

8 TABLES

8.1 Predictors

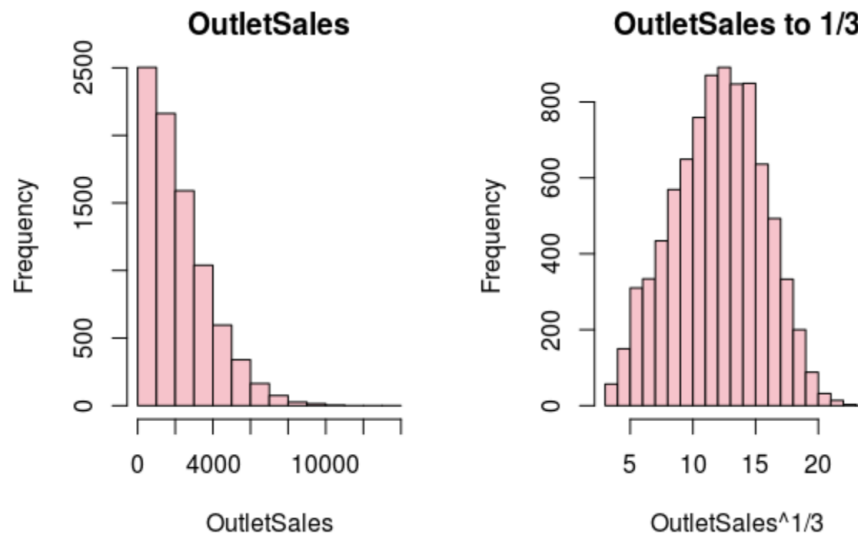


Figure 6: Outlet Sales Un-transformed vs Transformed

8.2 Normality and Symmetry

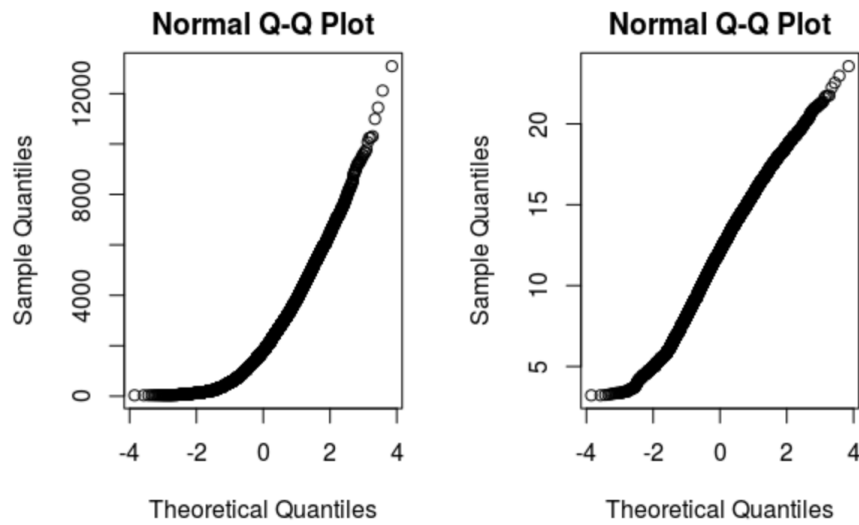


Figure 7: QQnorm Plot of Outlet Sales

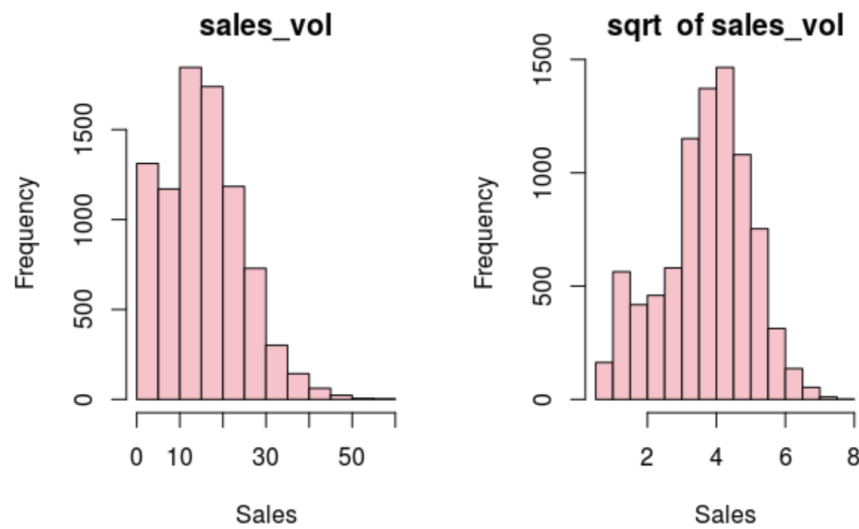


Figure 8: Distributions of Sales Volume

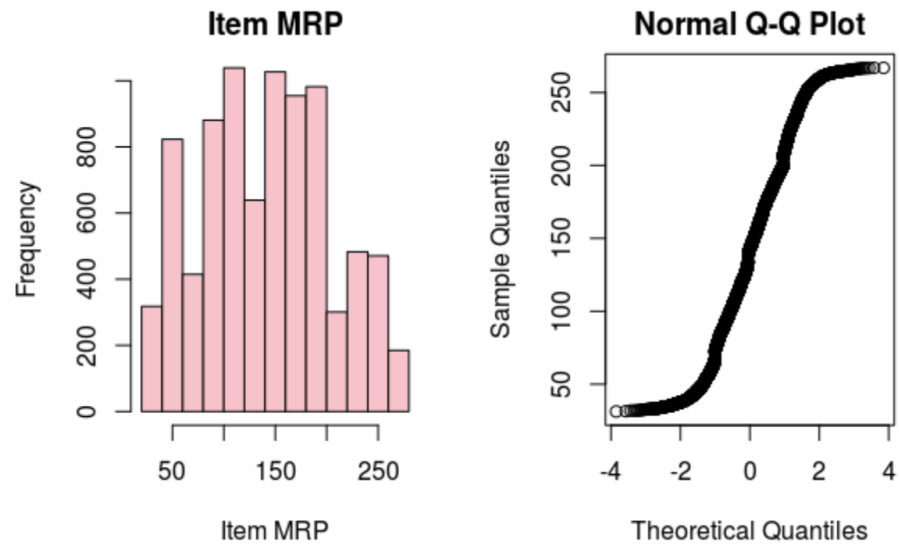


Figure 9: Item MRP distribution

8.3 Linearity

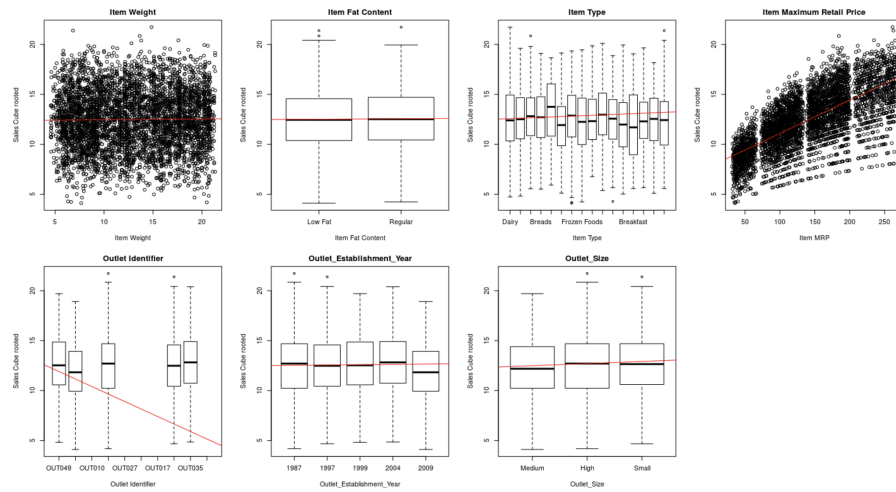


Figure 10: Linearity between all predictors and response

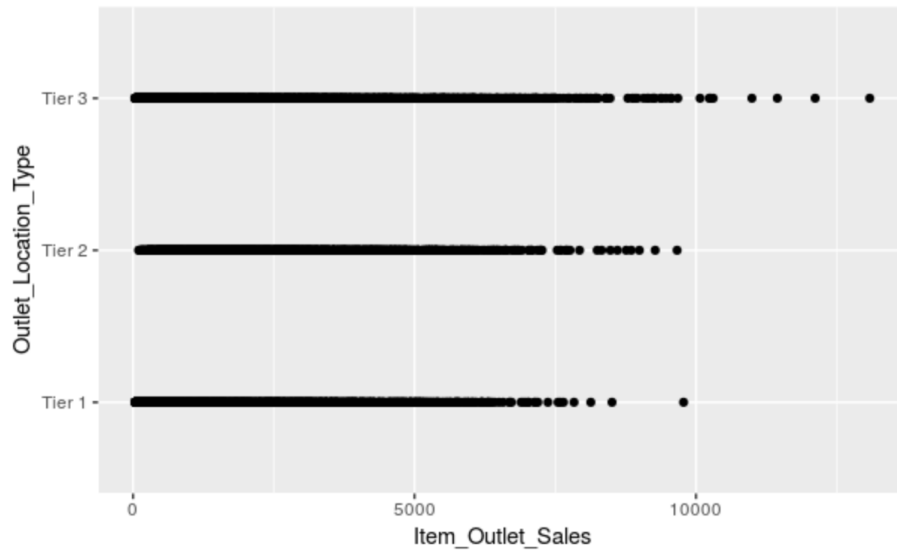


Figure 11: Location and Sales

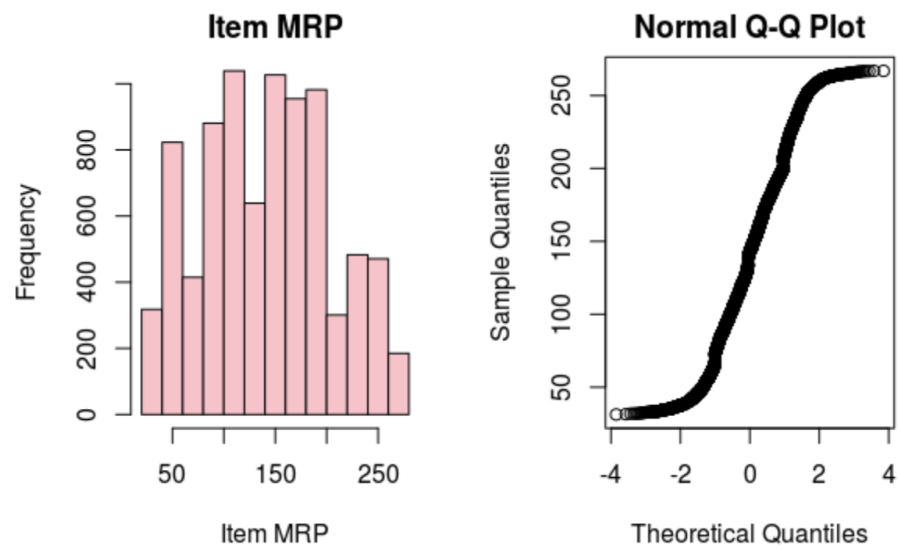


Figure 12: MRP and Sales

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16 Variables      8519 Observations
-----
Item_Identifier
  n missing distinct
 8519      0      1555

lowest : DRA12 DRA24 DRA59 DRB01 DRB13, highest: NCZ30 NCZ41 NCZ42 NCZ53 NCZ54
-----
Item_Weight
  n missing distinct      Info      Mean      Gmd      .05      .10      .25      .50      .75
.90      .95
8519      0      415      1      12.88      5.362      5.940      6.675      8.785      12.650      16.850
19.350      20.250

lowest : 4.555 4.590 4.610 4.615 4.635, highest: 21.000 21.100 21.200 21.250 21.350
-----
Item_Fat_Content
  n missing distinct
 8519      0      3

Value      Low Fat not_food      Regular
Frequency      3917      1599      3003
Proportion      0.460      0.188      0.353
-----
Item_Visibility
  n missing distinct      Info      Mean      Gmd      .05      .10      .25      .50      .75
.90      .95
8519      0      7876      1      0.06611      0.05579      0.00000      0.01204      0.02698      0.05392      0.09456
0.13949      0.16357

lowest : 0.000000000 0.003574698 0.003589104 0.003597678 0.003599378
highest: 0.309390255 0.311090379 0.321115010 0.325780807 0.328390948
-----
Item_Type
  n missing distinct
 8519      0      16

Baking Goods (647, 0.076), Breads (251, 0.029), Breakfast (110, 0.013), Canned (649, 0.076), Dairy
(681, 0.080),
Frozen Foods (855, 0.100), Fruits and Vegetables (1232, 0.145), Hard Drinks (214, 0.025), Health and
Hygiene (520,
0.061), Household (910, 0.107), Meat (425, 0.050), Others (169, 0.020), Seafood (64, 0.008), Snack
Foods (1199,
0.141), Soft Drinks (445, 0.052), Starchy Foods (148, 0.017)
-----
Item_MRP
  n missing distinct      Info      Mean      Gmd      .05      .10      .25      .50      .75
.90      .95
8519      0      5936      1      141      71.55      42.51      52.80      93.84      143.05      185.68
231.21      250.78

lowest : 31.2900 31.4900 31.8900 31.9558 32.0558, highest: 266.1884 266.2884 266.5884 266.6884

```

Figure 13: Summary of Categorical and Numerical Predictors

8.4 Models

8.4.1 Model on all main effects

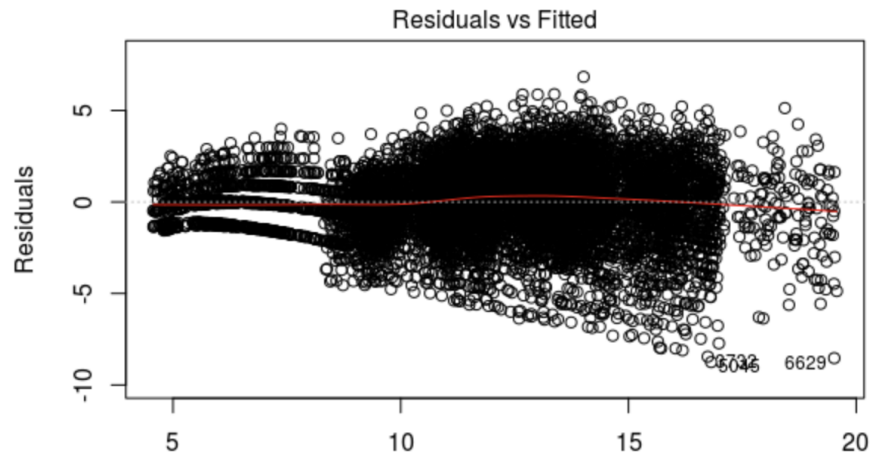


Figure 14: Residuals of Model Main Effects

8.4.2 Cross Validation

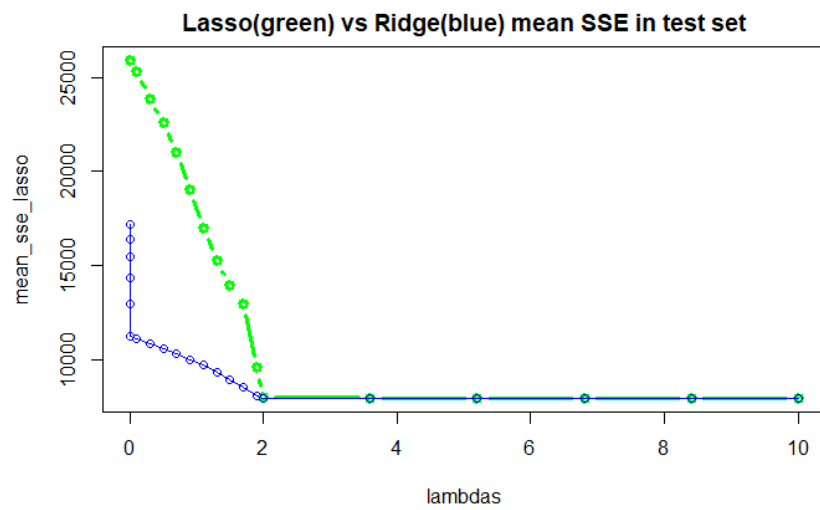


Figure 15: Cross Validation Output

8.4.3 Best Predictive Model

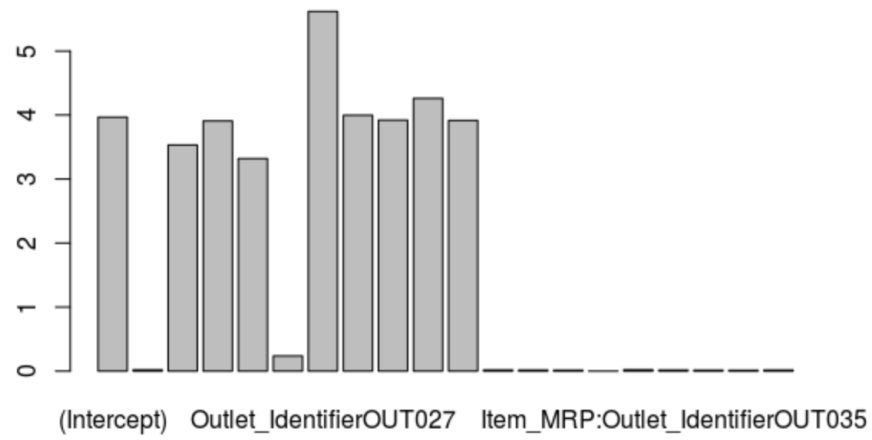


Figure 16: Coefficients of the Best Predictive Model

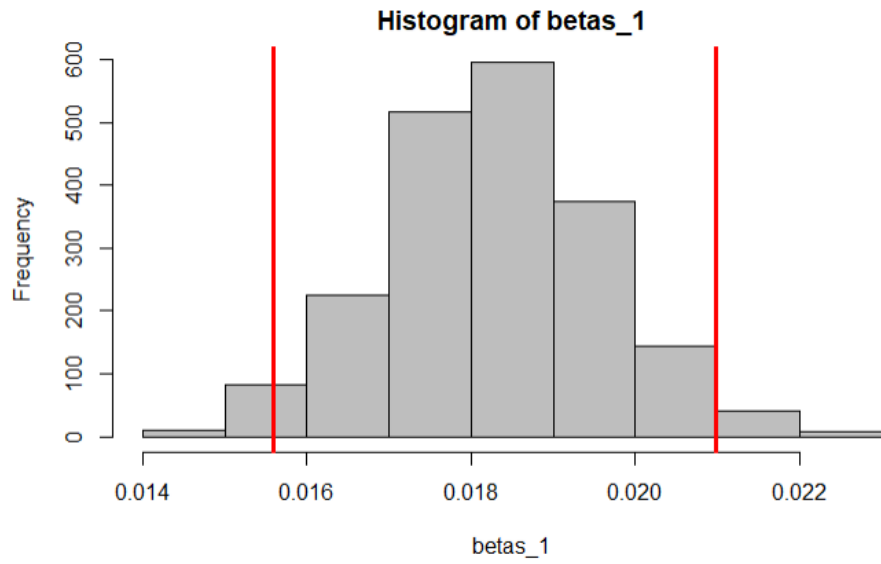


Figure 17: Beta of Item.MRP distribution in Modelstep

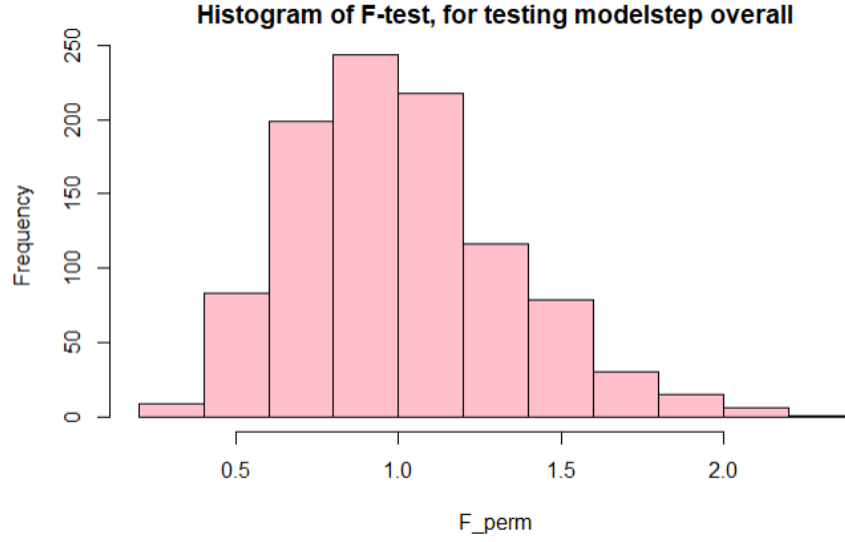


Figure 18: Permutation F-test for testing **Modelstep** overall

[1]	8233.432	7988.113					
	lambda	mean_sse_lasso	mean_sse_ridge	mean_sse_e12	mean_sse_e14	mean_sse_e16	mean_sse_e18
[1,]	0.00010	17201.849	25917.509	25919.746	25919.746	25919.746	25919.746
[2,]	0.00208	16415.011	25118.990	25919.746	25919.746	25919.746	25919.746
[3,]	0.00406	15478.852	24035.638	25919.746	25919.746	25919.746	25919.746
[4,]	0.00604	14350.608	21763.276	25919.746	25919.746	25919.746	25919.746
[5,]	0.00802	12972.565	18549.360	23477.261	25919.746	25919.746	25919.746
[6,]	0.01000	11254.386	15162.427	17656.028	20886.366	23450.934	25912.553
[7,]	0.01000	11131.551	14957.285	17255.454	20339.455	22973.004	25321.513
[8,]	0.30000	10878.369	14535.484	16465.812	19061.481	21956.288	23869.508
[9,]	0.50000	10613.867	14075.912	15707.838	17816.177	20365.220	22579.089
[10,]	0.70000	10335.149	13580.831	15004.299	16669.187	18759.630	21010.338
[11,]	0.90000	10039.251	13013.131	14362.433	15608.618	17109.017	19059.664
[12,]	1.10000	9720.003	12425.224	13792.098	14644.020	15695.080	16970.489
[13,]	1.30000	9370.042	11595.440	13231.346	13825.068	14525.682	15268.525
[14,]	1.50000	8979.404	10531.963	12397.968	13165.995	13536.911	13984.845
[15,]	1.70000	8541.375	9321.885	10631.423	12052.234	12720.788	13008.403
[16,]	1.90000	8104.713	8239.536	8443.096	8736.223	9151.515	9587.715
[17,]	2.00000	7993.533	7993.814	7995.934	7999.382	8003.466	8008.469
[18,]	3.60000	7992.603	7992.260	7993.342	7995.580	7998.178	8001.444
[19,]	5.20000	7991.721	7990.904	7991.302	7992.583	7994.079	7995.997
[20,]	6.80000	7990.975	7989.896	7989.782	7990.341	7991.031	7991.986
[21,]	8.40000	7990.259	7989.228	7988.870	7988.951	7989.077	7989.351
[22,]	10.00000	7989.592	7988.931	7988.640	7988.612	7988.599	7988.595

Figure 19: Table of Mean Squared Error for Lasso-Ridge Model **Modelstep** overall