Data Set: Traffic Data Set: Traffic Data Set: Traffic Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 0.2 Best L1 Lambda: 4 Best L1 Lambda: 3 Best L2 Lambda: 1500000 Best L2 Lambda: 2000 Best L2 Lambda: 20000 level1: level1: level1: SMAPE MSE MSE **MSMAPE** MAE MASE MSMAPE SMAPE MAE MASE MSMAPE SMAPE MSE MAE MASE Hollyman 8.071170 30889.29 116.0394 1.486353 0.06612160 Hollyman 11.206680 48211.38 162.3223 2.074680 0.09308631 Hollyman 5.632544 16071.77 81.73780 1.044282 0.04631051 L1 8.061122 30606.60 115.8070 1.483377 0.06605145 9.887125 40464.76 142.5745 1.823486 0.08140796 6.216076 18659.62 88.93001 1.141028 0.05036875 8.163053 30421.53 117.0651 1.499360 0.06690270 L2 L2 9.393708 38179.68 135.3063 1.731096 0.07713709 6.220229 18679.99 88.98883 1.141794 0.05040151 L2 8.661228 30971.12 124.0739 1.588636 0.07131954 5.920830 17430.86 84.90456 1.088531 0.04810439 MinT MinT 9.737660 39749.79 140.3674 1.795421 0.08011052 MinT Bottom-Up 6.216076 18659.62 88.93001 1.141028 0.05036875 Bottom-Up 9.161261 32075.77 131.4334 1.682475 0.07593641 Bottom-Up 9.887125 40464.76 142.5745 1.823486 0.08140796 7.856691 33769.56 113.2477 1.451805 0.06421802 OLS 8.146117 33073.89 117.6662 1.507199 0.06661607 5.680412 16334.47 82.15570 1.050780 0.04654218 Data Set: Traffic Data Set: Traffic Data Set: Traffic Base Forecast Method: xg Base Forecast Method: arima Base Forecast Method: ets Best L1 Lambda: 0.2 Best L1 Lambda: 4 Best L1 Lambda: 3 Best L2 Lambda: 2000 Best L2 Lambda: 20000 Best L2 Lambda: 1500000 level2: level2: level2: SMAPE MSE MAE MASE MSMAPE SMAPE MSE MAE MASE MSMAPE SMAPE MSE MAE MASE **MSMAPE** Hollyman 8.323559 7976.698 60.21133 1.477931 0.03431088 Hollyman 11.396601 12407.426 82.93512 2.030981 0.04754812 Hollyman 5.860820 4265.135 42.87736 1.048501 0.02428862 L1 8.326443 7914.357 60.19843 1.477526 0.03433718 L1 10.111361 10450.939 73.35043 1.797212 0.04187551 6.471359 4869.043 46.68617 1.146750 0.02643941 L 1 L2 8.445219 7882.947 60.97359 1.496357 0.03484966 L2 9.638902 9871.148 69.87942 1.712645 0.03983475 L2 6.475261 4874.196 46.71330 1.147431 0.02645450 8.910960 8010.535 64.22717 1.576071 0.03692187 6.181773 4578.381 44.72175 1.097388 0.02533486 9.966161 10271.993 72.28401 1.771162 0.04124811 MinT MinT MinT Bottom-Up 9.340878 8275.741 67.31941 1.651723 0.03889620 Bottom-Up 10.111361 10450.939 73.35043 1.797212 0.04187551 Bottom-Up 6.471359 4869.043 46.68617 1.146750 0.02643941 8.209791 8802.873 59.73107 1.466594 0.03387650 5.975025 4469.891 43.56891 1.066361 0.02467433 8.509485 8670.478 62.01531 1.521388 0.03511451 OLS Data Set: Traffic Data Set: Traffic Data Set: Traffic Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 0.2 Best L1 Lambda: 4 Best L1 Lambda: 3 Best L2 Lambda: 2000 Best L2 Lambda: 20000 Best L2 Lambda: 1500000 level3: level3: level3: SMAPE MSE MAE MASE MSMAPE SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** Hollyman 8.519396 2109.046 30.97093 1.414665 0.01765140 Hollyman 11.624050 3276.585 42.60708 1.942360 0.02441704 Hollyman 6.159196 1156.045 22.65251 1.031700 0.01283155 L18.522612 2093.737 30.97422 1.414825 0.01767149 10.342513 2764.314 37.79646 1.724224 0.02157265 6.751880 1306.930 24.51176 1.120339 0.01388369 L2 8.637145 2086.634 31.35163 1.431944 0.01792397 L2 9.876666 2614.530 36.07607 1.646231 0.02056133 6.755723 1308.227 24.52524 1.120965 0.01389119 L2 MinT 9.065474 2121.439 32.83775 1.499506 0.01888145 10.199803 2717.785 37.27013 1.700352 0.02126318 MinT 6.469031 1234.741 23.54763 1.075679 0.01334192 Bottom-Up 9.458686 2190.830 34.24509 1.563453 0.01978834 Bottom-Up 10.342513 2764.314 37.79646 1.724224 0.02157265 Bottom-Up 6.751880 1306.930 24.51176 1.120339 0.01388369 OLS 8.790497 2311.234 32.21920 1.471701 0.01824933 OLS 8.506729 2332.859 31.12708 1.422431 0.01765786 6.417603 1259.564 23.53524 1.073325 0.01333239 Data Set: Traffic Data Set: Traffic Data Set: Traffic Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 0.2 Best L1 Lambda: 4 Best L1 Lambda: 3 Best L2 Lambda: 2000 Best L2 Lambda: 20000 Best L2 Lambda: 1500000 level4: level4: level4: MASE SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** Hollyman 18.70449 5.640174 1.399874 1.396380 0.0008004381 Hollyman 19.84103 7.847264 1.548018 1.517701 0.0008869894 Hollyman 14.78242 4.088457 1.132611 1.112583 0.0006417078 L1 18.61401 5.650629 1.396967 1.394624 0.0007997762 L1 18.85160 7.622312 1.480908 1.448562 0.0008463236 14.90285 4.074724 1.136251 1.121938 0.0006447092 L1L2 L2 18.59235 7.562460 1.462835 1.430070 0.0008352332 18.76949 5.707340 1.407640 1.406678 0.0008076359 L2 14.90552 4.075243 1.136418 1.122123 0.0006448002 18.92767 5.729295 1.419693 1.415032 0.0008192877 18.75923 7.605781 1.474829 1.443283 0.0008426293 14.82974 4.106111 1.132965 1.116951 0.0006428494 MinT MinT MinT Bottom-Up 19.03755 5.750088 1.427065 1.422344 0.0008271920 Bottom-Up 18.85160 7.622312 1.480908 1.448562 0.0008463236 Bottom-Up 14.90285 4.074724 1.136251 1.121938 0.0006447092 19.22153 5.798250 1.431395 1.442325 0.0008127675 18.63865 7.449730 1.446258 1.426954 0.0008225532 14.85405 4.055778 1.133179 1.123602 0.0006423272 OLS Data Set: Traffic Data Set: Traffic Data Set: Traffic Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 4 Best L1 Lambda: 0.2 Best L1 Lambda: 3 Best L2 Lambda: 2000 Best L2 Lambda: 20000 Best L2 Lambda: 1500000 level5: overall: overall: **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAEMASE **MSMAPE** SMAPE MSE MAEMASE Hollyman 18.35601 272.4971 3.093337 1.397956 0.001765394 Hollyman 14.48538 145.1397 2.341182 1.110071 0.001326355 Hollyman 19.55895 423.6813 3.904466 1.533557 0.002237916 L1 18.26863 270.2434 3.089344 1.396244 0.001765058 18.55942 357.2384 3.558661 1.459068 0.002032436 14.62191 166.3786 2.452172 1.122239 0.001389972 18.42270 268.9634 3.120516 1.408481 0.001786595 L2 L2 18.29298 337.6454 3.439306 1.438431 0.001961829 L2 14.62463 166.5524 2.453140 1.122440 0.001390509 18.46529 351.1404 3.521651 1.453119 0.002010557 MinT 19.02487 271.1960 3.141903 1.444667 0.001795716 MinT MinT 14.54159 156.2696 2.391940 1.115827 0.001356095 Bottom-Up 18.71105 282.8048 3.325920 1.428544 0.001924254 Bottom-Up 18.55942 357.2384 3.558661 1.459068 0.002032436 Bottom-Up 14.62191 166.3786 2.452172 1.122239 0.001389972

18.29002 300.4671 3.123043 1.427369 0.001773493

14.56092 150.3559 2.367489 1.121725 0.001341477

18.86297 293.8137 3.173201 1.443970 0.001799014

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Data Set: Labour Data Set: Labour Base Forecast Method: arima Base Forecast Method: ets Best L1 Lambda: 0.3 Best L1 Lambda: 1.2 Best L2 Lambda: 19000 Best L2 Lambda: 12000 level1: level1: SMAPE MSE MAE MASE MSMAPE SMAPE MSE MAE MASE **MSMAPE** Hollyman 0.6866849 27523.41 84.12175 0.4470191 0.006775348 Hollyman 0.7366896 27644.50 90.19259 0.4794640 0.007273129 L1 0.6742536 26674.77 82.61169 0.4389648 0.006653257 0.7428002 25319.91 91.18820 0.4839110 0.007337669 0.6675951 25387.27 81.99330 0.4349736 0.006592296 0.7372305 25360.74 90.48393 0.4802440 0.007282212 L2 L2 0.8526916 30620.37 103.89027 0.5539339 0.008424025 MinT 0.7105345 27508.95 86.97208 0.4625179 0.007011937 MinT Bottom-Up 0.7428002 25319.91 91.18820 0.4839110 0.007337669 Bottom-Up 0.6810620 25439.10 83.66335 0.4438135 0.006727132 0.6750877 26984.87 82.73369 0.4395622 0.006661465 OLS 0LS 0.7199930 28518.70 88.12128 0.4686253 0.007108752 Data Set: Labour Data Set: Labour Base Forecast Method: arima Base Forecast Method: ets Best L1 Lambda: 0.3 Best L1 Lambda: 1.2 Best L2 Lambda: 12000 Best L2 Lambda: 19000 level2: level2: SMAPE MSE MAEMASE **MSMAPE** SMAPE MSE MAEMASE **MSMAPE** Hollyman 1.288110 1109.875 15.74460 0.6736995 0.001275442 Hollyman 1.337990 1092.613 16.19408 0.6951245 0.001312544 L1 1.268228 1087.771 15.54212 0.6642485 0.001259239 L1 1.270172 1056.228 16.15987 0.6626358 0.001310588 1.265867 1074.828 15.51983 0.6624673 0.001257923 L2 L2 1.271473 1056.579 16.13343 0.6629531 0.001308434 1.421277 1135.582 16.32600 0.7365979 0.001323746 1.452039 1276.456 18.59099 0.7660198 0.001510727 MinT MinT Bottom-Up 1.263765 1076.589 15.58579 0.6620363 0.001263586 Bottom-Up 1.270172 1056.228 16.15987 0.6626358 0.001310588 1.440924 1096.787 15.94160 0.7415431 0.001291279 1.593667 1111.884 16.59923 0.8094704 0.001344616 OLS Data Set: Labour Data Set: Labour Base Forecast Method: arima Base Forecast Method: ets Best L1 Lambda: 0.3 Best L1 Lambda: 1.2 Best L2 Lambda: 12000 Best L2 Lambda: 19000 level3: level3: **MSMAPE** SMAPE MSE MAE MASE SMAPE MSE MAE MASE **MSMAPE** Hollyman 1.552348 329.3888 9.293234 0.7498771 0.0007535365 Hollyman 1.581466 331.7253 9.483413 0.7560126 0.0007694529 L1**1.545040** 325.1755 9.227309 0.7482279 **0.0007482988** L1 1.502242 313.1989 9.297672 0.7221990 0.0007552628 L2 1.545323 325.0964 9.260490 0.7480076 0.0007518352 L2 1.503546 313.2762 9.285945 0.7224728 0.0007542943 MinT 1.669370 339.3617 9.570804 0.7986545 0.0007765757 MinT 1.676546 371.8622 10.388789 0.8076287 0.0008454768 Bottom-Up 1.543288 325.5802 9.282308 0.7474381 0.0007538092 Bottom-Up 1.502242 313.1989 9.297672 0.7221990 0.0007552628 OLS 1.692428 328.8195 9.410860 0.8035502 0.0007630958 OLS 1.791454 326.6264 9.444505 0.8356072 0.0007660311 Data Set: Labour Data Set: Labour Base Forecast Method: arima Base Forecast Method: ets Best L1 Lambda: 0.3 Best L1 Lambda: 1.2 Best L2 Lambda: 12000 Best L2 Lambda: 19000 level4: level4: MASE SMAPE MSE MAE **MSMAPE** SMAPE MSE MAEMASE **MSMAPE** Hollyman 3.258983 184.3469 7.976188 0.9508814 0.0006505027 Hollyman 3.382912 199.0679 8.213321 0.9816725 0.0006697470 3.236102 183.9576 7.945278 0.9457057 0.0006483253 3.262113 176.4229 7.819606 0.9377768 0.0006392155 L1 L13.230097 184.4355 7.917517 0.9428162 0.0006470863 L2 L2 3.258339 176.4392 7.816966 0.9374673 0.0006389666 3.370106 191.1016 8.102534 0.9791582 0.0006611315 3.528958 199.3013 8.353572 1.0137920 0.0006832112 MinT MinT Bottom-up 3.262113 176.4229 7.819606 0.9377768 0.0006392155 Bottom-Up 3.231323 184.5590 7.921869 0.9427270 0.0006476431 3.439057 185.3688 8.005517 0.9800022 0.0006531530 3.603293 179.7797 7.911854 0.9971485 0.0006456700 OLS OLS Data Set: Labour Data Set: Labour Base Forecast Method: ets Base Forecast Method: arima Best L1 Lambda: 0.3 Best L1 Lambda: 1.2 Best L2 Lambda: 12000 Best L2 Lambda: 19000 overall: overall: **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE Hollyman 2.458186 834.5918 10.77208 0.8467167 0.0008745887 Hollyman 2.543811 843.2137 11.12818 0.8693014 0.0009038005 L1 2.440280 815.1997 10.68131 0.8418804 0.0008674800 L1 2.444345 779.4113 10.86767 0.8306849 0.0008835345 L2 2.436540 791.0417 10.66106 0.8398763 0.0008665230 L2 2.442677 780.2079 10.84683 0.8305682 0.0008818478

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2.572527 844.5377 11.05253 0.8853831 0.0008979530

2.619845 823.7207 10.82486 0.8875225 0.0008789847

Bottom-Up 2.436599 792.4031 10.70818 0.8397610 0.0008705499

2.670533 932.6219 12.03777 0.9130789 0.0009807057

2.762070 848.9955 10.96854 0.9161905 0.0008909406

Bottom-Up 2.444345 779.4113 10.86767 0.8306849 0.0008835345

Data Set: Labour Base Forecast Method: xg Best L1 Lambda: 31.6227766016838 Best L2 Lambda: 31622.7766016838 level1: SMAPE RMSE MASE **MSMAPE** MAEHollyman 0.9479355 48.00774 116.1991 0.6172507 0.009390358 0.9102403 46.27389 111.6538 0.5927052 0.009015392 0.8837598 45.17921 108.4522 0.5756031 0.008750605 L2 4.3837216 217.81509 539.7980 2.8821079 0.042735128 MinT Bottom-Up 0.9102403 46.27389 111.6538 0.5927052 0.009015392 0.9158414 47.78410 112.8668 0.5977193 0.009055904 Data Set: Labour Base Forecast Method: xg Best L1 Lambda: 31.6227766016838 Best L2 Lambda: 31622.7766016838 level2: **SMAPE** RMSE MAE MASE **MSMAPE** Hollyman 1.474929 8.253730 20.12153 0.7774041 0.001636383 1.484873 8.259942 20.05477 0.7822685 0.001631846 L11.463832 8.191250 19.85453 0.7705929 0.001614831 L2 8.116020 30.475500 75.05653 4.1024544 0.005957659 MinT Bottom-Up 1.484873 8.259942 20.05477 0.7822685 0.001631846 2.708283 9.123377 22.04824 1.3363981 0.001782303 Data Set: Labour Base Forecast Method: xg Best L1 Lambda: 31.6227766016838 Best L2 Lambda: 31622.7766016838 level3: SMAPE RMSE MAEMASE **MSMAPE** Hollyman 1.726231 4.645227 11.27230 0.8367995 0.0009179120 1.767061 4.737508 11.44973 0.8570663 0.0009330971 L2 1.744729 4.704191 11.36004 0.8471761 0.0009254002 MinT 8.303146 15.660925 38.53457 3.7989419 0.0030602334 Bottom-Up 1.767061 4.737508 11.44973 0.8570663 0.0009330971 OLS 2.880892 5.068615 12.23948 1.2953890 0.0009909257 Data Set: Labour Base Forecast Method: xg Best L1 Lambda: 31.6227766016838 Best L2 Lambda: 31622.7766016838 level4: SMAPE RMSE MAE MASE **MSMAPE** Hollyman 3.604640 3.808418 9.236361 1.055784 0.0007554998 3.537393 3.728308 9.013141 1.036662 0.0007379048 L13.523677 3.720258 8.994002 1.033564 0.0007360684 L2 11.803082 8.765502 21.534982 3.015051 0.0017136648 MinT Bottom-Up 3.537393 3.728308 9.013141 1.036662 0.0007379048 5.247278 3.936545 9.537792 1.316040 0.0007768283 OLS Data Set: Labour Base Forecast Method: xg Best L1 Lambda: 31.6227766016838 Best L2 Lambda: 31622.7766016838 overall: SMAPE RMSE MAE MASE **MSMAPE** Hollyman 2.731852 5.442642 13.21214 0.9475501 0.001076211 2.706294 5.394025 13.04751 0.9427561 0.001063380 L2 2.688908 5.351307 12.92732 0.9363018 0.001053155 MinT 10.172997 17.415613 42.91093 3.3853760 0.003406972 Bottom-Up 2.706294 5.394025 13.04751 0.9427561 0.001063380

4.150689 5.751551 13.86480 1.3004984 0.001123292

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Data Set: TourismSmall Data Set: TourismSmall Data Set: TourismSmall Base Forecast Method: ets Base Forecast Method: xg Base Forecast Method: arima Best L1 Lambda: 35 Best L1 Lambda: 65 Best L1 Lambda: 250 Best L2 Lambda: 7000 Best L2 Lambda: 1500000 Best L2 Lambda: 1e+06 level1: level1: level1: SMAPE SMAPE SMAPE MSE MSF MAF MASE MSMAPF MSE MAE MASE **MSMAPE** MAE MASE **MSMAPE** Hollyman 6.437219 26174094 4386.770 1.568961 0.05288550 Hollyman 5.387347 23620672 3684.555 1.342375 0.04463229 Hollyman 7.291455 2.939749e+07 4.960882e+03 1.772425e+00 0.05919100 L1 6.894940 2.711952e+07 4.736009e+03 1.692492e+00 0.05648462 L1 6.181139 23110853 4227.546 1.514686 0.05067498 5.722184 25320092 3925.476 1.421934 0.04761208 200.000000 4.795448e+31 5.012889e+15 1.704661e+12 0.89451417 L2 5.834012 21713821 3984.188 1.439194 0.04764549 5.653929 24359589 3884.786 1.399757 0.04728121 L2 L2 5.562040 24226693 3824.625 1.380097 0.04660278 MinT 200.000000 3.682281e+33 4.364759e+16 1.484087e+13 0.88686079 MinT 6.509448 26210575 4464.348 1.585189 0.05367849 MinT Bottom-Up 6.595221 2.749886e+07 4.556303e+03 1.644283e+00 0.05424963 Bottom-Up 5.722184 25320092 3925.476 1.421934 0.04761208 Bottom-Up 5.698269 21100222 3881.664 1.406131 0.04641704 7.204407 2.759507e+07 4.970349e+03 1.770551e+00 0.05903537 6.394443 24850952 4365.564 1.553224 0.05257069 6.856374 33220466 4816.497 1.686864 0.06002783 OLS Data Set: TourismSmall Data Set: TourismSmall Data Set: TourismSmall Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 35 Best L1 Lambda: 250 Best L1 Lambda: 65 Best L2 Lambda: 7000 Best L2 Lambda: 1500000 Best L2 Lambda: 1e+06 level2: level2: level2: **SMAPE** MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** Hollyman 9.220900 4.293341e+06 1.508045e+03 1.200209e+00 0.01800200 Hollyman 9.506522 3591886 1385.526 1.128971 0.01673828 Hollyman 8.963531 3700645 1349.321 1.133306 0.01636428 9.004354 4.099928e+06 1.503960e+03 1.192435e+00 0.01794235 L1 L1 8.847758 3144066 1304.074 1.075259 0.01565098 8.850470 3737143 1343.005 1.123024 0.01630874 9.032476 3134138 1317.001 1.095473 0.01577286 8.219236 3578007 1287.816 1.065935 0.01568798 L2 105.635712 1.227309e+31 1.479038e+15 1.168884e+12 0.27400277 L2 L2 14.988125 4984280 1710.092 1.539562 0.02057828 MinT 118.163745 9.472488e+32 1.329827e+16 1.062625e+13 0.28268619 MinT MinT 8.760142 3877305 1363.735 1.134662 0.01663499 Bottom-Up 9.002474 4.258177e+06 1.523103e+03 1.213114e+00 0.01814514 Bottom-Up 8.968215 3094691 1307.321 1.089100 0.01565716 Bottom-Up 8.850470 3737143 1343.005 1.123024 0.01630874 10.533984 4.118839e+06 1.551455e+03 1.265776e+00 0.01843111 OLS 9.687973 3385731 1372.925 1.129607 0.01655591 9.283368 5514265 1599.947 1.304092 0.01992340 OLS OLS Data Set: TourismSmall Data Set: TourismSmall Data Set: TourismSmall Base Forecast Method: ets Base Forecast Method: arima Base Forecast Method: xg Best L1 Lambda: 35 Best L1 Lambda: 65 Best L1 Lambda: 250 Best L2 Lambda: 1e+06 Best L2 Lambda: 7000 Best L2 Lambda: 1500000 level3: level3: level3: SMAPE MSE MAE MASE MSMAPE SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** Hollyman 21.54608 2.524430e+05 3.327043e+02 9.560048e-01 0.003972656 Hollyman 20.69227 212146.0 307.6683 0.9114676 0.003716973 Hollyman 22.68782 254025.0 330.8473 0.9935238 0.004018229 20.91705 205012.3 300.6827 0.8916440 0.003612714 21.30263 249214.9 321.4388 0.9332560 0.003908754 L1 21.99869 2.419771e+05 3.260246e+02 9.603687e-01 0.003889911 L1L134.40611 1.753299e+30 2.112911e+14 8.601162e+11 0.039143253 L2 20.85494 198891.4 295.4158 0.8830965 0.003541663 L2 21.37462 245205.9 316.9976 0.9292239 0.003867470 L2 MinT 73.01419 1.353213e+32 1.899753e+15 7.705302e+12 0.040383741 MinT 29.42543 413450.3 384.4773 1.6243398 0.004626554 MinT 21.29245 254487.9 324.3849 0.9394492 0.003962684 Bottom-Up 20.71855 198216.2 294.1644 0.8793093 0.003526793 Bottom-Up 21.30263 249214.9 321.4388 0.9332560 0.003908754 Bottom-Up 21.54731 2.503018e+05 3.259249e+02 9.475345e-01 0.003883877 24.46189 2.428421e+05 3.304313e+02 1.004087e+00 0.003925585 22.15561 205428.8 303.3526 0.9232409 0.003659760 25.54012 297377.1 357.4715 1.0806294 0.004452207 Data Set: TourismSmall Data Set: TourismSmall Data Set: TourismSmall Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 35 Best L1 Lambda: 65 Best L1 Lambda: 250 Best L2 Lambda: 7000 Best L2 Lambda: 1500000 Best L2 Lambda: 1e+06 level4: level4: level4: SMAPE MSMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE Hollyman 29.24292 107008.4 205.0304 0.9617656 0.002490622 Hollyman 29.60787 1.090532e+05 2.128608e+02 9.442458e-01 0.002541635 Hollyman 27.18601 94029.68 197.5040 0.9160638 0.002385219 26.70099 106009.0 198.0605 0.9020381 0.002408616 28.15733 1.036849e+05 2.044305e+02 9.193892e-01 0.002439212 27.05456 84300.88 189.0195 0.8731584 0.002270599 L1 L126.52054 105202.7 196.5351 0.8978801 0.002397831 L2 40.26969 5.284786e+29 1.056456e+14 7.845833e+11 0.019571626 L2 27.06073 81775.70 185.9563 0.8658750 0.002229126 L2 34.60551 191707.55 240.2757 1.4012601 0.002891179 MinT 81.36769 4.355165e+31 1.290888e+15 1.040844e+13 0.029842700 MinT MinT 26.96939 107531.0 200.0931 0.9108880 0.002444658 Bottom-Up 26.88085 81606.81 185.3695 0.8627730 0.002222286 Bottom-Up 26.70099 106009.0 198.0605 0.9020381 0.002408616 Bottom-Up 27.79886 1.056065e+05 2.033837e+02 9.097301e-01 0.002423778 28.22068 83409.95 189.0636 0.8930780 0.002279894 30.93547 118049.6 214.6741 1.0198098 0.002673213 30.11240 1.037415e+05 2.073196e+02 9.587589e-01 0.002462960 OLS OLS OLS Data Set: TourismSmall Data Set: TourismSmall Data Set: TourismSmall Base Forecast Method: arima Base Forecast Method: ets Base Forecast Method: xg Best L1 Lambda: 35 Best L1 Lambda: 65 Best L1 Lambda: 250 Best L2 Lambda: 1500000 Best L2 Lambda: 1e+06 Best L2 Lambda: 7000 overall: overall: overall: **MSMAPE MSMAPE SMAPE** MSE MAE MASE **MSMAPE** SMAPE MSE MAE MASE SMAPE MSE MAE MASE Hollyman 24.11532 581431.3 332.6271 0.9315226 0.004016698 Hollyman 25.90457 6.713060e+05 3.621234e+02 9.687546e-01 0.004323202 Hollyman 26.00117 578971.0 335.1378 0.9837431 0.004068255 25.12007 6.303477e+05 3.520072e+02 9.532399e-01 0.004199634 24.07084 518520.3 319.6410 0.8952654 0.003838072 23.96465 597563.9 330.2154 0.9276329 0.004013199 L1 L1 L1 43.15749 1.974539e+30 2.557454e+14 8.359564e+11 0.046994914 23.84462 577851.0 324.9208 0.9209331 0.003961807 L2 L2 24.05958 498862.6 313.9032 0.8880538 0.003761062 L2 81.72633 1.539232e+32 2.498016e+15 9.617603e+12 0.054152151 31.77845 769212.6 399.1632 1.4797249 0.004802710 24.12446 594194.5 332.2197 0.9352028 0.004056166 MinT MinT MinT Bottom-Up 24.74905 6.455503e+05 3.501584e+02 9.435122e-01 0.004172026 Bottom-Up 23.89908 489876.6 311.5533 0.8842526 0.003733077 Bottom-Up 23.96465 597563.9 330.2154 0.9276329 0.004013199

25.23440 548503.8 325.1539 0.9206153 0.003920693

OLS

27.99438 788931.0 373.5644 1.0592158 0.004652620

OLS

27.19739 6.368486e+05 3.599791e+02 9.959393e-01 0.004276426

Data Set: Wiki2 Base Forecast Method: arima Best L1 Lambda: 280 Best L2 Lambda: 1e+10 level1: SMAPE MSE MAE MASE **MSMAPE** Hollyman 26.00073 7689605262 44570.46 1.732323 0.1941011 26.03613 7715182951 44663.71 1.737838 0.1906323 L1 26.08468 7736042378 44764.01 1.741605 0.1909851 L2 MinT 24.62174 7299164775 42139.20 1.641239 0.1809064 Bottom-Up 26.08528 7736223728 44765.01 1.741642 0.1909895 24.93973 7452577516 42410.07 1.653311 0.1839692 Base Forecast Method: arima Best L1 Lambda: 280 Best L2 Lambda: 1e+10 level2: MAE MASE **MSMAPE** Hollyman 35.30527 1234267730 10769.556 2.012437 0.04881484 34.57025 1217929889 10728.307 1.968363 0.04769918 L1 L2 34.60216 1218793713 10736.299 1.969908 0.04771230 MinT 9720.971 1.734198 0.0432847 Bottom-Up 34.60224 1218799422 10736.353 1.969921 0.04771234 33.10228 1177288292 9950.557 1.747769 0.04520101 Data Set: Wiki2 Base Forecast Method: arima Best L1 Lambda: 280 Best L2 Lambda: 1e+10 level3: MSE MAE MASE Hollyman 46.50289 403302179 4656.416 3.913043 0.02160239 37.66705 400103661 4410.860 3.821486 0.01995892 L1 **37.53551** 400090871 4407.202 3.820129 0.01993752 L2 38.69334 369373149 4127.213 3.610044 0.01883864 Bottom-Up 37.53573 400091785 4407.212 3.820143 0.01993748 45.26557 367704883 4193.983 3.751046 0.01949770 Data Set: Wiki2 Base Forecast Method: arima Best L1 Lambda: 280 Best L2 Lambda: 1e+10 level4: MSE MAEMASE **MSMAPE** Hollyman 44.03647 302886472 3520.664 3.128310 0.01635213 36.45257 300155118 3332.634 3.039281 0.01509157 **36.35060** 300145666 3329.888 3.038218 0.01507548 L2 37.19053 277122053 3118.354 2.877264 0.01424513 MinT Bottom-Up 36.35267 300146202 3329.897 3.038268 0.01507546 67.17364 274859508 3237.149 5.166935 0.01508124 OLS Data Set: Wiki2 Base Forecast Method: arima Best L1 Lambda: 280 Best L2 Lambda: 1e+10 level5: **MSMAPE** MAEMASE Hollyman 64.18069 49875548 822.9936 6.166090 0.003883109 **52.01419** 48198277 685.9885 4.705143 0.003174536 52.43364 48196600 684.8796 4.704636 0.003168928 L2 58.53130 49148190 793.0627 5.226372 0.003738546 MinT Bottom-Up 52.43984 48196610 684.8799 4.704646 0.003168921 89.31200 47754262 814.1519 7.410968 0.003904069 Data Set: Wiki2 Base Forecast Method: arima Best L1 Lambda: 280 Best L2 Lambda: 1e+10 overall: MAEMASE Hollyman 59.08977 186458585 2014.815 5.448416 0.009300255 48.18319 184211521 1865.882 4.326879 0.008414403 L1 48.47636 184338826 1865.129 4.326312 0.008408467 L2 53.17629 175309406 1852.034 4.673555 0.008454147 MinT Bottom-Up 48.48132 184340064 1865.138 4.326327 0.008408479 80.63970 175350566 1896.580 6.609600 0.008812532

```
Data Set: Wiki2
Base Forecast Method: ets
Best L1 Lambda: 10000
Best L2 Lambda: 3.16227766016838e+22
level1:
           SMAPE
                                          MASE
                                                 MSMAPE
                        MSE
                                  MAE
         165.89532 4.631201e+13 2352522.32 89.616892 0.7219905
         39.01726 3.019553e+12 179394.15 6.483640 0.2370199
L1
         39.01572 3.018794e+12 179376.40 6.483010 0.2370129
L2
MinT
         38.83852 4.513894e+10 81130.58 3.139316 0.2519265
Bottom-Up 39.01726 3.019553e+12 179394.15 6.483640 0.2370199
OLS
         37.53585 3.640327e+10 76957.79 2.975327 0.2381591
Base Forecast Method: ets
Best L1 Lambda: 10000
Best L2 Lambda: 3.16227766016838e+22
level2:
           SMAPE
                                         MASE
Hollyman 105.57799 7.577943e+12 442425.98 44.305536 0.15379025
         46.14563 5.030182e+11 35874.66 4.871969 0.06054523
L1
L2
         46.14572 5.029877e+11 35873.74 4.871878 0.06054516
         57.17216 3.283119e+09 19433.59 3.287179 0.06519854
MinT
Bottom-Up 46.14563 5.030182e+11 35874.66 4.871969 0.06054523
         57.83902 2.767736e+09 19131.10 3.579732 0.06197616
OLS
Data Set: Wiki2
Base Forecast Method: ets
Best L1 Lambda: 10000
Best L2 Lambda: 3.16227766016838e+22
level3:
                        MSE
                                 MAE
                                         MASE
Hollyman 91.43117 2.512526e+12 150949.370 73.162887 0.05421530
L1
        45.00835 1.679060e+11 12874.276 5.855071 0.02361759
        45.01248 1.679027e+11 12874.274 5.855162 0.02361767
L2
        70.58414 8.449202e+08 8070.767 5.531554 0.02800947
Bottom-Up 45.00835 1.679060e+11 12874.276 5.855071 0.02361759
        74.51411 1.314255e+09 8185.490 6.484888 0.02640002
OLS
Data Set: Wiki2
Base Forecast Method: ets
Best L1 Lambda: 10000
Best L2 Lambda: 3.16227766016838e+22
level4:
                                                 MSMAPE
                                 MAE
                                         MASE
Hollyman 97.62650 1.884392e+12 113316.552 57.447067 0.04071907
        43.88577 1.259298e+11 9678.499 4.861856 0.01778710
        43.96476 1.259274e+11
                                9678.531 4.863622 0.01778727
L2
        89.40325 6.046599e+08
MinT
                                6272.253 20.746544 0.02187342
Bottom-Up 43.88577 1.259298e+11 9678.499 4.861856 0.01778710
        93.67265 9.321682e+08 6296.223 19.302596 0.02041635
OLS
Data Set: Wiki2
Base Forecast Method: ets
Best L1 Lambda: 10000
Best L2 Lambda: 3.16227766016838e+22
level5:
           SMAPE
                        MSE
                                 MAE
                                          MASE
Hollyman 116.32885 1.059390e+12 53712.943 257.598797 0.020323879
L1
        48.83098 2.014802e+10 1724.205 6.373988 0.003528728
        48.93223 2.014796e+10 1724.215 6.375556 0.003528761
L2
        91.75414 3.419603e+10 3113.050 35.819032 0.006249629
MinT
Bottom-Up 48.83098 2.014802e+10 1724.205 6.373988 0.003528728
       Data Set: Wiki2
Base Forecast Method: ets
Best L1 Lambda: 10000
Best L2 Lambda: 3.16227766016838e+22
overall:
Hollyman 111.74617 1.714267e+12 92968.369 209.502167 0.033399230
L1
        47.75853 7.590195e+10 5614.542 6.099947 0.009957826
        47.84474 7.589658e+10 5614.436 6.101344 0.009957841
L2
MinT
        88.24716 2.625107e+10 4826.621 30.116594 0.013114044
Bottom-Up 47.75853 7.590195e+10 5614.542 6.099947 0.009957826
       104.52278 1.317349e+10 4541.900 20.572503 0.012158106
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Data Set: Wiki2
Base Forecast Method: xg
Best L1 Lambda: 3162.27766016838
Best L2 Lambda: 1e+10
level1:
          SMAPE
                       MSE
                               MAE
                                     MASE MSMAPE
Hollyman 39.99846 12610149644 73977.53 2.810612 0.2936500
        40.62184 13576284778 79411.92 2.990639 0.3135761
        40.60818 13565778194 79372.98 2.989200 0.3134804
L2
MinT
         32.56927 8934299461 58490.43 2.226142 0.2469902
Bottom-Up 40.62184 13576284778 79411.92 2.990639 0.3135761
OLS
        27.17123 7480644510 46957.35 1.813197 0.1992626
Base Forecast Method: xg
Best L1 Lambda: 3162.27766016838
Best L2 Lambda: 1e+10
level2:
                              MAE
                                     MASE
                                             MSMAPE
Hollyman 55.22665 1790181800 18590.12 2.919371 0.07547596
        48.89630 1623402503 17314.09 2.650444 0.06759272
L1
        48.88701 1622892776 17308.85 2.649732 0.06758432
L2
        43.22256 1330686138 13977.43 2.200352 0.05857978
MinT
Bottom-Up 48.89630 1623402503 17314.09 2.650444 0.06759272
        44.29120 1258639522 12764.08 2.146045 0.05563207
OLS
Data Set: Wiki2
Base Forecast Method: xg
Best L1 Lambda: 3162.27766016838
Best L2 Lambda: 1e+10
level3:
                                    MASE
                             MAE
                                            MSMAPE
Hollyman 63.93877 532833522 7786.043 4.806312 0.03195273
        55.00783 481914669 6819.130 4.466355 0.02658225
L1
L2
        54.99479 481886462 6817.666 4.465695 0.02658140
         50.61390 425364326 5809.691 4.049308 0.02448454
Bottom-Up 55.00783 481914669 6819.130 4.466355 0.02658225
        65.96739 417452567 5944.239 4.557122 0.02645563
Data Set: Wiki2
Base Forecast Method: xg
Best L1 Lambda: 3162.27766016838
Best L2 Lambda: 1e+10
level4:
                             MAE
                                     MASE
                                             MSMAPE
Hollyman 59.30877 399417427 5864.079 3.860359 0.02406882
        52.17949 361389997 5141.221 3.605086 0.02004463
        51.99152 361371708 5140.078 3.600457 0.02004385
L2
        48.26894 319033090 4380.154 3.268120 0.01846511
MinT
Bottom-Up 52.17949 361389997 5141.221 3.605086 0.02004463
        89.89550 313471546 4767.928 12.710295 0.02131412
OLS
Data Set: Wiki2
Base Forecast Method: xg
Best L1 Lambda: 3162.27766016838
Best L2 Lambda: 1e+10
level5:
                                              MSMAPE
                     MSE
                             MAE
                                     MASE
Hollyman 72.71694 76903094 1447.231 9.868022 0.006153708
L1
         58.72643 57164391 1009.413 4.803277 0.003933562
         58.65842 57163990 1009.264 4.800217 0.003933700
L2
          64.55774 60551160 1095.575 7.699544 0.004779813
MinT
Bottom-Up 58.72643 57164391 1009.413 4.803277 0.003933562
        112.61801 54755077 1208.364 14.170157 0.005582500
Data Set: Wiki2
Base Forecast Method: xg
Best L1 Lambda: 3162.27766016838
Best L2 Lambda: 1e+10
overall:
                              MAE
                                      MASE
Hollyman 69.61411 271677016 3434.621 8.440666 0.01418273
         57.21313 247433077 2918.805 4.554278 0.01140060
L1
         57.13767 247359853 2918.068 4.551324 0.01139979
L2
          60.52799 207610263 2594.922 6.641620 0.01105189
MinT
Bottom-Up 57.21313 247433077 2918.805 4.554278 0.01140060
        103.16847 192377922 2644.337 12.699941 0.01185010
```