sim \text{iid}\,(0, \sigma^2)$$

It tests the hypothesis of $H_0 : \psi* = 0$ (unit root) against the hypothesis of $H_1 : \psi* < 0$ (no unit root).

Linear unit root test results are shown below.

Table 3. Linear Unit Root Test (ADF)

Variable	Model	test statistics	probability
Unemployment	intercept	-1.520	0.5197
youth unemployment	intercept	-1.180	0.6806
Unemployment	Trend+intercept	-0.981	0.9417
youth unemployment	Trend+intercept	0.093	0.9969
ΔUnemployment	none	-11.009	0.0000
Δyouth unemployment	none	-4.161	0.0001

*Critical values of 1%, 5% and 10% are stated as -4.04, -3.45 and -3.15, respectively.

Table 3 shows ADF unit root test results. The results show that the series have unit roots and that means series are not stationary. The fact that the series are not stationary means that hysteresis effect exists.

This study also aims to compare the results by using nonlinear unit root tests.

Kapetanios et al. (2003) aimed to combine the two nonlinear and nonstationary fields by investigating ways to distinguish nonstationary linear systems from stationary nonlinear ones. Kapetanios vd. (2003) tested stationarity in STAR models:

$$y_t = \varphi y_{t-1} + \tilde{\varphi} y_{t-1}(1 - \exp\{-\gamma y^2_{t-d}\}) + \varepsilon_t \tag{2}$$

$$\Delta y_t = \beta y_{t-1} + \tilde{\varphi} y_{t-1}(1 - \exp\{-\gamma y^2_{t-d}\}) + \varepsilon_t \tag{3}$$

β=φ-1'dir and β=0 , d=1 :

$$\Delta y_t = \widetilde{\varphi} y_{t-1}(1 - \exp\{-\gamma y^2_{t-d}\}) + \varepsilon_t \qquad (4)$$

$$\varepsilon_t \sim iid(0, \sigma^2)$$

since γ is ot defined under the null hypothesis they obtained the equation (5) by Taylor approach:

$$\Delta y_t = \delta y^3_{t-1} + \eta_t \qquad (5)$$

It tests the hypothesis of $H_0 : \delta = 0$ against the hypothesis of $H_1 : \delta < 0$.

Nonlinear unit root test results are shown below.

Table 4. Nonlinear Unit Root Test (KSS)

Variable	Model	t statistics
Unemployment	demeaned	-1.55
youth unemployment	demeaned	-2.26
Unemployment	detrended	-1.01
youth unemployment	detrended	-1.91
ΔUnemployment	raw	-6.442
Δyouth unemployment	raw	-8.113

*Critical values of 1%, 5% and 10% are stated in the study of Kapetanios et al. (2003) as -3.48, -2.93, -2.66 for demeaned model, -2.82, -2.22, -1.92 for raw model and -3.93, -3.40 and -3.13, respectively for detrended model.

As can be seen in Table 4, the results show that the series have unit roots, meaning that the hysteresis hypothesis is valid. Looking at the results of Table 3 and Table 4, it can be seen that linear and nonlinear unit root test results do not conflict.

In the literature, there are a lot of studies consistent with this result. Considering the hysteresis for Türkiye; Ağazade (2016), Tekin (2018), Şak (2021) and Telli Üçler (2022) can be cited as examples. For other developing countries, Gomes & Silva (2008), Awolaja et al. (2021) and Uğur & Atılgan (2021) can be given as examples.

CONCLUSION

By detecting that the unemployment and youth unemployment series are nonstationary according to linear and nonlinear unit root tests, it can be inferred that hysteresis hypothesis is valid in Türkiye. This result shows that the current unemployment rate tends to push the natural unemployment rate upward. The natural unemployment rate follows the path of the current unemployment rate. The presence of unemployment hysteresis will cause the Phillips curve to shift to the left. Unemployment hysteresis and the insiders and outsiders model also mean that the differences between groups that have experience differences and therefore high productivity differences will decrease over time as the experience of outsiders increases, and the difference between insiders and outsiders will disappear in the long run. In case of unemployment hysteresis, current unemployment rates will be reduced with expansionary policies implemented, causing the natural unemployment rate to occur at lower levels. Expansionary policies may cause inflation to rise because they increase demand, but once the unemployment rate remains at a lower level, inflation will decrease.

The existence of unemployment hysteresis states that shocks affecting the labor market cause permanent changes in the unemployment rate. With globalization, competition increases and technological developments are reflected in employment. The existence of hysteresis indicates that

reducing the inflation rate will increase the costs of unemployment. Therefore, it becomes important to carry out structural reforms that will increase the efficiency of the labor market. It is important to make new regulations in the field of employment.

Education that will increase the qualified workforce and unions also gain importance in reducing unemployment.

Especially, in recession periods, active employment policies should be developed. The main purpose of active employment policies is to facilitate the return to working life for the unemployed. Besides, the competitiveness of the agricultural sector should be increased.

REFERENCES

Ağazade, S. (2016). Türkiye İçin İşsizlik Histerisine Karşın Doğal Oran Hipotezinin Doğrusal Dışı Yöntemlerle Sınanması. *Sosyal Güvenlik Dergisi*, 6(2), 28-46.

Awolaja, O. G., Yaya, O. S., Ogbonna, A. E., Joseph, S. O. & Vo, X. V. (2021). Unemployment hysteresis in Middle East and North Africa countries: panel SUR-based unit root test with a Fourier function, *Middle East Development Journal*, 13:2, 318-334, DOI: 10.1080/17938120.2021.1958587

Bahmani-Oskooee, M., Chang, T. & Ranjbar, O. (2018). Testing hysteresis effect in U.S. state unemployment: new evidence using a nonlinear quantile unit root test, *Applied Economics Letters*, 25:4, 249-253, DOI: 10.1080/13504851.2017.1316477

Blanchard, O. J. & Summers, L. H. (1986). Hysteresis in Unemployment, (No.2035), *National Bureau of Economic Research Working Paper Series*, 1-12.

Blanchard, O.J. & Summers, L.H. (1986). Hysteresis and the European Unemployment Problem. Fischer, S. (ed.) NBER Macroeconomics Annual, Cambridge, MIT Press.

Bolat, S., Tiwari, A.K. & Erdayi, A.U. (2014). Unemployment hysteresis in the Eurozone area: evidences from nonlinear heterogeneous panel unit root test, *Applied Economics Letters*, 21:8, 536-540, DOI: 10.1080/13504851.2013.872755

Chang, T., Lee, K-C., Nieh, C-C. & Wei, C-C. (2005). An empirical note on testing hysteresis in unemployment for ten European countries: panel SURADF approach, *Applied Economics Letters*, 12:14, 881-886, DOI: 10.1080/13504850500365871

Dickey, D.A. & W.A. Fuller (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root, *Journal of the American Statistical Association*, 74, p. 427–431.

Gomes, F. & da Sılva, C. G. (2008). Hysteresis vs. natural rate of unemployment in Brazil and Chile, *Applied Economics Letters*, 15(1), 53-56.

Gustavsson, M. & Osterholm, P. (2006). Hysteresis and nonlinearities in unemployment rates, *Applied Economics Letters*, 13(9), 545-548.

Gustavsson, M. & Osterholm, P. (2007). Does unemployment hysteresis equal employment hysteresis? *The Economic Record*, 83(261), 159–173.

Kapetanios, G., Shin, Y. & Snell, A. (2003). Testing for a Unit Root in the Nonlinear STAR Framework, *Journal of Econometrics*, 112, 359–379.

Kenny S. V. (2019). A causal relationship between unemployment and economic growth, MPRA Paper 93133, University Library of Munich, Germany.

Kilic, E., Yavuz, E., Ergen, E. & Yarasir Tulumce, S. (2023). Asymmetric persistence and the unemployment hysteresis question in emerging markets: evidence from advanced quantile unit-root tests, *Studies in Economics and Econometrics*, 47:3, 244-261, DOI: 10.1080/03796205.2023.2208742

Lin, C. H., Kuo, N. F. & Yuan, C. D. (2008). Nonlinear vs. nonstationary of hysteresis in unemployment: evidence from OECD economies, *Applied Economics Letters*, 15:6, 483-487, DOI: 10.1080/13504850600706370

Mota, P. R. & Vasconcelos, P. B. (2022). Hysteresis in the Dynamics of Employment by Activity Sector, *Review of Political Economy*, DOI: 10.1080/09538259.2022.2105139

Omay, T., Ozcan, B. & Shahbaz, M. (2020). Testing the hysteresis effect in the US state-level unemployment series, *Journal of Applied Economics*, 23:1, 329-348, DOI: 10.1080/15140326.2020.1759865

Özcan, B. (2012). İşsizlik Histerisi Hipotezi Oecd Ülkeleri İçin Geçerli Mi? Yapısal Kırılmalı Birim Kök Analizi, *Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, (40), ss. 95-117.

Papell., D. H., Murray, C. J. & Ghiblawi, H. (2000). The Structure of Unemployment. *The Review of Economics and Statistics*, 82(2), 309–315.

Paya, M. (2013). *Makro İktisat*, 4. Baskı, İstanbul: Türkmen Kitabevi.

Saraç T. (2014). İşsizlikte histeri etkisi: Türkiye örneği. *Ege Akademik Bakış*, 14(3), 335 - 344.

Sodipe, O. A. & Ogunrinola, I. O. (2011). Employment and Economic Growth Nexus in Nigeria*, International Journal of Business and Social Science*, Vol. 2 (No. 11).

Stockhammer, E. & Sturn, S. (2012), The impact of monetary policy on unemployment hysteresis, *Applied Economics,* 44(21), 2743-2756.

Şak, N. (2021). Türkiye'de işsizlik histerisi: Kadın ve erkek işsizliğine bir bakış. *Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 14(2), 467–477. http://doi.org/10.25287/ohuiibf.714090.

Tekin, İ. (2018). Türkiye'de İşsizlik Histerisi: Fourier Fonksiyonlu Durağanlık Sınamaları. *Dokuz Eylül Üniversitesi İktisadi İdari Bilimler Fakültesi Dergisi*, 33 (1) , 97-127. DOI: 10.24988/deuiibf.2018331685

Telli Üçler, Y. (2022). Türkiye'de İşsizlik Histerisi Üzerine Bir Araştırma (2005 2022). *Selçuk Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Dergisi*, 25 (1), 216-225.

Uğur, B. & Atılgan, D. (2021). BRICS-T Ülkeleri İçin İşsizlik Histerisi mi, Yoksa Doğal Oran Hipotezi mi Geçerlidir? Çukurova Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 25 (2) , 311-325. DOI: 10.51945/cuiibfd.993063

Yaya, O. S., Ogbonna, E. A., Furuoka, F. & Gil-Alana, L. A. (2019). A new unit root analysis for testing hysteresis in unemployment, MPRA Paper 96621, University Library of Munich, Germany.

Yılancı, V. (2009). Yapısal kırılmalar altında Türkiye için işsizlik histerisinin sınanması. *Doğuş Üniversitesi Dergisi*, *10*(2), 324–335.

Etik Beyanı : *Bu çalışmanın tüm hazırlanma süreçlerinde etik kurallara uyulduğunu yazar beyan eder. Aksi bir durumun tespiti halinde ÖHÜİİBF Dergisinin hiçbir sorumluluğu olmayıp, tüm sorumluluk çalışmanın yazarına aittir.*

Yazar Katkıları : *Çalışma tek yazarlıdır.*

Çıkar Beyanı : *Çıkar çatışması yoktur.*

Teşekkür (Varsa) : *Yayın sürecinde katkısı olan hakemlere ve editör kuruluna teşekkür ederim.*

Ethics Statement : *The author declares that ethical rules are followed in all preparation processes of this study. In case of detection of a contrary situation, ÖHÜİİBF Journal does not have any responsibility and all responsibility belongs to the author of the study.*

Author Contributions : *The study has a one single author.*

Conflict of Interest : *There is no conflict of interest.*

Acknowledgement : *I thank the referees and editorial board who contributed to the publishing process.*