Test Statistic -3.107419

p-value 0.026009

#Lags Used 10.000000

Number of Observations Used 715.000000

Critical Value (1%) -3.439529

Critical Value (5%) -2.865591

Critical Value (10%) -2.568927

dtype: float64

是否平稳(1/0): 0

e:\math\_model\2023 mathorcup\DC14\_DC10.py:73: UserWarning: Glyph 8722 (\N{MINUS SIGN}) missing from current font.

plt.show()

(-9.149761377263072, 2.7064267471504513e-15, 19, 705, {'1%': -3.4396596024765795, '5%': -2.86564834926679, '10%': -2.568957779286756}, 15794.262796446976)

Test Statistic -9.149761e+00

p-value 2.706427e-15

#Lags Used 1.900000e+01

Number of Observations Used 7.050000e+02

Critical Value (1%) -3.439660e+00

Critical Value (5%) -2.865648e+00

Critical Value (10%) -2.568958e+00

dtype: float64

是否平稳(1/0): 1

e:\math\_model\2023 mathorcup\DC14\_DC10.py:90: UserWarning: Glyph 8722 (\N{MINUS SIGN}) missing from current font.

plt.show()

BIC 最小的p值 和 q 值：0,0

RUNNING THE L-BFGS-B CODE

\* \* \*

Machine precision = 2.220D-16

N = 6 M = 10

This problem is unconstrained.

At X0 0 variables are exactly at the bounds

At iterate 0 f= 8.93653D+00 |proj g|= 8.24154D-02

At iterate 5 f= 8.89200D+00 |proj g|= 3.23458D-02

At iterate 10 f= 8.88929D+00 |proj g|= 3.09020D-05

\* \* \*

Tit = total number of iterations

Tnf = total number of function evaluations

Tnint = total number of segments explored during Cauchy searches

Skip = number of BFGS updates skipped

Nact = number of active bounds at final generalized Cauchy point

Projg = norm of the final projected gradient

F = final function value

\* \* \*

N Tit Tnf Tnint Skip Nact Projg F

6 11 16 1 0 0 4.791D-05 8.889D+00

F = 8.88928607644650

CONVERGENCE: REL\_REDUCTION\_OF\_F\_<=\_FACTR\*EPSMCH

==============================================================================

coef std err z P>|z| [0.025 0.975]

------------------------------------------------------------------------------

ma.L1 -0.6655 0.040 -16.844 0.000 -0.743 -0.588

ar.S.L52 -0.5283 2.403 -0.220 0.826 -5.238 4.181

ar.S.L104 -0.0177 0.099 -0.179 0.858 -0.211 0.176

ma.S.L52 -0.4700 2.413 -0.195 0.846 -5.200 4.260

ma.S.L104 -0.5328 2.414 -0.221 0.825 -5.264 4.199

sigma2 6.749e+08 1.34e-07 5.04e+15 0.000 6.75e+08 6.75e+08

==============================================================================

RMSE: 38128.42011296519

result

date

2023-01-01 25841.731511

2023-01-02 25488.718703

2023-01-03 26027.946160

2023-01-04 25582.766746

2023-01-05 25980.007090

2023-01-06 26119.160138

2023-01-07 25956.553440

2023-01-08 27120.085722

2023-01-09 26141.172640

2023-01-10 26967.353883

2023-01-11 26421.938501

2023-01-12 26438.667089

2023-01-13 27648.774905

2023-01-14 27310.234303

2023-01-15 27129.721019

2023-01-16 27041.768288

2023-01-17 27297.283496

2023-01-18 26624.751934

2023-01-19 27356.389902

2023-01-20 26653.180129

2023-01-22 27217.018210

2023-01-23 26514.797820

2023-01-24 27155.777115

2023-01-25 26661.039070

2023-01-26 27302.828077

2023-01-27 27237.435574

2023-01-28 27641.427302

2023-01-29 26452.090790

2023-01-30 26707.811149

2023-01-31 26348.164283