Q1.5b

The tables shown below present the RMSSE values for the different forecasting methods and compares their accuracy for both weekly forecasts and weekly aggregates of daily forecasts.

##First split - 70/30 For the first split Split 1 - Naive forecasts

```
##
                         Weekly
                                                  Best
                                 Daily_agg
## Hobbies_CA_1
                      228.62852
                                 272.90108
                                                Weekly
## Hobbies_CA_2
                      153.55292
                                 385.64686
                                                Weekly
## Hobbies_CA_3
                      311.57503
                                 425.30812
                                                Weekly
## Household_1_CA_1
                      154.62859
                                                Weekly
                                 604.68008
## Household 1 CA 2
                      147.04251
                                 337.52259
                                                Weekly
## Household_1_CA_3
                                 179.53133 Daily agg.
                      625.56494
## Household_2_CA_1
                       70.89781
                                 111.38896
                                                Weekly
## Household_2_CA_2
                      107.35222
                                 292.42349
                                                Weekly
## Household_2_CA_3
                      264.18649
                                 372.77272
                                                Weekly
## Foods 1 CA 1
                      541.53901
                                 231.27797 Daily agg.
## Foods 1 CA 2
                                  78.31986 Daily agg.
                      81.14185
## Foods_1_CA_3
                      626.10462
                                 421.67167 Daily agg.
## Foods_2_CA_1
                      718.93880
                                 450.51637 Daily agg.
## Foods_2_CA_2
                      270.38584
                                 272.88001
                                                Weekly
## Foods_2_CA_3
                      965.82762
                                 543.38108 Daily agg.
## Foods_3_CA_1
                    2298.02100 1112.97731 Daily agg.
## Foods_3_CA_2
                       67.59438 1392.36956
                                                Weekly
## Foods_3_CA_3
                    3175.99016 1643.30536 Daily agg.
```

Split 1 - sNaive forecasts

```
##
                        Weekly
                                Daily_agg
                                                 Best
## Hobbies CA 1
                      208.7654
                                352.66273
                                               Weekly
## Hobbies CA 2
                      166.7513
                                157.64359 Daily agg.
                                312.60038 Daily agg.
## Hobbies CA 3
                      417.7062
## Household_1_CA_1
                      335.4728
                                315.38548 Daily agg.
## Household_1_CA_2
                      162.1697
                                127.00984 Daily agg.
## Household_1_CA_3
                      606.7557
                                677.50240
                                               Weekly
## Household 2 CA 1
                      107.5756
                                 71.85054 Daily agg.
## Household_2_CA_2
                      168.5616
                                 94.98684 Daily agg.
                                213.69254 Daily agg.
## Household_2_CA_3
                      336.4409
## Foods_1_CA_1
                      271.1918
                                536.42940
                                               Weekly
## Foods_1_CA_2
                      148.5177
                                 96.81942 Daily agg.
## Foods_1_CA_3
                      438.6377
                                448.22651
                                               Weekly
## Foods_2_CA_1
                      840.2625
                                744.28825 Daily agg.
## Foods_2_CA_2
                      218.0241
                                200.35843 Daily agg.
## Foods_2_CA_3
                     1082.4059 1042.45240 Daily agg.
## Foods_3_CA_1
                    2757.5096 2375.51100 Daily agg.
## Foods_3_CA_2
                      923.0953
                                452.20902 Daily agg.
## Foods 3 CA 3
                     4128.5510 2960.61286 Daily agg.
```

Split 1 - MA forecasts

```
##
                         Weekly
                                 Daily_agg
                                                   Best
## Hobbies_CA_1
                                                Weekly
                      227.57755
                                 305.97922
## Hobbies CA 2
                      158.88203
                                 158.55884 Daily agg.
## Hobbies_CA_3
                      321.45762
                                 322.45484
                                                Weekly
## Household_1_CA_1
                      185.53167
                                 246.54513
                                                Weekly
## Household 1 CA 2
                      161.94769
                                 120.93555 Daily agg.
## Household 1 CA 3
                      404.24436
                                 508.23632
                                                Weekly
## Household_2_CA_1
                       75.20971
                                   73.11058 Daily agg.
  Household_2_CA_2
                      107.08123
                                 106.34319 Daily agg.
## Household_2_CA_3
                      240.09269
                                 170.36257 Daily agg.
## Foods_1_CA_1
                      242.10993
                                 456.89184
                                                Weekly
## Foods_1_CA_2
                      156.04487
                                 107.29180
                                            Daily agg.
## Foods_1_CA_3
                      290.48807
                                 448.22651
                                                Weekly
## Foods_2_CA_1
                      649.12634
                                 654.49599
                                                Weekly
## Foods_2_CA_2
                      218.39427
                                 205.76967 Daily agg.
## Foods_2_CA_3
                      854.30352
                                 955.77488
                                                Weekly
## Foods_3_CA_1
                     1776.72024 1804.77630
                                                Weekly
## Foods 3 CA 2
                      186.48492
                                 397.52016
                                                Weekly
                     1992.91056 2474.16727
## Foods_3_CA_3
                                                Weekly
Split 1 - ES forecasts
##
                         Weekly
                                                   Best
                                 Daily_agg
## Hobbies CA 1
                                                Weekly
                      237.41832
                                 274.52266
## Hobbies CA 2
                      153.84850
                                 158.94807
                                                Weekly
## Hobbies_CA_3
                      318.63829
                                 318.28210 Daily agg.
## Household_1_CA_1
                      194.24717
                                 246.25626
                                                Weekly
## Household_1_CA_2
                      163.27107
                                 157.09368 Daily agg.
## Household_1_CA_3
                      456.55314
                                 519.81141
                                                Weekly
## Household_2_CA_1
                       70.99678
                                  71.76552
                                                Weekly
                      117.02963
                                 109.06071 Daily agg.
## Household_2_CA_2
## Household_2_CA_3
                      236.62649
                                 206.07940 Daily agg.
## Foods_1_CA_1
                      231.37447
                                 465.10420
                                                Weekly
## Foods_1_CA_2
                      116.16393
                                 114.17032 Daily agg.
## Foods_1_CA_3
                      327.45993
                                 574.40172
                                                Weekly
## Foods_2_CA_1
                      662.27709
                                 687.40691
                                                Weekly
## Foods_2_CA_2
                      203.87636
                                 196.68025 Daily agg.
## Foods 2 CA 3
                      897.18059
                                 918.17758
                                                Weekly
## Foods_3_CA_1
                     1783.05714 2265.25431
                                                Weekly
## Foods_3_CA_2
                       70.14931
                                 369.13679
                                                Weekly
## Foods_3_CA_3
                     2472.31075 2786.10914
                                                Weekly
Split 1 - ESX forecasts
                         Weekly
                                 Daily_agg
                                                   Best.
## Hobbies_CA_1
                      237.41598
                                 238.49556
                                                Weekly
## Hobbies_CA_2
                      153.66075
                                 153.52852 Daily agg.
## Hobbies_CA_3
                      318.63915
                                 329.98147
                                                 Weekly
  Household_1_CA_1
                      190.68008
                                 202.34738
                                                Weekly
                                  144.48869 Daily agg.
  Household_1_CA_2
                      163.27147
## Household_1_CA_3
                      458.89656
                                 425.93195 Daily agg.
## Household_2_CA_1
                       70.99676
                                   73.35460
                                                Weekly
## Household_2_CA_2
                      117.02943
                                   91.76222 Daily agg.
                                 223.77623 Daily agg.
## Household 2 CA 3
                      236.62151
## Foods_1_CA_1
                      231.37378
                                 233.25146
                                                Weekly
## Foods 1 CA 2
                      116.16439
                                 132.74677
                                                Weekly
```

```
## Foods_1_CA_3
                      316.32480 449.93051
                                                Weekly
## Foods_2_CA_1
                      662.29616
                                 566.60881 Daily agg.
## Foods 2 CA 2
                      203.88118
                                 196.13786 Daily agg.
## Foods_2_CA_3
                      897.19505
                                 718.08415 Daily agg.
## Foods_3_CA_1
                     1783.03901 1113.08348 Daily agg.
## Foods 3 CA 2
                       70.16925
                                  70.73829
                                                Weekly
## Foods 3 CA 3
                    2472.19838 1496.05719 Daily agg.
Split 1 - ARIMA forecasts
##
                         Weekly Daily_agg
                                                 Best
## Hobbies_CA_1
                      233.50500
                                 244.9530
                                               Weekly
## Hobbies_CA_2
                      169.21603
                                 156.2150 Daily agg.
## Hobbies_CA_3
                      316.27836
                                 328.5846
                                               Weekly
                                 241.1679
## Household_1_CA_1
                      212.97385
                                               Weekly
## Household_1_CA_2
                      158.01161
                                 157.5365 Daily agg.
## Household_1_CA_3
                      528.52018
                                 527.4635 Daily agg.
## Household_2_CA_1
                       71.23597
                                 115.2671
                                               Weekly
## Household 2 CA 2
                      116.98322
                                 103.4650
                                          Daily agg.
## Household_2_CA_3
                     231.37482
                                 325.0814
                                               Weekly
## Foods_1_CA_1
                      238.92952
                                 490.1145
                                               Weekly
## Foods_1_CA_2
                       85.78573 119.1034
                                               Weekly
## Foods_1_CA_3
                      168.78014 812.2863
                                               Weekly
## Foods_2_CA_1
                      621.40973
                                 628.7607
                                               Weekly
## Foods 2 CA 2
                      193.61754
                                 225.7561
                                               Weekly
## Foods_2_CA_3
                      927.95050
                                 816.8771 Daily agg.
## Foods_3_CA_1
                      819.43404 2143.6957
                                               Weekly
## Foods_3_CA_2
                      173.89773
                                 446.8717
                                               Weekly
## Foods_3_CA_3
                     1856.94790 4383.5163
                                               Weekly
Split 1 - SARIMA forecasts
##
                         Weekly
                                 Daily_agg
                                                  Best
## Hobbies_CA_1
                      235.58916
                                 280.36763
                                                Weekly
## Hobbies_CA_2
                      169.78686
                                 161.81475 Daily agg.
## Hobbies_CA_3
                      316.27836
                                 318.74355
                                                Weekly
## Household_1_CA_1
                     212.97385
                                 344.83311
                                                Weekly
                                 149.74627 Daily agg.
## Household_1_CA_2
                     158.01161
## Household 1 CA 3
                     528.52018
                                 700.41575
                                                Weekly
## Household_2_CA_1
                       71.23597
                                  73.14851
                                                Weekly
                     116.98322
## Household_2_CA_2
                                 127.30082
                                                Weekly
## Household_2_CA_3
                     231.37482
                                 210.97037 Daily agg.
## Foods 1 CA 1
                      256.99768
                                 285.89430
                                                Weekly
## Foods_1_CA_2
                      80.31768
                                 108.38043
                                                Weekly
## Foods_1_CA_3
                      170.47856
                                 310.21536
                                                Weekly
## Foods_2_CA_1
                      637.08420
                                 812.71918
                                                Weekly
## Foods_2_CA_2
                      193.85977
                                 208.36878
                                                Weekly
## Foods_2_CA_3
                      904.74447
                                 853.71816 Daily agg.
## Foods_3_CA_1
                     1672.25498 2124.46913
                                                Weekly
## Foods_3_CA_2
                      130.51860
                                167.64513
                                                Weekly
## Foods_3_CA_3
                     1741.47858 2422.51856
                                                Weekly
Split 1 - SARIMAX forecasts
##
                         Weekly Daily_agg
                                                  Best
## Hobbies_CA_1
                      254.39203
                                 294.48212
                                                Weekly
```

Hobbies CA 2

Weekly

161.95694 165.24631

```
Weekly
## Hobbies CA 3
                     309.93909 315.90975
## Household_1_CA_1 244.34291 339.65417
                                              Weekly
## Household_1_CA_2 159.01702 144.91885 Daily agg.
## Household_1_CA_3
                     605.40533 684.99805
                                              Weekly
## Household_2_CA_1
                      71.94914
                                 73.45407
                                              Weekly
## Household 2 CA 2
                      80.56200 126.82400
                                              Weekly
## Household_2_CA_3
                    210.26207
                                221.97811
                                              Weekly
                     254.34927
## Foods_1_CA_1
                                282.69546
                                              Weekly
## Foods_1_CA_2
                      80.63055 101.62284
                                              Weekly
## Foods_1_CA_3
                     258.82128
                                294.55111
                                              Weekly
## Foods_2_CA_1
                     572.91209
                                824.19473
                                              Weekly
## Foods_2_CA_2
                     198.94570
                                207.10180
                                              Weekly
## Foods_2_CA_3
                     707.62340 903.15340
                                              Weekly
## Foods_3_CA_1
                    2031.41406 2217.83099
                                              Weekly
## Foods_3_CA_2
                      92.20745 191.62253
                                              Weekly
## Foods_3_CA_3
                    2200.46281 2571.34152
                                              Weekly
```

Split 1 - Holt-Winters forecasts

##		Weekly	Daily_agg	Best
##	Hobbies_CA_1	238.17537	294.66445	Weekly
##	Hobbies_CA_2	166.11346	962.16909	Weekly
##	Hobbies_CA_3	313.88076	513.50969	Weekly
##	${\tt Household_1_CA_1}$	167.66329	196.34825	Weekly
##	${\tt Household_1_CA_2}$	144.36097	272.17098	Weekly
##	${\tt Household_1_CA_3}$	581.99378	490.48700	Daily agg.
##	${\tt Household_2_CA_1}$	88.79013	145.80722	Weekly
##	${\tt Household_2_CA_2}$	103.59821	70.05503	Daily agg.
##	${\tt Household_2_CA_3}$	197.71246	146.97284	Daily agg.
##	Foods_1_CA_1	784.93806	251.95012	Daily agg.
##	Foods_1_CA_2	79.16404	150.89657	Weekly
##	Foods_1_CA_3	966.94031	648.78529	Daily agg.
##	Foods_2_CA_1	751.39025	435.29529	Daily agg.
##	Foods_2_CA_2	450.26528	326.53135	Daily agg.
##	Foods_2_CA_3	1044.89898	552.46352	<i>3</i> OO
##	Foods_3_CA_1	2823.94495	1177.96240	Daily agg.
##	Foods_3_CA_2	105.67395	1118.48293	J
##	Foods_3_CA_3	3709.21891	1790.19383	Daily agg.

Split 1 - State-Space Model forecasts

```
##
                                                 Best
                        Weekly Daily_agg
## Hobbies_CA_1
                     236.14155
                                256.71678
                                               Weekly
## Hobbies_CA_2
                     153.44069 157.08318
                                               Weekly
                     338.65142 324.40700 Daily agg.
## Hobbies_CA_3
## Household_1_CA_1
                     194.75692 318.56605
                                               Weekly
## Household_1_CA_2
                     166.50047
                                142.50497 Daily agg.
## Household_1_CA_3
                     408.08338
                                705.83945
                                               Weekly
## Household_2_CA_1
                      81.38463
                                 78.08282 Daily agg.
                                101.75618 Daily agg.
## Household_2_CA_2
                     115.88849
## Household_2_CA_3
                     242.30658
                                202.97681 Daily agg.
## Foods_1_CA_1
                     223.55708 1087.77300
                                               Weekly
## Foods_1_CA_2
                      98.35541
                                 97.14589 Daily agg.
## Foods 1 CA 3
                     223.14195 307.34417
                                               Weekly
## Foods_2_CA_1
                     612.17786
                                673.65338
                                               Weekly
## Foods_2_CA_2
                     201.86252 182.72412 Daily agg.
```

```
## Foods_2_CA_3 799.43354 884.80258 Weekly
## Foods_3_CA_1 1470.03420 3812.95617 Weekly
## Foods_3_CA_2 84.08169 198.16058 Weekly
## Foods_3_CA_3 1411.36628 3047.87258 Weekly
```

##Second split - 80/20 For the second split

Split 2 - Naive forecasts

##		Weekly	Daily_agg	Best
##	Hobbies_CA_1	684.5254	642.76395	Daily agg.
##	Hobbies_CA_2	267.1488	549.74494	Weekly
##	Hobbies_CA_3	583.4715	2526.28522	Weekly
##	${\tt Household_1_CA_1}$	175.1000	209.62943	Weekly
##	${\tt Household_1_CA_2}$	171.1476	295.76173	Weekly
##	${\tt Household_1_CA_3}$	624.2023	298.68211	Daily agg.
##	${\tt Household_2_CA_1}$	188.1688	171.61439	Daily agg.
##	${\tt Household_2_CA_2}$	297.1490	262.58142	Daily agg.
##	${\tt Household_2_CA_3}$	104.7640	186.78999	Weekly
##	Foods_1_CA_1	231.3320	286.45506	Weekly
##	Foods_1_CA_2	125.3395	91.33729	Daily agg.
##	Foods_1_CA_3	294.6778	394.98734	Weekly
##	Foods_2_CA_1	650.1977	592.84146	Daily agg.
##	Foods_2_CA_2	481.0806	570.83667	Weekly
##	Foods_2_CA_3	1113.0656	958.60915	Daily agg.
##	Foods_3_CA_1	1228.9217	1399.94393	Weekly
##	Foods_3_CA_2	1303.3760	1072.43694	Daily agg.
##	Foods_3_CA_3	3055.7286	3583.85637	Weekly

Split 2 - sNaive forecasts

##		Weekly	Daily_agg	Best
##	Hobbies_CA_1	427.4570	412.1753	Daily agg.
##	Hobbies_CA_2	306.1454	257.3976	Daily agg.
##	Hobbies_CA_3	623.6866	680.9677	Weekly
##	${\tt Household_1_CA_1}$	314.7499	136.2516	Daily agg.
##	${\tt Household_1_CA_2}$	185.1837	177.6091	Daily agg.
##	${\tt Household_1_CA_3}$	796.9473	770.8145	Daily agg.
##	${\tt Household_2_CA_1}$	251.4727	181.3381	Daily agg.
##	${\tt Household_2_CA_2}$	304.5152	339.7867	Weekly
##	${\tt Household_2_CA_3}$	247.0688	137.0310	Daily agg.
##	Foods_1_CA_1	254.9235	294.2779	Weekly
##	Foods_1_CA_2	100.1798	115.4015	Weekly
##	Foods_1_CA_3	259.7874	368.5092	Weekly
##	Foods_2_CA_1	654.7152	636.2177	Daily agg.
##	Foods_2_CA_2	315.7578	493.5073	Weekly
##	Foods_2_CA_3	624.6027	1206.2593	Weekly
##	Foods_3_CA_1	858.8964	1958.5441	Weekly
##	Foods_3_CA_2	1491.7123	1631.2679	Weekly
##	Foods_3_CA_3	507.7627	3449.0340	Weekly

Split 2 - MA forecasts

```
## Weekly Daily_agg Best
## Hobbies_CA_1 463.47708 404.8770 Daily agg.
## Hobbies_CA_2 243.96619 307.3975 Weekly
## Hobbies_CA_3 568.24104 531.9430 Daily agg.
```

```
## Household_1_CA_1
                      192.32701
                                 143.6432 Daily agg.
## Household_1_CA_2
                      143.28662
                                 169.1536
                                               Weekly
                                 747.9369 Daily agg.
## Household 1 CA 3
                      759.32964
                      247.37567
## Household_2_CA_1
                                 183.1857 Daily agg.
## Household_2_CA_2
                      304.36336
                                 333.0068
                                               Weekly
## Household 2 CA 3
                      253.89182
                                 151.0165 Daily agg.
                                               Weekly
## Foods 1 CA 1
                      248.27408
                                 290.3418
## Foods_1_CA_2
                       81.62414
                                 108.5279
                                               Weekly
## Foods_1_CA_3
                      301.50124
                                 359.9146
                                               Weekly
## Foods_2_CA_1
                      498.67123
                                 650.0456
                                               Weekly
## Foods_2_CA_2
                      424.15504
                                 473.5730
                                               Weekly
## Foods_2_CA_3
                      850.82342 1232.4843
                                               Weekly
## Foods_3_CA_1
                      509.72069 1868.2195
                                               Weekly
                     1205.92413 1560.7073
                                               Weekly
## Foods_3_CA_2
## Foods_3_CA_3
                     1058.07392 3592.9870
                                               Weekly
Split 2 - ES forecasts
##
                        Weekly Daily_agg
                                                Best
                                417.0490 Daily agg.
## Hobbies_CA_1
                      491.2550
## Hobbies CA 2
                      245.2233
                                245.9131
                                              Weekly
## Hobbies_CA_3
                      555.8579
                                576.0164
                                              Weekly
## Household 1 CA 1
                      179.1284
                                 139.6703 Daily agg.
## Household 1 CA 2
                      148.6660
                                 150.8471
                                              Weekly
## Household_1_CA_3
                      679.0725
                                 659.4412 Daily agg.
## Household 2 CA 1
                      239.5633
                                 196.8631 Daily agg.
## Household_2_CA_2
                      301.8268
                                 305.4966
                                              Weekly
## Household_2_CA_3
                      208.0797
                                 190.6035 Daily agg.
## Foods_1_CA_1
                      231.3009
                                 283.2601
                                              Weekly
## Foods_1_CA_2
                      103.8668
                                 106.4360
                                              Weekly
## Foods_1_CA_3
                      299.5731
                                 352.2261
                                              Weekly
## Foods_2_CA_1
                      495.6532
                                 592.7079
                                              Weekly
## Foods_2_CA_2
                      360.6680
                                 433.4986
                                              Weekly
## Foods_2_CA_3
                      949.6714 1090.5173
                                              Weekly
                      495.9000 1585.1016
## Foods_3_CA_1
                                              Weekly
## Foods 3 CA 2
                     1299.2510 1453.5352
                                              Weekly
## Foods_3_CA_3
                     1422.6176 2736.5645
                                              Weekly
Split 2 - ESX forecasts
##
                        Weekly Daily_agg
                                                Best
## Hobbies_CA_1
                      491.2740
                                384.9042 Daily agg.
## Hobbies CA 2
                      244.9279
                                 226.0930 Daily agg.
## Hobbies CA 3
                      555.8592
                                534.6665 Daily agg.
                                 147.2724 Daily agg.
## Household_1_CA_1
                      184.9120
## Household_1_CA_2
                      148.6652
                                 147.4301 Daily agg.
                                 554.2826 Daily agg.
## Household_1_CA_3
                      678.7304
## Household_2_CA_1
                      239.5607
                                 188.8685 Daily agg.
## Household_2_CA_2
                      301.8267
                                 274.7902 Daily agg.
## Household_2_CA_3
                      208.0688
                                 194.2186 Daily agg.
## Foods_1_CA_1
                      231.3007
                                 285.3586
                                              Weekly
## Foods_1_CA_2
                      103.8655
                                 111.2338
                                              Weekly
                      294.3485
                                              Weekly
```

Foods_1_CA_3

Foods_2_CA_1

Foods_2_CA_2

Foods 2 CA 3

Weekly

Weekly

Weekly

388.1692

549.3923

368.5653

495.6715

360.6718

949.7279 1215.3640

```
## Foods_3_CA_1 495.9083 1399.9897 Weekly
## Foods_3_CA_2 1299.2545 1624.5397 Weekly
## Foods_3_CA_3 1422.6401 3673.9627 Weekly
```

Split 2 - ARIMA forecasts

```
##
                         Weekly Daily_agg
                                                 Best
## Hobbies CA 1
                      479.94291
                                 381.3284 Daily agg.
## Hobbies CA 2
                      265.91531
                                 240.2861 Daily agg.
## Hobbies_CA_3
                      555.22604
                                 558.9841
                                               Weekly
## Household_1_CA_1
                      192.77301
                                 186.1349 Daily agg.
## Household_1_CA_2
                      149.70661
                                 147.1688 Daily agg.
## Household_1_CA_3
                      678.60483
                                 659.3978 Daily agg.
## Household_2_CA_1
                                 197.6147 Daily agg.
                      242.65543
                                 299.7262 Daily agg.
## Household_2_CA_2
                      301.84990
## Household_2_CA_3
                      210.87858
                                 197.1710 Daily agg.
## Foods_1_CA_1
                      245.67550
                                 288.9167
                                               Weekly
## Foods_1_CA_2
                       93.24155
                                 110.3225
                                               Weekly
## Foods 1 CA 3
                      419.67937
                                 381.6101 Daily agg.
## Foods_2_CA_1
                      476.02168
                                 527.5259
                                               Weekly
## Foods_2_CA_2
                      314.90827
                                 322.9648
                                               Weekly
## Foods_2_CA_3
                      713.49670
                                 914.6479
                                               Weekly
## Foods 3 CA 1
                      897.40260 1538.0211
                                               Weekly
## Foods_3_CA_2
                     1275.97377 1464.6027
                                               Weekly
                    2246.21023 2116.4093 Daily agg.
## Foods 3 CA 3
```

Split 2 - SARIMA forecasts

```
##
                         Weekly Daily_agg
                                                 Best
                                 389.8350 Daily agg.
## Hobbies_CA_1
                      489.78219
## Hobbies_CA_2
                      245.63735
                                 246.9643
                                               Weekly
## Hobbies_CA_3
                      555.22604
                                 571.2618
                                               Weekly
## Household_1_CA_1
                      195.85998
                                 141.0555 Daily agg.
## Household_1_CA_2
                      149.70661
                                 166.6272
                                               Weekly
## Household_1_CA_3
                      678.60483
                                 709.0004
                                               Weekly
## Household_2_CA_1
                      242.65543
                                 156.3555
                                          Daily agg.
## Household_2_CA_2
                      301.84990
                                 329.2719
                                               Weekly
                                 133.0594 Daily agg.
## Household_2_CA_3
                      210.87858
## Foods 1 CA 1
                      244.83092
                                 337.4739
                                               Weekly
## Foods_1_CA_2
                       94.05089
                                 116.9834
                                               Weekly
## Foods_1_CA_3
                      425.20065
                                 358.8059 Daily agg.
                                 611.5980
## Foods_2_CA_1
                      422.98890
                                               Weekly
## Foods 2 CA 2
                      328.78436
                                 503.9677
                                               Weekly
## Foods_2_CA_3
                      794.07628
                                 940.2415
                                               Weekly
## Foods_3_CA_1
                      664.29563 2009.7092
                                               Weekly
## Foods_3_CA_2
                                               Weekly
                     1248.88468 1658.5147
## Foods_3_CA_3
                     1468.76770 3028.4019
                                               Weekly
```

Split 2 - SARIMAX forecasts

```
##
                         Weekly Daily_agg
                                                 Best
## Hobbies_CA_1
                      531.65214
                                 411.5110 Daily agg.
## Hobbies_CA_2
                      224.26225
                                 261.8616
                                               Weekly
## Hobbies_CA_3
                      569.00862
                                 575.6472
                                               Weekly
## Household 1 CA 1
                     214.91650
                                 140.0697 Daily agg.
## Household_1_CA_2
                     152.98945
                                 162.8369
                                               Weekly
## Household 1 CA 3 723.20435
                                 693.3055 Daily agg.
```

```
## Household_2_CA_1
                     259.53262
                                 163.7346 Daily agg.
## Household_2_CA_2
                     191.69943
                                 329.2109
                                              Weekly
                                 143.8717 Daily agg.
## Household 2 CA 3
                     186.22209
## Foods_1_CA_1
                     248.40284
                                 332.9892
                                              Weekly
## Foods_1_CA_2
                      94.88886
                                 106.0621
                                              Weekly
## Foods 1 CA 3
                     364.78822
                                 348.7624 Daily agg.
## Foods 2 CA 1
                     440.12014
                                 576.3113
                                              Weekly
## Foods_2_CA_2
                     387.90859
                                 515.9220
                                              Weekly
## Foods_2_CA_3
                     941.51943
                                 825.0739 Daily agg.
## Foods_3_CA_1
                     667.11199 1757.6261
                                              Weekly
## Foods_3_CA_2
                     1181.32550 1724.0262
                                              Weekly
## Foods_3_CA_3
                     1144.06372 2524.2251
                                              Weekly
```

Split 2 - Holt-Winters forecasts

```
##
                         Weekly Daily_agg
                                                 Best
## Hobbies_CA_1
                      852.75532
                                 397.3780 Daily agg.
## Hobbies_CA_2
                      267.55070
                                 589.2339
                                               Weekly
## Hobbies CA 3
                      609.86278
                                 986.1015
                                               Weekly
## Household_1_CA_1
                     160.72649
                                 146.3023 Daily agg.
                                 154.2335 Daily agg.
## Household_1_CA_2
                      182.38679
## Household_1_CA_3
                     680.19527
                                 439.6854 Daily agg.
                      174.41624
## Household_2_CA_1
                                 153.6898 Daily agg.
## Household_2_CA_2
                     301.24639
                                 238.9616 Daily agg.
## Household 2 CA 3
                       92.28973
                                 318.6496
                                               Weekly
## Foods 1 CA 1
                      230.97862
                                 294.5663
                                              Weekly
## Foods_1_CA_2
                      140.44471
                                 169.7712
                                              Weekly
## Foods_1_CA_3
                      305.78382
                                 377.4521
                                              Weekly
## Foods_2_CA_1
                      879.39022
                                 952.7413
                                               Weekly
## Foods_2_CA_2
                      686.31773
                                 845.1742
                                               Weekly
## Foods_2_CA_3
                    1530.89486 1317.3178 Daily agg.
## Foods_3_CA_1
                    2216.66529 1499.3015 Daily agg.
## Foods_3_CA_2
                    1292.16939 2167.5864
                                               Weekly
                    4819.30388 3193.1222 Daily agg.
## Foods_3_CA_3
```

Split 2 - State-Space Model forecasts

```
##
                        Weekly Daily_agg
                                                Best
## Hobbies CA 1
                      484.7281
                                389.1415 Daily agg.
## Hobbies_CA_2
                                241.8286 Daily agg.
                      244.1496
## Hobbies CA 3
                      523.5117
                                547.7117
                                              Weekly
## Household_1_CA_1
                      181.8735
                                141.6882 Daily agg.
## Household 1 CA 2
                      147.0546
                                164.7623
                                              Weekly
## Household_1_CA_3
                      619.7956
                                729.4289
                                              Weekly
                                202.1971 Daily agg.
## Household_2_CA_1
                      262.4264
## Household_2_CA_2
                      301.5491
                                264.3997 Daily agg.
## Household_2_CA_3
                      213.6644
                                185.7830 Daily agg.
## Foods_1_CA_1
                      243.2377
                                291.4838
                                              Weekly
## Foods_1_CA_2
                      102.3626
                                116.1652
                                              Weekly
## Foods_1_CA_3
                      384.9277
                                346.0532 Daily agg.
                      494.0504
## Foods_2_CA_1
                                655.1727
                                              Weekly
## Foods_2_CA_2
                      353.5181
                                503.9267
                                              Weekly
## Foods_2_CA_3
                      782.5942 1015.4494
                                              Weekly
## Foods_3_CA_1
                      768.5956 1677.6906
                                              Weekly
## Foods_3_CA_2
                     1301.6859 1656.5522
                                              Weekly
## Foods 3 CA 3
                     1576.9274 3041.7487
                                              Weekly
```

Split 3 - Naive forecasts

##		Weekly	Daily_agg	Best
##	Hobbies_CA_1	1274.18798	1495.4182	Weekly
##	Hobbies_CA_2	1431.97922	1741.3429	Weekly
##	Hobbies_CA_3	974.50244	3018.2579	Weekly
##	${\tt Household_1_CA_1}$	740.47957	1792.5630	Weekly
##	${\tt Household_1_CA_2}$	1220.30468	2174.5517	Weekly
##	${\tt Household_1_CA_3}$	977.83255	1412.7247	Weekly
##	${\tt Household_2_CA_1}$	149.72475	453.9196	Weekly
##	${\tt Household_2_CA_2}$	481.46807	895.8948	Weekly
##	${\tt Household_2_CA_3}$	83.56135	377.7440	Weekly
##	Foods_1_CA_1	335.89656	410.1030	Weekly
##	Foods_1_CA_2	1398.50992	2219.6671	Weekly
##	Foods_1_CA_3	438.52366	678.1405	Weekly
##	Foods_2_CA_1	665.33074	490.2622	Daily agg.
##	Foods_2_CA_2	778.31453	1720.8029	Weekly
##	Foods_2_CA_3	852.56261	932.6583	Weekly
##	Foods_3_CA_1	2412.21900	1502.9629	Daily agg.
##	Foods_3_CA_2	4228.28204	8106.1220	Weekly
##	Foods_3_CA_3	3966.72642	3503.1024	Daily agg.

Split 3 - sNaive forecasts

			D : 1	ъ.
##		Weekly	Daily_agg	Best
##	Hobbies_CA_1	835.8310	995.2123	Weekly
##	Hobbies_CA_2	1124.3447	1038.8989	Daily agg.
##	Hobbies_CA_3	769.5541	815.2159	Weekly
##	${\tt Household_1_CA_1}$	434.2695	563.7819	Weekly
##	${\tt Household_1_CA_2}$	961.1171	1038.7998	Weekly
##	${\tt Household_1_CA_3}$	739.5786	752.4327	Weekly
##	${\tt Household_2_CA_1}$	157.1767	130.8243	Daily agg.
##	${\tt Household_2_CA_2}$	446.2606	420.3921	Daily agg.
##	${\tt Household_2_CA_3}$	210.8258	186.1330	Daily agg.
##	Foods_1_CA_1	394.5086	311.5116	Daily agg.
##	Foods_1_CA_2	1280.0109	1250.2536	Daily agg.
##	Foods_1_CA_3	393.6204	416.1676	Weekly
##	Foods_2_CA_1	507.6879	758.5466	Weekly
##	Foods_2_CA_2	851.5580	640.4143	Daily agg.
##	Foods_2_CA_3	379.9309	1104.1429	Weekly
##	Foods_3_CA_1	1190.9339	3535.6955	Weekly
##	Foods_3_CA_2	4759.0969	3242.8618	Daily agg.
##	Foods_3_CA_3	1577.8831	5541.0046	Weekly

Split 3 - MA forecasts

```
##
                                               Best
                        Weekly Daily_agg
## Hobbies_CA_1
                     788.05774 972.9298
                                             Weekly
                    1131.36296 1131.1750 Daily agg.
## Hobbies_CA_2
## Hobbies_CA_3
                     622.71094 544.9075 Daily agg.
## Household_1_CA_1
                     399.74732
                               569.6397
                                             Weekly
## Household_1_CA_2
                     961.67328 1097.3871
                                             Weekly
## Household_1_CA_3
                     532.17337
                                684.4878
                                             Weekly
## Household_2_CA_1
                      83.04851 127.5112
                                             Weekly
## Household_2_CA_2 315.21377 425.8560
                                             Weekly
```

```
## Household 2_CA_3 159.74824 154.3925 Daily agg.
## Foods_1_CA_1
                      251.04219 288.5069
                                              Weekly
## Foods 1 CA 2
                     1152.70725 1247.4209
                                              Weekly
## Foods_1_CA_3
                      296.79939
                                405.8001
                                              Weekly
## Foods_2_CA_1
                      497.18910
                                769.6646
                                              Weekly
## Foods 2 CA 2
                     816.05361 668.2245 Daily agg.
## Foods 2 CA 3
                      618.05097 1116.9022
                                              Weekly
## Foods_3_CA_1
                    1974.45360 3498.3335
                                              Weekly
## Foods_3_CA_2
                    4035.26536 3376.2187 Daily agg.
## Foods_3_CA_3
                    3106.87219 5577.4427
                                              Weekly
Split 3 - ES forecasts
##
                         Weekly Daily_agg
                                                 Best
                                 694.3394 Daily agg.
## Hobbies_CA_1
                      795.51746
## Hobbies_CA_2
                     1129.62574
                                 974.6178 Daily agg.
## Hobbies_CA_3
                      671.61411
                                 632.7585 Daily agg.
## Household_1_CA_1
                     443.53892
                                 419.2465 Daily agg.
                                 933.3892 Daily agg.
## Household 1 CA 2 1025.00816
## Household_1_CA_3
                     602.49373
                                 564.3988 Daily agg.
## Household_2_CA_1
                     101.39091
                                 102.7609
                                              Weekly
## Household_2_CA_2
                     371.47407
                                 350.4804 Daily agg.
                      96.58601
## Household_2_CA_3
                                 190.9961
                                              Weekly
## Foods 1 CA 1
                      256.62022
                                 341.7114
                                              Weekly
## Foods 1 CA 2
                    1270.60789 1330.0670
                                              Weekly
## Foods_1_CA_3
                      297.56881 516.3009
                                              Weekly
## Foods_2_CA_1
                      579.97571
                                 824.4394
                                              Weekly
## Foods_2_CA_2
                      792.76899
                                 663.2769
                                          Daily agg.
## Foods_2_CA_3
                     749.27582 1296.5089
                                              Weekly
## Foods_3_CA_1
                     1920.45252 3345.4406
                                              Weekly
                    4107.16869 3429.5750 Daily agg.
## Foods_3_CA_2
## Foods_3_CA_3
                    3264.60313 5211.3537
                                              Weekly
Split 3 - ESX forecasts
##
                         Weekly
                                 Daily_agg
                                                  Best
                                 688.31069 Daily agg.
## Hobbies CA 1
                     795.52682
## Hobbies CA 2
                     1132.66127
                                 993.17440 Daily agg.
## Hobbies CA 3
                      671.61524
                                 622.59497 Daily agg.
## Household_1_CA_1
                                 355.07911 Daily agg.
                     447.67861
## Household_1_CA_2 1028.74256
                                 900.42406 Daily agg.
## Household_1_CA_3
                     602.50340
                                 451.22457 Daily agg.
                                  98.45927 Daily agg.
## Household 2 CA 1
                     101.39071
## Household 2 CA 2
                                 381.46106
                     371.47164
                                                Weekly
## Household_2_CA_3
                      96.59077
                                 161.04062
                                                Weekly
## Foods_1_CA_1
                      256.62024
                                 414.20496
                                                Weekly
                     1308.86130 1184.51249 Daily agg.
## Foods_1_CA_2
## Foods_1_CA_3
                      300.65475
                                 528.89726
                                                Weekly
## Foods_2_CA_1
                      579.98262
                                 685.99937
                                                Weekly
## Foods_2_CA_2
                      792.76871
                                 740.32866 Daily agg.
## Foods_2_CA_3
                      749.30332 1084.59698
                                                Weekly
## Foods_3_CA_1
                     1920.33698 1502.81307 Daily agg.
## Foods_3_CA_2
                    4107.16895 3818.16593 Daily agg.
## Foods_3_CA_3
                    3264.66392 3647.12096
                                                Weekly
```

Split 3 - ARIMA forecasts

```
##
                        Weekly Daily_agg
                                                Best
## Hobbies_CA_1
                               717.8915 Daily agg.
                     784.7786
## Hobbies CA 2
                     1074.0024
                                980.2908 Daily agg.
## Hobbies_CA_3
                     653.1979
                                673.0609
                                              Weekly
## Household_1_CA_1
                     445.0907
                                419.9694 Daily agg.
## Household 1 CA 2 1022.9565
                                936.9866 Daily agg.
## Household 1 CA 3
                     614.2433
                                755.7434
                                              Weekly
## Household_2_CA_1
                      94.9419
                                124.0361
                                              Weekly
## Household_2_CA_2
                     372.8559
                                385.8513
                                              Weekly
## Household_2_CA_3
                     103.6738
                                162.1513
                                              Weekly
## Foods_1_CA_1
                      145.1745
                                299.8829
                                              Weekly
## Foods_1_CA_2
                     1338.6583 1302.2095
                                         Daily agg.
## Foods_1_CA_3
                      168.4180
                                935.3518
                                              Weekly
## Foods_2_CA_1
                                571.1606 Daily agg.
                      614.5771
                                705.5961 Daily agg.
## Foods_2_CA_2
                      807.4485
## Foods_2_CA_3
                      775.4868
                                860.9764
                                              Weekly
## Foods_3_CA_1
                     1834.7071 2449.0506
                                              Weekly
                     4018.5007 3536.2304 Daily agg.
## Foods 3 CA 2
## Foods_3_CA_3
                    3930.0586 3227.4377 Daily agg.
Split 3 - SARIMA forecasts
##
                        Weekly Daily_agg
## Hobbies_CA_1
                     799.8272 700.7383 Daily agg.
## Hobbies CA 2
                     1038.8739 1004.8675 Daily agg.
## Hobbies_CA_3
                      653.1979
                                606.3736 Daily agg.
## Household_1_CA_1
                     445.0907
                                542.0739
                                              Weekly
## Household_1_CA_2 1022.9565
                                977.6223
                                         Daily agg.
                                716.0433
## Household_1_CA_3
                     614.2433
                                              Weekly
## Household_2_CA_1
                       94.9419
                                113.4342
                                              Weekly
## Household_2_CA_2
                     372.8559
                                353.7368 Daily agg.
## Household_2_CA_3
                     103.6738
                                188.7136
                                              Weekly
## Foods_1_CA_1
                      145.1745
                                310.9474
                                              Weekly
## Foods_1_CA_2
                     1338.6583 1431.6219
                                              Weekly
## Foods_1_CA_3
                     169.5943
                                340.3293
                                              Weekly
## Foods_2_CA_1
                                531.0654 Daily agg.
                      614.5771
                               707.1104 Daily agg.
## Foods_2_CA_2
                     807.4485
## Foods 2 CA 3
                      687.4546 1117.7404
                                              Weekly
## Foods_3_CA_1
                    2456.9970 2124.3565 Daily agg.
## Foods_3_CA_2
                    4029.9526 3372.9252 Daily agg.
## Foods_3_CA_3
                    3546.1916 3704.2259
                                              Weekly
Split 3 - SARIMAX forecasts
                         Weekly Daily_agg
                                                 Best
## Hobbies_CA_1
                     829.27279 698.5644 Daily agg.
                     1149.51817 1001.5599 Daily agg.
## Hobbies_CA_2
## Hobbies_CA_3
                      657.28553
                                 616.7587 Daily agg.
## Household_1_CA_1
                     455.01440
                                 551.2120
                                               Weekly
## Household_1_CA_2 1026.00289
                                 990.9209 Daily agg.
## Household_1_CA_3
                     626.41022
                                 730.9029
                                               Weekly
## Household_2_CA_1
                      99.31353
                                 115.0755
                                               Weekly
## Household_2_CA_2
                     364.95455
                                 355.7635 Daily agg.
## Household_2_CA_3
                     107.36275
                                 191.2812
                                               Weekly
## Foods_1_CA_1
                      149.37267
                                 309.1419
                                               Weekly
```

Foods 1 CA 2

Weekly

1338.94939 1430.3829

```
## Foods_1_CA_3
                     168.66849 340.9100
                                              Weekly
                     549.15121 526.5534 Daily agg.
## Foods_2_CA_1
## Foods 2 CA 2
                     787.15725 716.6697 Daily agg.
## Foods_2_CA_3
                     696.10181 1109.7658
                                              Weekly
## Foods_3_CA_1
                    2454.49708 2084.8789 Daily agg.
## Foods 3 CA 2
                    3954.64577 3434.4047 Daily agg.
## Foods 3 CA 3
                    3444.64279 3571.1689
                                              Weeklv
```

Split 3 - Holt-Winters forecasts

```
##
                        Weekly
                               Daily_agg
                                                Best
## Hobbies_CA_1
                    1286.6220
                               743.50987 Daily agg.
## Hobbies_CA_2
                    1439.9333 2039.52705
                                              Weekly
## Hobbies_CA_3
                     786.7303 1683.42816
                                              Weekly
## Household_1_CA_1
                                319.13061 Daily agg.
                     641.1695
## Household_1_CA_2 1204.5571 1053.70274 Daily agg.
## Household_1_CA_3
                     910.6333
                                878.22850 Daily agg.
## Household_2_CA_1
                     112.8359
                                 83.36091 Daily agg.
                                264.41727 Daily agg.
## Household 2 CA 2
                     555.8223
                     106.7955
## Household_2_CA_3
                                223.17560
                                              Weekly
## Foods_1_CA_1
                     340.9550
                               449.13838
                                              Weekly
## Foods_1_CA_2
                    1393.5523 1464.73196
                                              Weekly
## Foods 1 CA 3
                     540.4346
                                822.10739
                                              Weekly
## Foods_2_CA_1
                     747.0856
                                840.40187
                                              Weekly
## Foods 2 CA 2
                     754.3831
                               831.33003
                                              Weekly
## Foods_2_CA_3
                    1163.0391 1218.43996
                                              Weekly
## Foods_3_CA_1
                    3044.1809 3403.69882
                                              Weekly
## Foods_3_CA_2
                    4282.6979 3262.27627 Daily agg.
                    5036.3962 5309.77120
## Foods_3_CA_3
                                              Weekly
```

Split 3 - State-Space Model forecasts

```
##
                        Weekly Daily_agg
                                                Best
## Hobbies_CA_1
                     791.63060
                                684.4667 Daily agg.
## Hobbies_CA_2
                    1126.91543
                                750.5028 Daily agg.
## Hobbies_CA_3
                     671.67619
                                603.0445 Daily agg.
## Household_1_CA_1 415.99460
                                899.7972
                                              Weekly
## Household_1_CA_2 1021.61143 1021.2767 Daily agg.
## Household 1 CA 3
                     564.80004
                                965.7246
                                              Weekly
## Household_2_CA_1
                      87.43482
                                142.2828
                                              Weekly
## Household_2_CA_2
                     369.24488
                                351.3529 Daily agg.
## Household_2_CA_3
                      93.50998
                                199.5887
                                              Weekly
## Foods 1 CA 1
                     148.08932 326.7310
                                              Weekly
## Foods_1_CA_2
                    1281.11392 1216.3185 Daily agg.
## Foods_1_CA_3
                     153.88610 427.2420
                                              Weekly
## Foods_2_CA_1
                     546.19883
                                620.0419
                                              Weekly
## Foods_2_CA_2
                     666.23169 706.8792
                                              Weekly
## Foods_2_CA_3
                     726.88636 1218.7425
                                              Weekly
## Foods_3_CA_1
                    2237.78070 3550.2646
                                              Weekly
## Foods_3_CA_2
                    4110.37424 3333.4221 Daily agg.
## Foods_3_CA_3
                    3603.98018 6374.3708
                                              Weekly
```