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Testing the Validity of Unemployment Hysteresis in Turkic Republics by Panel Unit Root Test Analysis

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Abstract: *Unemployment has increased sharply in many countries and has become more persistent. Thus, unemployment is widely accepted as a major indicator for the performance of a country's labor market. As a closely watched economic indicator, the unemployment rate does not just affect those individuals who are jobless ranging impacts across the broader economy. So much that, in addition to the negative effects of unemployment on the economy, unemployed individuals can also negatively affect working individuals mentally. They may be more concerned about losing their job or be hesitant to look for another job because they have a false belief that they are "lucky" to have been hired. They may even feel guilty for having a job when their coworkers are unemployed. Based on this importance, the natural rate of unemployment hypothesis is one of the important macroeconomics ideas. The natural rate of unemployment is determined by labor supply and demand. When fluctuations in demand or supply can cause deviations of actual unemployment rate from natural rate. This study shows the validity of the unemployment hysteresis hypothesis; it tests the Turkic Republics country group with its data covering the period 1991-2019. The test used for Turkey, Azerbaijan, Turkmenistan, Kyrgyzstan, Kazakhstan, and Uzbekistan internally allows for a different number of determined structural break points and cross-section dependence. When the panel stability test results are evaluated, it is seen that the unemployment rate in these countries may be a stagnant process. Based on this, the results show that the unemployment hysteresis hypothesis is not supported in the majority of these countries. Finally, the study concludes that unemployment rates in these countries can be best described as stationary process in line with the natural rate hypothesis.*

Keywords: *Turkic Republics, Unemployment; Unemployment Hysteresis; Natural Rate Hypothesis; Panel Unit Root Test.*

Original research paper

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Introduction

Unemployment rates are among the basic indicators of economic development and performance. Therefore, elimination of unemployment is one of the main and primary objectives of economic policies. So, unemployment has moved to a different position among research topics. Two theoretical backgrounds are outstanding when studies on unemployment are analyzed. The first is the natural unemployment hypothesis developed by M. Friedman, the other is the unemployment hysteresis hypothesis developed by Blanchard and Summers.

Whether the unemployment hysteresis hypothesis is valid or not is determined depending on the existence of unit root formation in the series of unemployment rates. Standard unit root tests give uncertain and unreliable results (Novak, 2019). For this reason, the situation of unemployment series including structural breakage has also gained importance (Kristic et al., 2019). To achieve more reliable results in this study, Carrion-i Silvestre et al. (2005)'s test has been used.

The demands of revolution and independence in Eastern Europe in the late 1980s caused uprisings in the Union of Soviet Socialist Republics. In the process, the Turkish Republics declared their sovereignty in the USSR in 1990. As a result, on January 1, 1992, USSR was officially demolished and Turkmenistan, Uzbekistan, Kyrgyzstan, Kazakhstan, Azerbaijan were officially established. However, these countries declared their independence in 1991 (Gürbüz et al., 2009). After this breakup, countries entered the transition process of the market economy (Korkmaz et al., 2013). For this reason, the beginning of the dataset used in the study was determined as 1991.

The countries used in the study are known as the Central Asian Turkish Republics, namely Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan, and Azerbaijan (Sumerian and Uner, 2014). Turkey has also been added to these countries in the study. Furthermore, these countries were previously used in Akcan (2019) and Akal et al. (2011) studies.

Theoretical Framework

M. Friedman (1968) and E. S. Pheleps (1967) suggested that the unemployment rate would be at a certain level of balance in the long run. They pointed out that employment policies will partially fail in the long run. According to Friedman and Pheleps, unemployment rates will stabilize at a natural level in the long run. For this reason, although employment policies are effective in the short term, this effect will weaken in the long term. Similarly, expected or unexpected imbalances in the economy will have an impact on unemployment rates in the short run. In the long run, this effect will disappear by itself.

Blanchard and Summers (1986) explained the unemployment hysteria hypothesis in the study in which they also examined the unemployment of Europe. According to Blanchard and Summers unemployment hysteria, an increase in the unemployment rates occurs during an economic shock and the unemployment levels do not return back to the previous level when the shock passes. They also explain the persistence of this effect mainly for three different reasons. These are listed as physical capital, human capital, and insider-outsider. To explain these concepts separately (Blanchard and Summers, 1986);

If there is a negative shock in the economy, the actors decide to decrease their capital stock. After this decision, the demand for the labor factor needed will also decrease. Decreasing the demand for labor will take the existing unemployment to higher levels and make the solution of the problem more difficult in the long term.

The explanation of the hysteria hypothesis with human capital is as follows: when an economic shock occurs, some of the employees will remain unemployed. As the time of unemployment

gets longer, the ability to be forgotten and the job search hopes and motivations of the unemployed decrease. In this case, it causes the unemployment in the economy to be permanent and difficult to overcome.

Finally, the concept of inside-out and unemployment hysteresis is explained as follows. The Insider-Outsider theory is mainly used to explain real wage rigidity. Continuing the employment of existing employees will create lower costs than the cost for the worker taken from outside. This situation makes employers reluctant to hire workers from outside. The fact that outside workers are not placed in new job positions also causes long-term unemployment.

Literature Review

Ener et al. (2011) tested the unemployment hysteria for 15 European Union countries in addition to Turkey using data from 1985-2005 period. According to the results of the study using the Carrion-I Silvestre panel stationarity test, the unemployment hysteresis hypothesis has been rejected in these countries.

Çınar et al. (2014) studies using data for Turkey's economy between 1988-2008 period of unemployment have analyzed the validity of sectoral unemployment hysteria. According to the results of the study using ADF, PP, and Ng-Perron unit root tests, the unemployment hysteria was rejected in the sub-sectors.

Gil-Alana et al. (2018) Using quarterly data from studies in the 1988-2013 period analyzed the validity of unemployment hysteria in various unemployment series for Turkey. They have used tests developed by Cuestas and Gil-Alana in this study. According to the result of the study, unemployment hysteria is valid in Turkey.

Pisulewski (2019) analyzed Poland's unemployment rate with quarterly data in the period 1992-2017. As a result of the analysis made with the help of the Threshold Autoregression Model (TAR), it was concluded that the unemployment rate of Poland is not linear and the unemployment hysteria is valid.

Baştav (2019) analyzed the validity of the unemployment hysteria for the United States using quarter data between 1990 and 2014 in his study. According to the results of the analysis made within the framework of the New Keynesian Wage Phillips Curve, the unemployment hysteresis hypothesis was not valid for the United States in the period.

Cho et al. (2019) analyzed the unemployment hysteria for the USA between 1890-2017 and for England between 1855-2017 using the AR (1) random time-varying parameter (TVP) model. As a result of the study, it was determined that the hysteria phases are seen after the period after macroeconomic shocks, and in periods where there is no hysteria effect, unemployment is close to the natural unemployment rate.

Yaya et al. (2019) analyzed the validity of the unemployment hysteria for 42 African countries. According to the results of the study using the Fourier Augmented Dickey-Fuller (FADF), ADF, ADF-SB, and FADF-SB unit root tests and data from the period 1991-2017, the ADF test results accepted the unemployment hysteresis hypothesis in those countries, while the FADF, ADF-SB, and FADF-SB unit root test results reject unemployment hysteresis hypothesis.

Novak (2019) analyzed the validity of the unemployment hysteria for the Croatian economy using quarterly data from the period 2000-2018. According to the result of the study using the quantile auto-regression approach, it was concluded that the unemployment hysteresis hypothesis was valid in the Croatian economy during this period, but the internal shocks caused asymmetrical behaviors.

Kristic et al. (2019) analyzed the effects of membership of the European Union on the validity of the unemployment hysteresis and the validity of the divergence hypothesis in the

unemployment hysteresis, using the unemployment data for the 19 European Union member countries during the period 1995-2016. ADF, LM, and RALS-LM unit root tests were used in the study. According to the results of the study, while the ADF test reveals that the unemployment hypothesis is valid in many European Union countries, it is concluded that the NAIRU hypothesis is valid according to the results of the LM and RALS-LM tests. In addition, while the unemployment rate of countries differs according to the ADF test, the divergence hypothesis is more easily rejected according to the results of the LM and RALS-LM test.

Tıraşoğlu (2019) analyzed the validity of the unemployment hysteresis hypothesis by using monthly data between the period of January 2005 and August 2017 for 32 OECD countries. According to the results of the study using Kruse (2011)'s nonlinear unit root test and Güriş (2018) tests, it was concluded that the unemployment hysteresis hypothesis is generally valid in OECD countries.

Pikoko et al. (2019) analyzed the validity of unemployment hysteria in eight different categories for South Africa using quarterly data between 2008-2017 period. ADF, PP, KPPS, DF-GLS, and Ng-Perron unit root tests were used in the study. According to the results of the study, it confirms the conclusion that the unemployment hysteria is valid in the vast majority of classifications, except for the 55-64 age group.

Canarella et al. (2019) investigated the validity of unemployment hysteria in 20 states in the United States, using monthly data from 1990 to 2016 in the period. According to the results of the study using seasonally adjusted data and the unit root test of Kejriwal, Perron, and Zou (KPZ), there was no permanent change in the unemployment rate of 6 states and it was understood that the unemployment hysteria was invalid.

Faďoš et al. (2019) analyzed the gender inequality and unemployment rate for 27 European Union countries. In the study, the GLS unit root test developed by Carrión-i-Silvestre was used to evaluate countries individually, and the ILT LM panel unit root test developed by Im, Lee, and Tieslau for cumulative evaluation. According to the results of the study, while unemployment hysteresis is valid in European Union countries individually, according to the panel unit root test result, unemployment hysteresis in European Union countries is not valid.

Jiang et al. (2019) analyzed the validity of the unemployment hysteria hypothesis for G7 countries by using monthly and quarterly data in the 1980-2017 period. According to the results of traditional unit root tests, unemployment hysteria is valid in some G7 countries. According to the results of the Quantil Kolmogorov-Smirnov unit root test, it was concluded that the unemployment hysteria is valid in quarterly data but it is invalid in monthly data.

Munir et al. (2019) investigated the validity of the unemployment hysteria in their studies, using data from 1980-2008 for 11 Asian countries. The study is one of the richest studies in test maintenance used. Maddala and Wu (MW) unit root test, Choi unit root test, Im, Pesaran, and Shin (IPS), and Levin Lin Chu (LLC) unit root tests, which are accepted as traditional panel unit root tests, were used in the study. In addition to the traditional panel unit root tests, Bai and Ng unit root test, Pesaran Unit Root Test, Chang and Song panel unit root test, and Carrion-i-Silvestre panel unit root tests were used. In addition to these collographic panel unit root tests, univariate unit root tests such as ADF unit root test, PP unit root test, and KPSS unit root test were also used to analyze countries. According to the results of the study, in univariate unit root tests, 7 out of 11 Asian countries reached unemployment hysteria. According to the LLC and IPS test results, the unemployment hypothesis was rejected in all 11 Asian countries. Unemployment hysteria is valid in Asian countries selected according to MW and Choi unit root test results. Other tests show that unemployment hysteresis cannot be rejected for the country group.

According to the results of other tests, Alichi et al. (2019) researched the effects of economic fluctuations on the economy of the United States using data from 1980-2018 for the United

States. According to the results of the study using the multivariate filter approach developed by Alichi et al. in 2018, it has been understood that long and deep recessions in the economy have a lasting effect on the labor market. This leads to the conclusion that the unemployment hysteria was valid for the United States in the period in question.

Omay et al. (2020) investigated the validity of the unemployment hysteria for the states of the United States, using data between the period 1976-2017. Hybrid and structural fracture tests such as Omay, Emirmahmutoglu and Hasanov test, the fractional frequency flexible Fourier form test were used. According to the results of the study, unemployment rates are stable in the 47 states of the United States and unemployment hysteria is invalid.

Bakas et al. (2020) researched the unemployment hysteria for the OECD countries using data between 1960 and 2013. Mandala-Wu (MW) test, Choi (CH) test, Im, Lee, and Tieslau (IPS) test and Pesaran CIPS test were used as panel unit root test. In the study, the validity of the unemployment hysteresis hypothesis was determined for OECD countries, and it was concluded that the main source of this situation was explained by the "Insider-Outsider" theory.

Lukianenko et al. (2020) examined the unemployment trend of 9 European Union countries with data between 2000-2007. According to the results of the analysis using the Markov chain model, it is estimated that Ukraine will have a more unstable unemployment rate in the future, despite the low unemployment rate.

Khraief et al. (2020) analyzed the unemployment of 29 OECD countries using data from the period 1980-2013 for these countries. First, there were used Harvey, Leybourne, Xiao linear unit root test and then ESTAR non-linear unit root test recommended by Kruse. According to the results of the study, the unemployment rate of 25 OECD countries was stable and it was concluded that it did not contain hysteria.

Girardi et al. (2020) analyzed the effects of 126 different demand expansion on the economy and unemployment rates by using data for OECD countries between 1960 and 2015. The findings showed that the demand changes had a permanent and strong effect on the unemployment rate. Therefore, the study supports the unemployment hysteresis hypothesis for OECD countries.

Zhang et al (2021) test the employment hysteresis hypothesis for the United States from [01: 2020 - 05: 2020]. The study concluded that the employment hysteresis hypothesis is accepted in the United States during the COVID-19 era.

Konat and Coskun (2022) tested the unemployment hysteresis hypothesis for 10 selected OECD countries by using the multi-factor panel unit root test proposed by Pesaran, Smith and Yamagata. The empirical results showed that the hysteresis is valid for 10 selected OECD countries.

Data and Methodology

The current study investigates the unemployment hysteresis hypothesis in countries in which the majority speak the Turkish language are Turkey, Azerbaijan, Turkmenistan, Kyrgyzstan, Kazakhstan, and Uzbekistan by using a panel stationarity test for the period 1991-2019.

The variables, their explanations, and sources of the study are shown in Table 1.

Table 1. Data

Variable	Explanation	Source
MU	The unemployment rate for men	the WIID database (2014)
WU	The unemployment rate for women	the WIID database (2014)
YU	The youth unemployment rate (percent of total labor force ages 15-24)	the WIID database (2014)
TU	The overall unemployment rate	the WIID database (2014)

Source: the WIID database (2014).

We use the Carrion-i Silvestre et al. (2005)'s panel stationarity (PANKPSS) test. This test considers both several structural breaks and cross-sectional dependence. The issue of considering structural breaks is quite important. Otherwise, it may cause a bias towards the acceptance of the hysteresis hypothesis of unemployment.

The Panel Stationarity Test

Deterministic and stochastic trends show different memory properties. Series with trend follow unit root process and must be stationarized. Mis-specifying the trend characteristics of the data is an important issue. Biased test results and false predictions occur in this case (Ijomah and Enegesele, 2017).

For this aim, we use the PANKPSS test developed by Carrion-i Silvestre et al. (2005). The test is the panel version of the time series KPSS (Kwiatkowski et al., 1992) test (Ozcan, 2014). This test allows for different number of breaks located indifferent dates. According to the null hypothesis, the data generation process is assumed to be as follows (Ener et al., 2011):

$$y_{it} = \alpha_i + \sum_{k=1}^{m_i} \Theta_{i,k}.DU_{i,k,t} + \beta_i t + \sum_{k=1}^{m_i} \gamma_{i,k}.DT^*_{i,k,t} + \varepsilon_{it} \quad (1)$$

where y_{it} is unemployment rate variable interested, $\alpha_{i,0=}\alpha_i$, a constant, ε_{it} is assumed to be stationary. $DT^*_{i,k,t}$ is dummy variable for the changes in slope and $DU_{i,k,t}$ is dummy variable in level for the changes.

$DT^*_{i,k,t} = t - T^i_{b,k}$ for $t > T^i_{b,k}$, $DT^*_{i,k,t} = 0$ for elsewhere, where $T^i_{b,k}$ For the I-th individual, it is a time of pause. m is the maximum number of pauses allowed from k=1,…,m. $DU_{i,k,t} = 1$ for $t > T^i_{b,k}$, $DU_{i,k,t} = 0$ for otherwise (Ozcan, 2014).

The equation (1) allows two characteristics (Ener et al. 2011):

- There is a possibility of structural breaks occurring at different dates.
- Structural breaks can vary from individual to individual.

The test null hypothesis of a stationary panel that developed by Carrion-I Silvestre et al. (2005) with the representation given by:

$LM_\lambda = N^{-1}\sum_{I=1}^{N}(\hat{\varpi}^{-2}.T^{-2}.\sum_{t=1}^{T}S^2_{i,t})$ where $S_{i,t} = \sum_{j=1}^{t}\hat{\varepsilon}_{i,j}$ shows the partial sum process from the estimated OLS residues for equation (1) and $\hat{\varpi}^2$ is a stable estimate of long-term variance ε_{it}, λ It is used to describe the dependence of LM statistics on breakthrough dates. Where the variance between cross-section individuals is allowed to vary, The LM test statistic can be shown as follows (Ozcan, 2014):

When we investigated the validity of cross-sectional dependence, we obtained results in favor of the dependence. Thus, the bootstrap distribution of the panel stationarity test was calculated to check the cross-sectional dependence. For this purpose, Maddala et al. (1999)'s bootstrap procedure was employed.

Cross-Sectıonal Dependence and Homogeneity Tests

Breusch et al. (1980)'s Lagrange multiplier test statistic (LM_{BP}) was used to control cross-sectional dependence. Test statistics values can be calculated with the help of the following panel data equation:

$$y_{it} = \alpha_i + \beta_i' . x_{it} + \mu_{it} \tag{2}$$

The hypotheses of the test are as follows:

$H_0 : Cov(\mu_{it,}\mu_{jt}) = 0$ for all t and $i \neq j$

$H_1 : Cov(\mu_{it,}\mu_{jt}) \neq 0$ for at least some $i \neq j$

The test statistics can be calculated using the Equation (2). The test statistic that is used when T>N is as follows:

$LM_{BP} = T.\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}^2 \sim \chi^2_{N.(N-1)/2}$ where $\hat{\rho}_{ij}$ shows the predictive value of the correlation coefficient between the residuals obtained from the individual OLS estimates of equation (2).

The other important issue is the testing of slope homogeneity. To do this, Pesaran et al. (2008) homogeneity tests are employed. Pesaran et al. (2008)'s consider the following panel data model with fixed effects and heterogeneous slopes (Balan et al., 2015):

$$y_{it} = \alpha_i + \beta_i' . x_{it} + \varepsilon_{it},$$

(3)

where α_i is unit-specific intercept and limited on a compact set, x_{it} is a kx1 strictly exogenous regressors vector, β_i is a kx1 vector of slope values. The hypotheses are below:

$H_0 : \beta_i = \beta$ for all i,

$H_1 : \beta_i \neq \beta_j$ for $i \neq j$.

$\tilde{\Delta}$ homogeneity test statistic is defined by $\tilde{\Delta} = \sqrt{N}.\left(\frac{N^{-1}\tilde{S} - k}{\sqrt{2k}}\right)$ where $\tilde{S}$ is the Swamy's statistic, is valid when T>N.

Empirical Results

Firstly, Breusch and Pagan (1980)'s LM_{BP} test and Pesaran et al. (2008)'s homogeneity test are employed. According to Table 2, the null of no cross-sectional dependence across the selected countries is rejected. Based on the same table, we can see that the slope coefficients are homogeneous through the results of $\tilde{\Delta}$.

Table 2. Results for Cross-section Dependence and Homogeneity

Constant	MU		WU	
	Stat.	**prob-value**	**Stat.**	**prob-value**
LM_{BP} (BP.1980)	192.97	0.00	210.56	0.00
$\tilde{\Delta}$ test	-0.98	0.83	-0.54	0.70
Constant	YU		TU	
	Stat.	prob-value	Stat.	prob-value
LM_{BP} (BP.1980)	177.42	0.00	210.38	0.00
$\tilde{\Delta}$ test	-0.29	0.61	-0.77	0.78

Source: Authors' own and all the calculations are carried out by E-views 9.0.

Table 3 shows the results of the PANKPSS stationary test considering structural breaks for the MU, WU, YU, and TU variables. Schwarz information criterion is used in determining the date of breaks. When the analysis is evaluated empirically, it first indicates the maximum max = 3 structural breaks, which makes sense given the number of time observations in this paper.

Table 3 offers both the individual and paneled information together with the number of breaks. If it combined the individual information to compute the test statistic for MU and TU, we would realize that the null hypothesis of stationarity is not rejected for long-run variance. This is valid in both homogeneous and heterogeneous situations.

Table 3. Results for PANKPSS Test

Bootstrap critical values								
	Panel KPSS	10 percent	5 percent	1 percent	m	T_{b1}	T_{b2}	T_{b3}
MU	Level shift model: Breaks in constant							
Azerbaijan	0.279	1.127	1.254	1.514	2	1994	2008	
Turkey	0.113	0.317	0.445	0.814	1	2001		
Turkmenistan	0.207	0.981	1.138	1.568	2	1994	2004	
Uzbekistan	0.200	0.623	0.738	0.951	2	1995	2003	
Kazakhstan	0.230	0.462	0.544	0.727	2	1994	2001	
Kyrgyzstan	0.137	0.361	0.468	0.783	1	1995		
Panel[a]	3.674	13.956	15.746	19.915				
Panel[b]	5.086	17.770	19.595	24.064				
Bootstrap critical values								
WU	Panel KPSS	10 percent	5 percent	1 percent	*m*	T_{b1}	T_{b2}	T_{b3}
Azerbaijan	0.238	0.403	0.447	0.536	2.000	1994	2003	
Turkey	0.320**	0.246	0.274	0.412	2.000	2001	2014	
Turkmenistan	0.235	0.936	1.109	1.473	3.000	1994	2002	2006
Uzbekistan	0.193	0.659	0.782	1.005	2.000	1995	2003	
Kazakhstan	0.206	0.409	0.472	0.627	3.000	1994	2001	2008
Kyrgyzstan	0.132	0.376	0.484	0.871	1.000	1994		
Panel[a]	4.437	10.580	11.896	14.783				
Panel[b]	6.381	13.486	15.131	18.969				
Bootstrap critical values								
YU	Panel KPSS	10 percent	5 percent	1 percent	*m*	T_{b1}	T_{b2}	T_{b3}
Azerbaijan	0.348*	0.295	0.426	0.803	2.000	1994	2003	
Turkey	0.039	0.333	0.466	0.808	1.000	2001		
Turkmenistan	0.210	0.423	0.479	0.645	3.000	1994	2002	2006
Uzbekistan	0.175	0.316	0.449	0.834	2.000	1995	2003	
Kazakhstan	0.266	0.448	0.499	0.610	3.000	1994	2001	2007

Table 3 (cont.)

Kyrgyzstan	0.200	0.312	0.441	0.824	2.000	1994	2001	
Panel[a]	3.061	11.442	13.303	16.433				
Panel[b]	7.199	10.568	12.561	17.192				
Bootstrap critical values								
TU	Panel KPSS	10percent	5percent	1percent	*m*	T_{b1}	T_{b2}	T_{b3}
Azerbaijan	0.261	0.398	0.437	0.513	2.000	1994	2004	
Turkey	0.040	0.327	0.459	0.870	1.000	2001		
Turkmenistan	0.219	0.957	1.134	1.500	3.000	1994	2002	2006
Uzbekistan	0.197	0.633	0.753	0.986	2.000	1995	2003	
Kazakhstan	0.194	0.440	0.509	0.670	3.000	1994	2000	2007
Kyrgyzstan	0.124	0.378	0.486	0.916	1.000	1994		
Panel[a]	1.613	10.692	12.071	15.058				
Panel[b]	3.930	13.020	14.622	18.454				

Notes: T_b is the dates of structural breaks. [a]: Test statistic is computed under the homogeneity of long run variance assumption. [b]: Test statistic is computed under the heterogeneity of long run variance assumption. Bootstrap critical values are based on 10,000 bootstrap replications.
***, **, and * denote the 1, 5, and 10 percent significance.

Source: Authors' own and all the calculations are carried out by E-views 9.0.

Similarly, this conclusion is confirmed when cross-section dependence is considered for MU and TU. In particular, the critical values obtained from the bootstrap distribution indicate that the null hypothesis will be accepted at the 1 percent significance level.

The results of the PANKPSS test for WU are that for almost all the countries –except for Turkey- the unit root hypothesis cannot be rejected. Similarly, the results of the PANKPSS test for YU are that for almost all the countries –except for Azerbaijan- the unit root hypothesis cannot be rejected.

Overall, the evidence points to the absence of hysteresis in unemployment. Therefore, these results do not support a hysterical behavior hypothesis in unemployment but support the natural rate hypothesis for the selected countries.

In addition to these results, most countries have two breaks in generally. Concerning the break dates for almost all the countries –with the exception of Turkey, the first break dates correspond to late 1994 and early 1995. Turkic Republics, which won their independence in 1991, has been seeking to establish economic links with the world. Especially, Azerbaijan's economy faced a serious economic collapse from 1991 to 1995 and its economy shrank by 60percent. Considering the breaking date for Turkey in 2001 is noteworthy. State Institute of Statistics in 2001 announced that additional 969 thousand people have participated in the army of unemployed in Turkey and the unemployment rate rose from 6.3 percent to 10.6 percent. Thus, office closures and layoffs in the real sector caused 1 million people become unemployed due to the severe economic crisis in 2001 in Turkey.

Generally, the second break dates correspond to the 2001-2003 years for Turkic Republics. Between these years, the unemployment rates generally decreased in Turkic Republics. When the developments were investigated in these countries between these years, we see that the Central Asian Cooperation Organization was established in Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan with Almaty Agreement in 2002. Moreover, in aftermath of the 2003 year, with rising gas prices significant improvements in these economies and especially their purchasing power increased.

Finally, the global financial crisis of 2007–2008especially in Kazakhstan Azerbaijan, and Turkmenistan was estimated as structural break date. Really, the global financial crisis affected many countries simultaneously and caused a global economic crisis unseen since the Great Depression.

Conclusion

Unemployment has been one of the biggest problems faced in human history in the last few centuries. Rigidity is the worst possible scenario in the unemployment phenomenon, which both ruins the lives of individuals and has serious consequences for the economies of countries. Therefore, the most important stage in the fight against unemployment is to obstruct the increase in unemployment strictly.

Unemployment and employment data of countries are very important as an indicator of their economic performance. The high employment rate and low unemployment rate are closely related to the strong labor market. One of the indicators of the strength of the labor market is the unemployment hysteresis hypothesis. The less hysteria effect in the labor market, the stronger the labor market. For this reason, it is very important to analyze the unemployment hysteria of the countries in terms of the labor market and therefore their economic performance.

Azerbaijan, Turkey, Turkmenistan, Uzbekistan, Kazakhstan, and Kyrgyzstan data for the period 1991-2019 were analyzed using the panel stationarity test for validity of unemployment hysteresis. In order to analyze the situation of unemployment hysteria more clearly, unemployment rates, total unemployment rate, male unemployment rate, youth unemployment rate and female unemployment rate were examined in four different categories.

When the situation of the male unemployed for the country group in the labor market is analyzed, it is understood that the unemployment hysteria is not valid in every country. According to panel unit root test results; the unemployment hysteria hypothesis is valid for only the female unemployment rate of Turkey and the youth unemployment rate of Azerbaijan. For all other countries and types of unemployment, the unemployment hysteria hypothesis is not valid. Thus, the labor market for women in Turkey and the labor market for young in Azerbaijan is available susceptibility to external economic shocks in the labor market. Therefore, these two labor markets should be strengthened with employment policies to be implemented. When unemployment rates are analyzed regardless of gender and age, it is seen that unemployment hysteria is not valid in all countries.

In the previous studies; Shavingoglu (2019), Girardi et al. (2020), and Bakas and Makhlouf (2020) concluded that the unemployment hysteria is valid for OECD countries. In addition, Novak (2019) for the Croatian economy, Pikoko and Phiri (2019) for South Africa, Pisulewski (2019) for Poland, Munir et al. (2019) For 11 Asian countries, Alichi et al. (2019) It was concluded that the unemployment hysteria is valid for the United States. Gil-Alana et al. (2019) it has accepted the validity of unemployment hysteria for Turkey's economy. This result is different from our study. In this respect, our study contributes to the literature.

When the Turkic Republics are examined in general, it is seen that the labor markets are strong. However, when the general unemployment and male unemployment are analyzed, it is possible to see a strong labor market for each country. Therefore, it should be preferred to implement policies for women and youth instead of the general labor market or the labor market for men for these countries. In this way, it is thought that the efficiency and effectiveness of the labor policies to be implemented will increase.

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