Column: China\_4

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3503  
Model: ARIMA(0, 1, 0) Log Likelihood -15288.588  
Date: Sat, 18 May 2024 AIC 30579.177  
Time: 17:41:51 BIC 30585.338  
Sample: 0 HQIC 30581.376  
 - 3503   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 362.6619 2.744 132.169 0.000 357.284 368.040  
===================================================================================  
Ljung-Box (L1) (Q): 12.62 Jarque-Bera (JB): 47034.65  
Prob(Q): 0.00 Prob(JB): 0.00  
Heteroskedasticity (H): 0.24 Skew: -0.02  
Prob(H) (two-sided): 0.00 Kurtosis: 20.95  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(3,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3503  
Model: ARIMA(3, 1, 0) Log Likelihood -15156.688  
Date: Sat, 18 May 2024 AIC 30335.375  
Time: 17:41:51 BIC 30403.147  
Sample: 0 HQIC 30359.562  
 - 3503   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -1.9323 0.154 -12.509 0.000 -2.235 -1.630  
x2 0.0013 0.003 0.483 0.629 -0.004 0.007  
x3 0.0022 0.013 0.164 0.870 -0.024 0.028  
x4 -7.1054 4.459 -1.594 0.111 -15.845 1.634  
x5 -0.0513 0.007 -7.644 0.000 -0.064 -0.038  
x6 -44.4160 5.708 -7.781 0.000 -55.604 -33.228  
x7 104.7381 22.740 4.606 0.000 60.168 149.308  
ar.L1 0.0268 0.008 3.240 0.001 0.011 0.043  
ar.L2 0.0035 0.007 0.470 0.638 -0.011 0.018  
ar.L3 0.0078 0.008 1.015 0.310 -0.007 0.023  
sigma2 336.3481 2.858 117.679 0.000 330.746 341.950  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 45340.69  
Prob(Q): 0.99 Prob(JB): 0.00  
Heteroskedasticity (H): 0.26 Skew: -0.34  
Prob(H) (two-sided): 0.00 Kurtosis: 20.61  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_33

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(0, 1, 0) Log Likelihood -9255.051  
Date: Sat, 18 May 2024 AIC 18512.101  
Time: 17:41:51 BIC 18518.307  
Sample: 0 HQIC 18514.311  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 9.1649 0.070 130.659 0.000 9.027 9.302  
===================================================================================  
Ljung-Box (L1) (Q): 7.12 Jarque-Bera (JB): 42529.35  
Prob(Q): 0.01 Prob(JB): 0.00  
Heteroskedasticity (H): 0.30 Skew: 0.60  
Prob(H) (two-sided): 0.00 Kurtosis: 19.65  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(4,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(4, 1, 0) Log Likelihood -9207.094  
Date: Sat, 18 May 2024 AIC 18434.187  
Time: 17:41:51 BIC 18496.248  
Sample: 0 HQIC 18456.285  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.0660 0.029 -2.246 0.025 -0.124 -0.008  
x2 -0.0072 0.002 -2.891 0.004 -0.012 -0.002  
x3 -2.2669 0.783 -2.895 0.004 -3.802 -0.732  
x4 0.2520 0.975 0.259 0.796 -1.658 2.162  
x5 14.1730 3.494 4.057 0.000 7.325 21.021  
ar.L1 0.0283 0.009 3.303 0.001 0.011 0.045  
ar.L2 0.1180 0.009 13.241 0.000 0.101 0.136  
ar.L3 -0.0248 0.008 -3.018 0.003 -0.041 -0.009  
ar.L4 0.0018 0.010 0.185 0.854 -0.017 0.021  
sigma2 8.9281 0.076 116.791 0.000 8.778 9.078  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 38690.76  
Prob(Q): 0.99 Prob(JB): 0.00  
Heteroskedasticity (H): 0.31 Skew: 0.52  
Prob(H) (two-sided): 0.00 Kurtosis: 18.89  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_103

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 2191  
Model: ARIMA(0, 1, 0) Log Likelihood -5851.070  
Date: Sat, 18 May 2024 AIC 11704.141  
Time: 17:41:51 BIC 11709.832  
Sample: 0 HQIC 11706.221  
 - 2191   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 12.2505 0.050 246.134 0.000 12.153 12.348  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 1077681.47  
Prob(Q): 0.96 Prob(JB): 0.00  
Heteroskedasticity (H): 2.61 Skew: -1.59  
Prob(H) (two-sided): 0.00 Kurtosis: 111.63  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(2,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 2191  
Model: ARIMA(2, 1, 0) Log Likelihood -5839.451  
Date: Sat, 18 May 2024 AIC 11692.901  
Time: 17:41:51 BIC 11732.743  
Sample: 0 HQIC 11707.463  
 - 2191   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.0001 0.000 -0.325 0.745 -0.001 0.001  
x2 0.0170 0.005 3.722 0.000 0.008 0.026  
x3 -2.0996 2.021 -1.039 0.299 -6.060 1.861  
x4 21.5865 4.696 4.597 0.000 12.383 30.790  
ar.L1 -0.0023 0.017 -0.131 0.896 -0.036 0.032  
ar.L2 0.0110 0.027 0.412 0.681 -0.042 0.064  
sigma2 12.1239 0.056 216.822 0.000 12.014 12.233  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 1118390.35  
Prob(Q): 0.98 Prob(JB): 0.00  
Heteroskedasticity (H): 2.66 Skew: -1.74  
Prob(H) (two-sided): 0.00 Kurtosis: 113.65  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_165

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(0, 1, 0) Log Likelihood -8978.720  
Date: Sat, 18 May 2024 AIC 17959.440  
Time: 17:41:51 BIC 17965.646  
Sample: 0 HQIC 17961.650  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 7.8814 0.074 106.443 0.000 7.736 8.027  
===================================================================================  
Ljung-Box (L1) (Q): 4.19 Jarque-Bera (JB): 16604.07  
Prob(Q): 0.04 Prob(JB): 0.00  
Heteroskedasticity (H): 0.53 Skew: 0.54  
Prob(H) (two-sided): 0.00 Kurtosis: 13.37  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(5,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(5, 1, 0) Log Likelihood -8827.334  
Date: Sat, 18 May 2024 AIC 17678.668  
Time: 17:41:51 BIC 17753.141  
Sample: 0 HQIC 17705.185  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.0777 0.026 -3.010 0.003 -0.128 -0.027  
x2 -0.0051 0.002 -2.205 0.027 -0.010 -0.001  
x3 -1.8149 0.751 -2.417 0.016 -3.287 -0.343  
x4 -0.0125 0.001 -14.492 0.000 -0.014 -0.011  
x5 0.6508 0.999 0.652 0.515 -1.306 2.608  
x6 17.4127 2.952 5.899 0.000 11.627 23.199  
ar.L1 0.0175 0.009 1.872 0.061 -0.001 0.036  
ar.L2 0.0316 0.009 3.383 0.001 0.013 0.050  
ar.L3 -0.0839 0.009 -9.477 0.000 -0.101 -0.067  
ar.L4 -0.0327 0.009 -3.705 0.000 -0.050 -0.015  
ar.L5 0.0015 0.010 0.157 0.875 -0.017 0.021  
sigma2 7.2558 0.078 92.451 0.000 7.102 7.410  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 14657.74  
Prob(Q): 1.00 Prob(JB): 0.00  
Heteroskedasticity (H): 0.52 Skew: 0.37  
Prob(H) (two-sided): 0.00 Kurtosis: 12.77  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_169

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(0, 1, 0) Log Likelihood -9239.929  
Date: Sat, 18 May 2024 AIC 18481.859  
Time: 17:41:51 BIC 18488.065  
Sample: 0 HQIC 18484.069  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 9.0896 0.065 140.826 0.000 8.963 9.216  
===================================================================================  
Ljung-Box (L1) (Q): 14.09 Jarque-Bera (JB): 59174.22  
Prob(Q): 0.00 Prob(JB): 0.00  
Heteroskedasticity (H): 0.46 Skew: 0.58  
Prob(H) (two-sided): 0.00 Kurtosis: 22.66  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(4,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(4, 1, 0) Log Likelihood -9110.097  
Date: Sat, 18 May 2024 AIC 18242.194  
Time: 17:41:51 BIC 18310.460  
Sample: 0 HQIC 18266.501  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.2160 0.025 -8.743 0.000 -0.264 -0.168  
x2 0.0002 0.000 0.418 0.676 -0.001 0.001  
x3 4.705e-05 0.002 0.020 0.984 -0.004 0.005  
x4 -0.0106 0.001 -11.711 0.000 -0.012 -0.009  
x5 -4.0408 0.971 -4.163 0.000 -5.943 -2.139  
x6 15.1010 3.193 4.729 0.000 8.843 21.359  
ar.L1 -0.0916 0.008 -12.057 0.000 -0.106 -0.077  
ar.L2 -0.0636 0.010 -6.513 0.000 -0.083 -0.044  
ar.L3 -0.0222 0.009 -2.606 0.009 -0.039 -0.006  
ar.L4 0.0058 0.009 0.667 0.505 -0.011 0.023  
sigma2 8.4641 0.078 107.959 0.000 8.310 8.618  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 49474.11  
Prob(Q): 1.00 Prob(JB): 0.00  
Heteroskedasticity (H): 0.46 Skew: 0.49  
Prob(H) (two-sided): 0.00 Kurtosis: 20.98  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_203

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(0, 1, 0) Log Likelihood -11297.567  
Date: Sat, 18 May 2024 AIC 22597.134  
Time: 17:41:51 BIC 22603.340  
Sample: 0 HQIC 22599.343  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 27.9555 0.161 173.708 0.000 27.640 28.271  
===================================================================================  
Ljung-Box (L1) (Q): 1.86 Jarque-Bera (JB): 146211.76  
Prob(Q): 0.17 Prob(JB): 0.00  
Heteroskedasticity (H): 0.50 Skew: -0.23  
Prob(H) (two-sided): 0.00 Kurtosis: 33.95  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(2,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(2, 1, 0) Log Likelihood -11194.583  
Date: Sat, 18 May 2024 AIC 22409.166  
Time: 17:41:51 BIC 22471.226  
Sample: 0 HQIC 22431.263  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.4140 0.044 -9.342 0.000 -0.501 -0.327  
x2 -2.591e-05 0.001 -0.035 0.972 -0.001 0.001  
x3 0.0023 0.004 0.573 0.566 -0.006 0.010  
x4 -1.4936 1.306 -1.144 0.253 -4.053 1.066  
x5 -0.0118 0.002 -6.026 0.000 -0.016 -0.008  
x6 -13.3610 1.667 -8.017 0.000 -16.627 -10.095  
x7 34.1215 6.441 5.298 0.000 21.498 46.745  
ar.L1 -0.0019 0.006 -0.319 0.750 -0.013 0.010  
ar.L2 -0.0269 0.008 -3.365 0.001 -0.043 -0.011  
sigma2 26.3980 0.170 155.587 0.000 26.065 26.730  
===================================================================================  
Ljung-Box (L1) (Q): 0.01 Jarque-Bera (JB): 153883.41  
Prob(Q): 0.93 Prob(JB): 0.00  
Heteroskedasticity (H): 0.54 Skew: -0.31  
Prob(H) (two-sided): 0.00 Kurtosis: 34.75  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_209

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(0, 1, 0) Log Likelihood -8827.406  
Date: Sat, 18 May 2024 AIC 17656.812  
Time: 17:41:51 BIC 17663.018  
Sample: 0 HQIC 17659.022  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 7.2564 0.043 166.835 0.000 7.171 7.342  
===================================================================================  
Ljung-Box (L1) (Q): 3.98 Jarque-Bera (JB): 123172.95  
Prob(Q): 0.05 Prob(JB): 0.00  
Heteroskedasticity (H): 0.38 Skew: 0.43  
Prob(H) (two-sided): 0.00 Kurtosis: 31.40  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(4,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(4, 1, 0) Log Likelihood -8799.900  
Date: Sat, 18 May 2024 AIC 17619.800  
Time: 17:41:51 BIC 17681.860  
Sample: 0 HQIC 17641.897  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.0594 0.026 -2.249 0.025 -0.111 -0.008  
x2 5.967e-05 0.000 0.204 0.839 -0.001 0.001  
x3 -0.0057 0.002 -3.101 0.002 -0.009 -0.002  
x4 1.0074 0.938 1.074 0.283 -0.831 2.846  
x5 10.1971 2.896 3.521 0.000 4.520 15.874  
ar.L1 0.0218 0.009 2.388 0.017 0.004 0.040  
ar.L2 0.0613 0.008 7.588 0.000 0.045 0.077  
ar.L3 -0.0269 0.007 -3.765 0.000 -0.041 -0.013  
ar.L4 -0.0532 0.008 -6.439 0.000 -0.069 -0.037  
sigma2 7.1467 0.051 139.717 0.000 7.046 7.247  
===================================================================================  
Ljung-Box (L1) (Q): 0.01 Jarque-Bera (JB): 114226.20  
Prob(Q): 0.94 Prob(JB): 0.00  
Heteroskedasticity (H): 0.39 Skew: 0.30  
Prob(H) (two-sided): 0.00 Kurtosis: 30.35  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_213

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3466  
Model: ARIMA(0, 1, 0) Log Likelihood -8850.514  
Date: Sat, 18 May 2024 AIC 17703.028  
Time: 17:41:51 BIC 17709.178  
Sample: 0 HQIC 17705.224  
 - 3466   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 9.6856 0.035 278.387 0.000 9.617 9.754  
===================================================================================  
Ljung-Box (L1) (Q): 0.03 Jarque-Bera (JB): 1107585.75  
Prob(Q): 0.85 Prob(JB): 0.00  
Heteroskedasticity (H): 1.30 Skew: -2.34  
Prob(H) (two-sided): 0.00 Kurtosis: 90.46  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(2,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3466  
Model: ARIMA(2, 1, 0) Log Likelihood -8810.675  
Date: Sat, 18 May 2024 AIC 17637.349  
Time: 17:41:51 BIC 17686.553  
Sample: 0 HQIC 17654.919  
 - 3466   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.2137 0.027 -7.985 0.000 -0.266 -0.161  
x2 2.473e-05 0.001 0.044 0.965 -0.001 0.001  
x3 -1.1613 1.104 -1.052 0.293 -3.324 1.002  
x4 -2.7585 1.122 -2.459 0.014 -4.957 -0.560  
x5 18.0217 3.017 5.974 0.000 12.109 23.934  
ar.L1 -0.0153 0.008 -1.860 0.063 -0.031 0.001  
ar.L2 -0.0213 0.008 -2.694 0.007 -0.037 -0.006  
sigma2 9.4680 0.041 230.893 0.000 9.388 9.548  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 1138061.52  
Prob(Q): 0.99 Prob(JB): 0.00  
Heteroskedasticity (H): 1.31 Skew: -2.56  
Prob(H) (two-sided): 0.00 Kurtosis: 91.64  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_228

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3501  
Model: ARIMA(0, 1, 0) Log Likelihood -11100.139  
Date: Sat, 18 May 2024 AIC 22202.278  
Time: 17:41:51 BIC 22208.439  
Sample: 0 HQIC 22204.477  
 - 3501   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 33.2838 0.255 130.636 0.000 32.784 33.783  
===================================================================================  
Ljung-Box (L1) (Q): 12.61 Jarque-Bera (JB): 45000.19  
Prob(Q): 0.00 Prob(JB): 0.00  
Heteroskedasticity (H): 0.35 Skew: 0.61  
Prob(H) (two-sided): 0.00 Kurtosis: 20.52  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(3,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3501  
Model: ARIMA(3, 1, 0) Log Likelihood -10951.300  
Date: Sat, 18 May 2024 AIC 21924.600  
Time: 17:41:51 BIC 21992.365  
Sample: 0 HQIC 21948.785  
 - 3501   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.6075 0.042 -14.378 0.000 -0.690 -0.525  
x2 -0.0004 0.001 -0.618 0.537 -0.002 0.001  
x3 -0.0027 0.004 -0.667 0.505 -0.011 0.005  
x4 -3.6391 1.443 -2.521 0.012 -6.468 -0.810  
x5 -0.0160 0.002 -7.883 0.000 -0.020 -0.012  
x6 -13.4247 1.664 -8.070 0.000 -16.685 -10.164  
x7 36.7081 6.661 5.511 0.000 23.652 49.764  
ar.L1 0.0310 0.007 4.287 0.000 0.017 0.045  
ar.L2 -0.0054 0.008 -0.667 0.505 -0.021 0.011  
ar.L3 -0.0151 0.008 -1.944 0.052 -0.030 0.000  
sigma2 30.5669 0.317 96.554 0.000 29.946 31.187  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 34672.45  
Prob(Q): 0.99 Prob(JB): 0.00  
Heteroskedasticity (H): 0.38 Skew: 0.26  
Prob(H) (two-sided): 0.00 Kurtosis: 18.41  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_250

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(0, 1, 0) Log Likelihood -9097.721  
Date: Sat, 18 May 2024 AIC 18197.442  
Time: 17:41:51 BIC 18203.648  
Sample: 0 HQIC 18199.652  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 8.4105 0.062 136.571 0.000 8.290 8.531  
===================================================================================  
Ljung-Box (L1) (Q): 1.29 Jarque-Bera (JB): 51602.99  
Prob(Q): 0.26 Prob(JB): 0.00  
Heteroskedasticity (H): 0.27 Skew: 0.33  
Prob(H) (two-sided): 0.00 Kurtosis: 21.38  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(2,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 3664  
Model: ARIMA(2, 1, 0) Log Likelihood -9063.101  
Date: Sat, 18 May 2024 AIC 18142.202  
Time: 17:41:51 BIC 18191.850  
Sample: 0 HQIC 18159.880  
 - 3664   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.0892 0.029 -3.086 0.002 -0.146 -0.033  
x2 -0.0103 0.002 -4.147 0.000 -0.015 -0.005  
x3 -1.2833 0.731 -1.754 0.079 -2.717 0.150  
x4 0.3956 0.952 0.416 0.678 -1.469 2.261  
x5 12.6426 3.166 3.994 0.000 6.438 18.847  
ar.L1 0.0038 0.010 0.395 0.692 -0.015 0.023  
ar.L2 0.0746 0.009 8.660 0.000 0.058 0.091  
sigma2 8.2531 0.066 124.572 0.000 8.123 8.383  
===================================================================================  
Ljung-Box (L1) (Q): 0.00 Jarque-Bera (JB): 49678.03  
Prob(Q): 0.98 Prob(JB): 0.00  
Heteroskedasticity (H): 0.26 Skew: 0.24  
Prob(H) (two-sided): 0.00 Kurtosis: 21.03  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

Column: China\_265

# ARIMA(0,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 2656  
Model: ARIMA(0, 1, 0) Log Likelihood -9878.890  
Date: Sat, 18 May 2024 AIC 19759.781  
Time: 17:41:51 BIC 19765.665  
Sample: 0 HQIC 19761.910  
 - 2656   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
sigma2 99.8685 0.623 160.349 0.000 98.648 101.089  
===================================================================================  
Ljung-Box (L1) (Q): 35.00 Jarque-Bera (JB): 152755.88  
Prob(Q): 0.00 Prob(JB): 0.00  
Heteroskedasticity (H): 1.00 Skew: 2.23  
Prob(H) (two-sided): 0.97 Kurtosis: 39.89  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

# ARIMA(6,1,0) Summary:

SARIMAX Results   
==============================================================================  
Dep. Variable: y No. Observations: 2656  
Model: ARIMA(6, 1, 0) Log Likelihood -9765.148  
Date: Sat, 18 May 2024 AIC 19556.296  
Time: 17:41:51 BIC 19632.790  
Sample: 0 HQIC 19583.982  
 - 2656   
Covariance Type: opg   
==============================================================================  
 coef std err z P>|z| [0.025 0.975]  
------------------------------------------------------------------------------  
x1 -0.6421 0.091 -7.086 0.000 -0.820 -0.465  
x2 -0.0004 0.001 -0.291 0.771 -0.003 0.003  
x3 -0.0042 0.007 -0.585 0.559 -0.018 0.010  
x4 -8.6700 3.834 -2.261 0.024 -16.185 -1.155  
x5 -0.0281 0.004 -7.610 0.000 -0.035 -0.021  
x6 15.7303 4.459 3.528 0.000 6.991 24.469  
ar.L1 0.0956 0.009 11.118 0.000 0.079 0.112  
ar.L2 0.1042 0.008 13.231 0.000 0.089 0.120  
ar.L3 0.0832 0.007 11.596 0.000 0.069 0.097  
ar.L4 -0.0469 0.007 -6.941 0.000 -0.060 -0.034  
ar.L5 0.0027 0.010 0.264 0.792 -0.017 0.023  
ar.L6 -0.0372 0.010 -3.777 0.000 -0.057 -0.018  
sigma2 91.6435 0.900 101.853 0.000 89.880 93.407  
===================================================================================  
Ljung-Box (L1) (Q): 0.04 Jarque-Bera (JB): 103560.39  
Prob(Q): 0.83 Prob(JB): 0.00  
Heteroskedasticity (H): 0.91 Skew: 1.60  
Prob(H) (two-sided): 0.18 Kurtosis: 33.43  
===================================================================================  
  
Warnings:  
[1] Covariance matrix calculated using the outer product of gradients (complex-step).