Augmented Dickey-Fuller Unit Root Test on LCPI_JP

Null Hypothesis: LCPI_JP has a unit root
Exogenous: Constant
Lag Length: 4 (Automatic - based on Modified AIC, maxlag=14)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.066990	0.0000
Test critical values:	1% level	-3.464643	
	5% level	-2.876515	
	10% level	-2.574831	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LCPI_JP)
Method: Least Squares
Date: 05/21/23 Time: 12:58
Sample (adjusted): 6 196
Included observations: 191 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCPI_JP(-1)	-0.035105	0.004967	-7.066990	0.0000
D(LCPI_JP(-1))	-0.013710	0.069359	-0.197671	0.8435
D(LCPI_JP(-2))	0.150250	0.067716	2.218818	0.0277
D(LCPI_JP(-3))	-0.061221	0.064741	-0.945619	0.3456
D(LCPI_JP(-4))	0.167986	0.063871	2.630097	0.0093
C	0.160776	0.022693	7.084884	0.0000

R-squared	0.655473	Mean dependent var	0.005295
Adjusted R-squared	0.646161	S.D. dependent var	0.011971
S.E. of regression	0.007121	Akaike info criterion	-7.020725
Sum squared resid	0.009380	Schwarz criterion	-6.918559
Log likelihood	676.4792	Hannan-Quinn criter.	-6.979343
F-statistic	70.39349	Durbin-Watson stat	1.825971
Prob(F-statistic)	0.000000		

Phillips-Perron Unit Root Test on LCPI_JP

Null Hypothesis: LCPI_JP has a unit root
Exogenous: Constant
Bandwidth: 7 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-12.47708	0.0000
Test critical values:	1% level	-3.463924	
	5% level	-2.876200	
	10% level	-2.574663	

*MacKinnon (1996) one-sided p-values.

Residual variance (no correction)	6.55E-05
HAC corrected variance (Bartlett kernel)	9.85E-05

Phillips-Perron Test Equation
Dependent Variable: D(LCPI_JP)
Method: Least Squares
Date: 05/21/23 Time: 13:02
Sample (adjusted): 2 196
Included observations: 195 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCPI_JP(-1)	-0.036359	0.002394	-15.18679	0.0000
C	0.167331	0.010669	15.68424	0.0000

R-squared	0.544423	Mean dependent var	0.005549
Adjusted R-squared	0.542063	S.D. dependent var	0.012019
S.E. of regression	0.008134	Akaike info criterion	-6.775406
Sum squared resid	0.012768	Schwarz criterion	-6.741837
Log likelihood	662.6021	Hannan-Quinn criter.	-6.761814
F-statistic	230.6387	Durbin-Watson stat	1.691361
Prob(F-statistic)	0.000000		

KPSS Unit Root Test on LCPI_JP

Null Hypothesis: LCPI_JP is stationary
Exogenous: Constant
Bandwidth: 11 (Newey-West automatic) using Bartlett kernel

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		1.176193
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)

Residual variance (no correction)	0.059031
HAC corrected variance (Bartlett kernel)	0.597945

KPSS Test Equation
Dependent Variable: LCPI_JP
Method: Least Squares
Date: 05/21/23 Time: 13:04
Sample: 1 196
Included observations: 196

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.450380	0.017399	255.7840	0.0000

R-squared	0.000000	Mean dependent var	4.450380
Adjusted R-squared	0.000000	S.D. dependent var	0.243586
S.E. of regression	0.243586	Akaike info criterion	0.018393
Sum squared resid	11.57013	Schwarz criterion	0.035118
Log likelihood	-0.802515	Hannan-Quinn criter.	0.025164
Durbin-Watson stat	0.002941		

DF-GLS Unit Root Test on LCPI_JP

Null Hypothesis: LCPI_JP has a unit root
Exogenous: Constant
Lag Length: 12 (Automatic - based on Modified AIC, maxlag=14)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		0.436503
Test critical values:	1% level	-2.577660
	5% level	-1.942574
	10% level	-1.615547

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 05/21/23 Time: 13:09
Sample (adjusted): 14 196
Included observations: 183 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	0.000232	0.000531	0.436503	0.6630
D(GLSRESID(-1))	0.147094	0.073895	1.990583	0.0481
D(GLSRESID(-2))	0.149217	0.072795	2.049809	0.0419
D(GLSRESID(-3))	0.057646	0.072952	0.790194	0.4305
D(GLSRESID(-4))	0.337845	0.072780	4.642015	0.0000
D(GLSRESID(-5))	-0.101363	0.060698	-1.669959	0.0968
D(GLSRESID(-6))	-0.042797	0.059880	-0.714711	0.4758
D(GLSRESID(-7))	-0.101605	0.058881	-1.725590	0.0862
D(GLSRESID(-8))	0.187169	0.057691	3.244336	0.0014
D(GLSRESID(-9))	0.019660	0.058703	0.334901	0.7381
D(GLSRESID(-10))	0.061292	0.056727	1.080475	0.2815
D(GLSRESID(-11))	-0.082529	0.055245	-1.493878	0.1371
D(GLSRESID(-12))	0.119206	0.053034	2.247747	0.0259

R-squared	0.627782	Mean dependent var	0.003611
Adjusted R-squared	0.601508	S.D. dependent var	0.008087
S.E. of regression	0.005105	Akaike info criterion	-7.648758
Sum squared resid	0.004431	Schwarz criterion	-7.420762
Log likelihood	712.8614	Hannan-Quinn criter.	-7.556340
Durbin-Watson stat	1.961115		

ERS Point-Optimal Unit Root Test on LCPI_JP

Null Hypothesis: LCPI_JP has a unit root
Exogenous: Constant
Lag length: 4 (Spectral OLS AR based on Modified AIC, maxlag=14)
Sample: 1 196
Included observations: 196

	P-Statistic
Elliott-Rothenberg-Stock test statistic	2417.601
Test critical values: 1% level	1.911600
5% level	3.167600
10% level	4.323600

*Elliott-Rothenberg-Stock (1996, Table 1)

HAC corrected variance (Spectral OLS autoregression)	8.58E-05

Ng-Perron Modified Unit Root Tests on LCPI_JP

Null Hypothesis: LCPI_JP has a unit root
Exogenous: Constant
Lag length: 12 (Spectral GLS-detrended AR based on Modified AIC, maxlag=
Sample: 1 196
Included observations: 196

		MZa	MZt	MSB	MPT
Ng-Perron test statistics		0.61811	1.66170	2.68837	423.327
Asymptotic critical values*:	1%	-13.8000	-2.58000	0.17400	1.78000
	5%	-8.10000	-1.98000	0.23300	3.17000
	10%	-5.70000	-1.62000	0.27500	4.45000

*Ng-Perron (2001, Table 1)

HAC corrected variance (Spectral GLS-detrended AR) 0.000390