**ARIMA**

SARIMAX Results

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Dep. Variable: Price No. Observations: 332

Model: ARIMA(3, 1, 3) Log Likelihood 167.889

Date: Tue, 18 Mar 2025 AIC -321.779

Time: 12:03:49 BIC -295.164

Sample: 02-01-1990 HQIC -311.163

- 09-01-2017

Covariance Type: opg

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

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ar.L1 0.7383 0.019 39.571 0.000 0.702 0.775

ar.L2 0.7162 0.032 22.286 0.000 0.653 0.779

ar.L3 -0.9815 0.018 -53.491 0.000 -1.017 -0.946

ma.L1 -0.7900 0.033 -23.806 0.000 -0.855 -0.725

ma.L2 -0.7377 0.061 -12.112 0.000 -0.857 -0.618

ma.L3 0.9573 0.038 25.453 0.000 0.884 1.031

sigma2 0.0210 0.001 14.967 0.000 0.018 0.024

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Ljung-Box (L1) (Q): 2.38 Jarque-Bera (JB): 24.38

Prob(Q): 0.12 Prob(JB): 0.00

Heteroskedasticity (H): 2.55 Skew: 0.35

Prob(H) (two-sided): 0.00 Kurtosis: 4.13

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**SARIMAX**

SARIMAX Results

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Dep. Variable: Price No. Observations: 332

Model: SARIMAX(0, 1, 0)x(1, 0, [1], 12) Log Likelihood 283.314

Date: Tue, 18 Mar 2025 AIC -556.628

Time: 12:08:45 BIC -537.617

Sample: 02-01-1990 HQIC -549.046

- 09-01-2017

Covariance Type: opg

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

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Population 0.1416 0.404 0.351 0.726 -0.650 0.933

GDP -0.0008 0.003 -0.249 0.804 -0.007 0.005

ar.S.L12 0.9851 0.010 96.285 0.000 0.965 1.005

ma.S.L12 -0.7041 0.048 -14.789 0.000 -0.797 -0.611

sigma2 0.0099 0.001 16.545 0.000 0.009 0.011

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Ljung-Box (L1) (Q): 2.01 Jarque-Bera (JB): 37.61

Prob(Q): 0.16 Prob(JB): 0.00

Heteroskedasticity (H): 1.92 Skew: 0.34

Prob(H) (two-sided): 0.00 Kurtosis: 4.51

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**VAR**

Summary of Regression Results

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Model: VAR

Method: OLS

Date: Tue, 18, Mar, 2025

Time: 12:41:27

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No. of Equations: 5.00000 BIC: 10.2367

Nobs: 319.000 HQIC: 7.89716

Log likelihood: -2944.70 FPE: 585.192

AIC: 6.34164 Det(Omega\_mle): 228.533

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Results for equation Price

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coefficient std. error t-stat prob

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const 0.225682 0.126220 1.788 0.074

L1.Price 0.925193 0.060485 15.296 0.000

L1.Renewable 0.000540 0.000375 1.442 0.149

L1.Petroleum -0.000086 0.001026 -0.084 0.933

L1.Electric -0.000304 0.000148 -2.057 0.040

L1.Transportation 0.290517 0.136445 2.129 0.033

L2.Price 0.097464 0.082734 1.178 0.239

L2.Renewable 0.000300 0.000399 0.753 0.451

L2.Petroleum 0.000404 0.001162 0.348 0.728

L2.Electric 0.000294 0.000175 1.679 0.093

L2.Transportation -0.038013 0.130562 -0.291 0.771

L3.Price -0.064266 0.083209 -0.772 0.440

L3.Renewable -0.000590 0.000401 -1.471 0.141

L3.Petroleum -0.002450 0.001161 -2.109 0.035

L3.Electric 0.000101 0.000179 0.568 0.570

L3.Transportation -0.459098 0.136485 -3.364 0.001

L4.Price -0.042677 0.082992 -0.514 0.607

L4.Renewable -0.000700 0.000408 -1.715 0.086

L4.Petroleum 0.002850 0.001171 2.434 0.015

L4.Electric -0.000305 0.000175 -1.747 0.081

L4.Transportation -0.313427 0.138914 -2.256 0.024

L5.Price 0.014948 0.081162 0.184 0.854

L5.Renewable 0.000329 0.000404 0.815 0.415

L5.Petroleum 0.001139 0.001176 0.968 0.333

L5.Electric -0.000141 0.000176 -0.803 0.422

L5.Transportation 0.498999 0.140490 3.552 0.000

L6.Price 0.005924 0.080359 0.074 0.941

L6.Renewable 0.000339 0.000402 0.841 0.400

L6.Petroleum 0.001588 0.001177 1.349 0.177

L6.Electric 0.000008 0.000177 0.043 0.966

L6.Transportation 0.116621 0.143654 0.812 0.417

L7.Price 0.099091 0.078338 1.265 0.206

L7.Renewable 0.000261 0.000407 0.641 0.522

L7.Petroleum -0.001157 0.001190 -0.972 0.331

L7.Electric 0.000445 0.000174 2.560 0.010

L7.Transportation -0.168111 0.143237 -1.174 0.241

L8.Price 0.013512 0.078162 0.173 0.863

L8.Renewable -0.000126 0.000403 -0.313 0.754

L8.Petroleum -0.001231 0.001196 -1.030 0.303

L8.Electric -0.000268 0.000174 -1.539 0.124

L8.Transportation 0.214594 0.143379 1.497 0.134

L9.Price -0.204655 0.078666 -2.602 0.009

L9.Renewable 0.000333 0.000405 0.821 0.412

L9.Petroleum 0.000524 0.001186 0.442 0.659

L9.Electric -0.000177 0.000175 -1.014 0.311

L9.Transportation -0.202984 0.152163 -1.334 0.182

L10.Price 0.164909 0.079487 2.075 0.038

L10.Renewable -0.000557 0.000414 -1.345 0.178

L10.Petroleum -0.000707 0.001193 -0.593 0.553

L10.Electric 0.000226 0.000176 1.282 0.200

L10.Transportation -0.127022 0.155710 -0.816 0.415

L11.Price -0.029163 0.080259 -0.363 0.716

L11.Renewable -0.000028 0.000408 -0.068 0.946

L11.Petroleum -0.000978 0.001193 -0.819 0.413

L11.Electric 0.000325 0.000176 1.846 0.065

L11.Transportation -0.007058 0.159260 -0.044 0.965

L12.Price 0.229552 0.079400 2.891 0.004

L12.Renewable 0.000083 0.000407 0.203 0.839

L12.Petroleum 0.000744 0.001189 0.626 0.532

L12.Electric -0.000028 0.000177 -0.158 0.874

L12.Transportation -0.047585 0.148972 -0.319 0.749

L13.Price -0.234575 0.059788 -3.923 0.000

L13.Renewable -0.000257 0.000374 -0.686 0.493

L13.Petroleum -0.000718 0.001046 -0.687 0.492

L13.Electric -0.000218 0.000151 -1.441 0.149

L13.Transportation 0.285518 0.156264 1.827 0.068

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Results for equation Renewable

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coefficient std. error t-stat prob

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const -52.237739 19.731504 -2.647 0.008

L1.Price -6.425447 9.455349 -0.680 0.497

L1.Renewable 0.509721 0.058559 8.704 0.000

L1.Petroleum -0.043218 0.160411 -0.269 0.788

L1.Electric 0.001147 0.023141 0.050 0.960

L1.Transportation -20.497467 21.329861 -0.961 0.337

L2.Price 5.356897 12.933480 0.414 0.679

L2.Renewable 0.043658 0.062375 0.700 0.484

L2.Petroleum 0.003120 0.181643 0.017 0.986

L2.Electric -0.041553 0.027338 -1.520 0.129

L2.Transportation 47.733350 20.410276 2.339 0.019

L3.Price -0.887602 13.007755 -0.068 0.946

L3.Renewable 0.194601 0.062673 3.105 0.002

L3.Petroleum -0.138395 0.181555 -0.762 0.446

L3.Electric 0.008059 0.027915 0.289 0.773

L3.Transportation -17.085723 21.336156 -0.801 0.423

L4.Price 12.861526 12.973755 0.991 0.322

L4.Renewable 0.030084 0.063795 0.472 0.637

L4.Petroleum -0.136833 0.183012 -0.748 0.455

L4.Electric 0.021393 0.027305 0.783 0.433

L4.Transportation -3.648701 21.715966 -0.168 0.867

L5.Price -7.344621 12.687777 -0.579 0.563

L5.Renewable 0.066768 0.063185 1.057 0.291

L5.Petroleum -0.012893 0.183838 -0.070 0.944

L5.Electric 0.032933 0.027535 1.196 0.232

L5.Transportation -4.180775 21.962294 -0.190 0.849

L6.Price -4.584956 12.562194 -0.365 0.715

L6.Renewable -0.138596 0.062920 -2.203 0.028

L6.Petroleum 0.239414 0.184020 1.301 0.193

L6.Electric -0.035072 0.027742 -1.264 0.206

L6.Transportation -5.207514 22.456911 -0.232 0.817

L7.Price 4.804560 12.246246 0.392 0.695

L7.Renewable 0.052933 0.063583 0.833 0.405

L7.Petroleum -0.184374 0.186020 -0.991 0.322

L7.Electric -0.005663 0.027173 -0.208 0.835

L7.Transportation 7.585503 22.391718 0.339 0.735

L8.Price -29.834316 12.218753 -2.442 0.015

L8.Renewable -0.101941 0.062946 -1.619 0.105

L8.Petroleum -0.024979 0.186914 -0.134 0.894

L8.Electric 0.031579 0.027232 1.160 0.246

L8.Transportation 11.064673 22.413908 0.494 0.622

L9.Price 21.083235 12.297484 1.714 0.086

L9.Renewable 0.185231 0.063357 2.924 0.003

L9.Petroleum -0.042640 0.185340 -0.230 0.818

L9.Electric 0.008630 0.027365 0.315 0.752

L9.Transportation 12.974322 23.787124 0.545 0.585

L10.Price 2.798414 12.425970 0.225 0.822

L10.Renewable 0.042953 0.064669 0.664 0.507

L10.Petroleum 0.138850 0.186440 0.745 0.456

L10.Electric 0.015859 0.027516 0.576 0.564

L10.Transportation 9.978936 24.341587 0.410 0.682

L11.Price 1.126087 12.546661 0.090 0.928

L11.Renewable -0.036145 0.063728 -0.567 0.571

L11.Petroleum -0.063041 0.186522 -0.338 0.735

L11.Electric 0.003119 0.027546 0.113 0.910

L11.Transportation -12.612038 24.896586 -0.507 0.612

L12.Price 0.732879 12.412341 0.059 0.953

L12.Renewable 0.350188 0.063695 5.498 0.000

L12.Petroleum -0.085978 0.185945 -0.462 0.644

L12.Electric 0.050727 0.027744 1.828 0.067

L12.Transportation -6.542356 23.288226 -0.281 0.779

L13.Price 9.006685 9.346381 0.964 0.335

L13.Renewable -0.285949 0.058505 -4.888 0.000

L13.Petroleum 0.430269 0.163587 2.630 0.009

L13.Electric -0.054966 0.023650 -2.324 0.020

L13.Transportation -26.125621 24.428170 -1.069 0.285

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Results for equation Petroleum

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coefficient std. error t-stat prob

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const 9.816996 7.762763 1.265 0.206

L1.Price -5.641861 3.719921 -1.517 0.129

L1.Renewable -0.009701 0.023038 -0.421 0.674

L1.Petroleum 0.591973 0.063109 9.380 0.000

L1.Electric -0.002492 0.009104 -0.274 0.784

L1.Transportation -2.644003 8.391588 -0.315 0.753

L2.Price 0.370938 5.088286 0.073 0.942

L2.Renewable 0.016605 0.024540 0.677 0.499

L2.Petroleum 0.049570 0.071462 0.694 0.488

L2.Electric -0.018852 0.010755 -1.753 0.080

L2.Transportation 11.733981 8.029805 1.461 0.144

L3.Price 2.319814 5.117507 0.453 0.650

L3.Renewable -0.001702 0.024657 -0.069 0.945

L3.Petroleum -0.008619 0.071427 -0.121 0.904

L3.Electric -0.003807 0.010982 -0.347 0.729

L3.Transportation 4.002143 8.394065 0.477 0.634

L4.Price -1.541963 5.104131 -0.302 0.763

L4.Renewable -0.014064 0.025098 -0.560 0.575

L4.Petroleum -0.046700 0.072000 -0.649 0.517

L4.Electric 0.020051 0.010742 1.867 0.062

L4.Transportation -1.236722 8.543489 -0.145 0.885

L5.Price -0.240128 4.991622 -0.048 0.962

L5.Renewable 0.018704 0.024858 0.752 0.452

L5.Petroleum 0.019181 0.072325 0.265 0.791

L5.Electric 0.019774 0.010833 1.825 0.068

L5.Transportation -2.270713 8.640400 -0.263 0.793

L6.Price 4.806320 4.942215 0.973 0.331

L6.Renewable -0.018401 0.024754 -0.743 0.457

L6.Petroleum 0.142771 0.072397 1.972 0.049

L6.Electric 0.005573 0.010914 0.511 0.610

L6.Transportation -6.601260 8.834992 -0.747 0.455

L7.Price 5.727055 4.817915 1.189 0.235

L7.Renewable -0.008707 0.025015 -0.348 0.728

L7.Petroleum -0.056372 0.073184 -0.770 0.441

L7.Electric -0.008361 0.010690 -0.782 0.434

L7.Transportation 0.368903 8.809343 0.042 0.967

L8.Price -2.528673 4.807099 -0.526 0.599

L8.Renewable 0.022117 0.024764 0.893 0.372

L8.Petroleum 0.084834 0.073536 1.154 0.249

L8.Electric 0.002751 0.010714 0.257 0.797

L8.Transportation -5.169737 8.818073 -0.586 0.558

L9.Price -0.860360 4.838073 -0.178 0.859

L9.Renewable 0.001616 0.024926 0.065 0.948

L9.Petroleum 0.069464 0.072916 0.953 0.341

L9.Electric -0.011949 0.010766 -1.110 0.267

L9.Transportation 18.172876 9.358324 1.942 0.052

L10.Price -4.809499 4.888622 -0.984 0.325

L10.Renewable 0.004784 0.025442 0.188 0.851

L10.Petroleum -0.008422 0.073349 -0.115 0.909

L10.Electric 0.004415 0.010825 0.408 0.683

L10.Transportation 2.128940 9.576460 0.222 0.824

L11.Price -3.011030 4.936104 -0.610 0.542

L11.Renewable -0.032013 0.025072 -1.277 0.202

L11.Petroleum 0.068714 0.073382 0.936 0.349

L11.Electric -0.005819 0.010837 -0.537 0.591

L11.Transportation 0.104965 9.794808 0.011 0.991

L12.Price 6.614464 4.883260 1.355 0.176

L12.Renewable 0.042650 0.025059 1.702 0.089

L12.Petroleum 0.104791 0.073154 1.432 0.152

L12.Electric 0.009829 0.010915 0.901 0.368

L12.Transportation -8.704925 9.162048 -0.950 0.342

L13.Price -1.595037 3.677051 -0.434 0.664

L13.Renewable -0.023140 0.023017 -1.005 0.315

L13.Petroleum -0.150021 0.064358 -2.331 0.020

L13.Electric -0.005472 0.009304 -0.588 0.556

L13.Transportation -10.747136 9.610524 -1.118 0.263

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Results for equation Electric

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coefficient std. error t-stat prob

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const 79.927617 53.077323 1.506 0.132

L1.Price 35.431964 25.434688 1.393 0.164

L1.Renewable -0.281479 0.157523 -1.787 0.074

L1.Petroleum 0.320560 0.431502 0.743 0.458

L1.Electric 0.639035 0.062249 10.266 0.000

L1.Transportation -136.198297 57.376869 -2.374 0.018

L2.Price -58.074297 34.790784 -1.669 0.095

L2.Renewable 0.028023 0.167788 0.167 0.867

L2.Petroleum -0.226928 0.488615 -0.464 0.642

L2.Electric -0.100508 0.073538 -1.367 0.172

L2.Transportation 53.038317 54.903205 0.966 0.334

L3.Price -44.899077 34.990582 -1.283 0.199

L3.Renewable -0.010798 0.168589 -0.064 0.949

L3.Petroleum -0.254749 0.488380 -0.522 0.602

L3.Electric 0.032131 0.075091 0.428 0.669

L3.Transportation 76.285398 57.393803 1.329 0.184

L4.Price 26.695236 34.899124 0.765 0.444

L4.Renewable 0.076617 0.171606 0.446 0.655

L4.Petroleum 0.181789 0.492298 0.369 0.712

L4.Electric -0.043449 0.073450 -0.592 0.554

L4.Transportation 14.161485 58.415484 0.242 0.808

L5.Price 12.360161 34.129850 0.362 0.717

L5.Renewable -0.011532 0.169967 -0.068 0.946

L5.Petroleum -0.134688 0.494519 -0.272 0.785

L5.Electric -0.011157 0.074070 -0.151 0.880

L5.Transportation -85.313125 59.078101 -1.444 0.149

L6.Price 64.549054 33.792034 1.910 0.056

L6.Renewable -0.121823 0.169255 -0.720 0.472

L6.Petroleum 0.526424 0.495011 1.063 0.288

L6.Electric -0.002120 0.074626 -0.028 0.977

L6.Transportation -5.534935 60.408612 -0.092 0.927

L7.Price -53.833906 32.942141 -1.634 0.102

L7.Renewable 0.166950 0.171036 0.976 0.329

L7.Petroleum 0.618703 0.500390 1.236 0.216

L7.Electric -0.024268 0.073095 -0.332 0.740

L7.Transportation 63.134512 60.233242 1.048 0.295

L8.Price -40.967665 32.868186 -1.246 0.213

L8.Renewable -0.027141 0.169324 -0.160 0.873

L8.Petroleum -0.021881 0.502796 -0.044 0.965

L8.Electric -0.030525 0.073255 -0.417 0.677

L8.Transportation -18.946602 60.292932 -0.314 0.753

L9.Price 4.264335 33.079968 0.129 0.897

L9.Renewable 0.030235 0.170430 0.177 0.859

L9.Petroleum -0.473779 0.498560 -0.950 0.342

L9.Electric -0.102426 0.073612 -1.391 0.164

L9.Transportation 0.352637 63.986856 0.006 0.996

L10.Price 61.937508 33.425595 1.853 0.064

L10.Renewable -0.033366 0.173958 -0.192 0.848

L10.Petroleum -0.020714 0.501518 -0.041 0.967

L10.Electric 0.117010 0.074017 1.581 0.114

L10.Transportation -25.249431 65.478349 -0.386 0.700

L11.Price -7.499860 33.750249 -0.222 0.824

L11.Renewable -0.050921 0.171426 -0.297 0.766

L11.Petroleum -0.051825 0.501742 -0.103 0.918

L11.Electric 0.034150 0.074098 0.461 0.645

L11.Transportation -1.526025 66.971285 -0.023 0.982

L12.Price 45.186611 33.388932 1.353 0.176

L12.Renewable 0.335793 0.171337 1.960 0.050

L12.Petroleum -0.131977 0.500188 -0.264 0.792

L12.Electric 0.237943 0.074630 3.188 0.001

L12.Transportation 74.866406 62.644832 1.195 0.232

L13.Price -43.925136 25.141564 -1.747 0.081

L13.Renewable 0.041636 0.157376 0.265 0.791

L13.Petroleum -0.523285 0.440046 -1.189 0.234

L13.Electric -0.153702 0.063618 -2.416 0.016

L13.Transportation 47.363081 65.711255 0.721 0.471

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Results for equation Transportation

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coefficient std. error t-stat prob

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const 0.056798 0.054328 1.045 0.296

L1.Price 0.042960 0.026034 1.650 0.099

L1.Renewable 0.000240 0.000161 1.491 0.136

L1.Petroleum 0.000716 0.000442 1.622 0.105

L1.Electric -0.000046 0.000064 -0.726 0.468

L1.Transportation 0.595284 0.058729 10.136 0.000

L2.Price -0.027104 0.035611 -0.761 0.447

L2.Renewable -0.000073 0.000172 -0.428 0.669

L2.Petroleum 0.000068 0.000500 0.136 0.892

L2.Electric -0.000010 0.000075 -0.126 0.900

L2.Transportation 0.335981 0.056197 5.979 0.000

L3.Price -0.009801 0.035815 -0.274 0.784

L3.Renewable 0.000067 0.000173 0.385 0.700

L3.Petroleum -0.000017 0.000500 -0.033 0.973

L3.Electric -0.000089 0.000077 -1.152 0.249

L3.Transportation 0.113587 0.058747 1.934 0.053

L4.Price -0.005495 0.035722 -0.154 0.878

L4.Renewable 0.000006 0.000176 0.034 0.973

L4.Petroleum 0.000074 0.000504 0.146 0.884

L4.Electric 0.000083 0.000075 1.110 0.267

L4.Transportation -0.037534 0.059792 -0.628 0.530

L5.Price -0.022120 0.034934 -0.633 0.527

L5.Renewable -0.000067 0.000174 -0.386 0.699

L5.Petroleum -0.000515 0.000506 -1.017 0.309

L5.Electric 0.000029 0.000076 0.377 0.706

L5.Transportation -0.024435 0.060471 -0.404 0.686

L6.Price -0.006849 0.034589 -0.198 0.843

L6.Renewable 0.000101 0.000173 0.584 0.559

L6.Petroleum -0.000066 0.000507 -0.130 0.897

L6.Electric 0.000007 0.000076 0.094 0.925

L6.Transportation -0.021887 0.061833 -0.354 0.723

L7.Price 0.039257 0.033719 1.164 0.244

L7.Renewable -0.000177 0.000175 -1.011 0.312

L7.Petroleum -0.000595 0.000512 -1.162 0.245

L7.Electric -0.000020 0.000075 -0.261 0.794

L7.Transportation -0.000378 0.061653 -0.006 0.995

L8.Price -0.050096 0.033643 -1.489 0.136

L8.Renewable 0.000063 0.000173 0.363 0.717

L8.Petroleum 0.000157 0.000515 0.304 0.761

L8.Electric 0.000018 0.000075 0.235 0.814

L8.Transportation -0.050053 0.061714 -0.811 0.417

L9.Price 0.027857 0.033860 0.823 0.411

L9.Renewable -0.000048 0.000174 -0.273 0.785

L9.Petroleum 0.000432 0.000510 0.847 0.397

L9.Electric -0.000073 0.000075 -0.964 0.335

L9.Transportation 0.059179 0.065495 0.904 0.366

L10.Price 0.017345 0.034213 0.507 0.612

L10.Renewable 0.000243 0.000178 1.367 0.172

L10.Petroleum 0.000017 0.000513 0.032 0.974

L10.Electric 0.000024 0.000076 0.314 0.753

L10.Transportation -0.025619 0.067022 -0.382 0.702

L11.Price 0.023116 0.034546 0.669 0.503

L11.Renewable -0.000257 0.000175 -1.464 0.143

L11.Petroleum 0.000530 0.000514 1.032 0.302

L11.Electric -0.000084 0.000076 -1.107 0.268

L11.Transportation -0.212691 0.068550 -3.103 0.002

L12.Price -0.026896 0.034176 -0.787 0.431

L12.Renewable 0.000331 0.000175 1.887 0.059

L12.Petroleum 0.000143 0.000512 0.280 0.780

L12.Electric 0.000144 0.000076 1.883 0.060

L12.Transportation 0.722906 0.064121 11.274 0.000

L13.Price -0.016351 0.025734 -0.635 0.525

L13.Renewable -0.000258 0.000161 -1.603 0.109

L13.Petroleum -0.000747 0.000450 -1.659 0.097

L13.Electric -0.000019 0.000065 -0.297 0.766

L13.Transportation -0.440123 0.067260 -6.544 0.000

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

Correlation matrix of residuals

Price Renewable Petroleum Electric Transportation

Price 1.000000 -0.054557 -0.053675 -0.034504 0.021661

Renewable -0.054557 1.000000 0.037046 -0.051544 0.050631

Petroleum -0.053675 0.037046 1.000000 0.128843 0.121257

Electric -0.034504 -0.051544 0.128843 1.000000 0.009865

Transportation 0.021661 0.050631 0.121257 0.009865 1.000000

**Facebook Prophet**

N/A

**Exponential Smoothing**

ExponentialSmoothing Model Results

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Dep. Variable: Price No. Observations: 332

Model: ExponentialSmoothing SSE 3.526

Optimized: True AIC -1476.901

Trend: Additive BIC -1416.019

Seasonal: Additive AICC -1474.716

Seasonal Periods: 12 Date: Tue, 18 Mar 2025

Box-Cox: False Time: 12:39:26

Box-Cox Coeff.: None

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

coeff code optimized

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smoothing\_level 0.7986300 alpha True

smoothing\_trend 2.2408e-16 beta True

smoothing\_seasonal 0.2013700 gamma True

initial\_level 7.3508009 l.0 True

initial\_trend 0.0098599 b.0 True

initial\_seasons.0 -0.2106641 s.0 True

initial\_seasons.1 -0.1397264 s.1 True

initial\_seasons.2 -0.1062771 s.2 True

initial\_seasons.3 0.0915257 s.3 True

initial\_seasons.4 0.2977833 s.4 True

initial\_seasons.5 0.3014866 s.5 True

initial\_seasons.6 0.2327778 s.6 True

initial\_seasons.7 0.1799308 s.7 True

initial\_seasons.8 0.1654044 s.8 True

initial\_seasons.9 -0.1347590 s.9 True

initial\_seasons.10 -0.3130930 s.10 True

initial\_seasons.11 -0.3507399 s.11 True

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