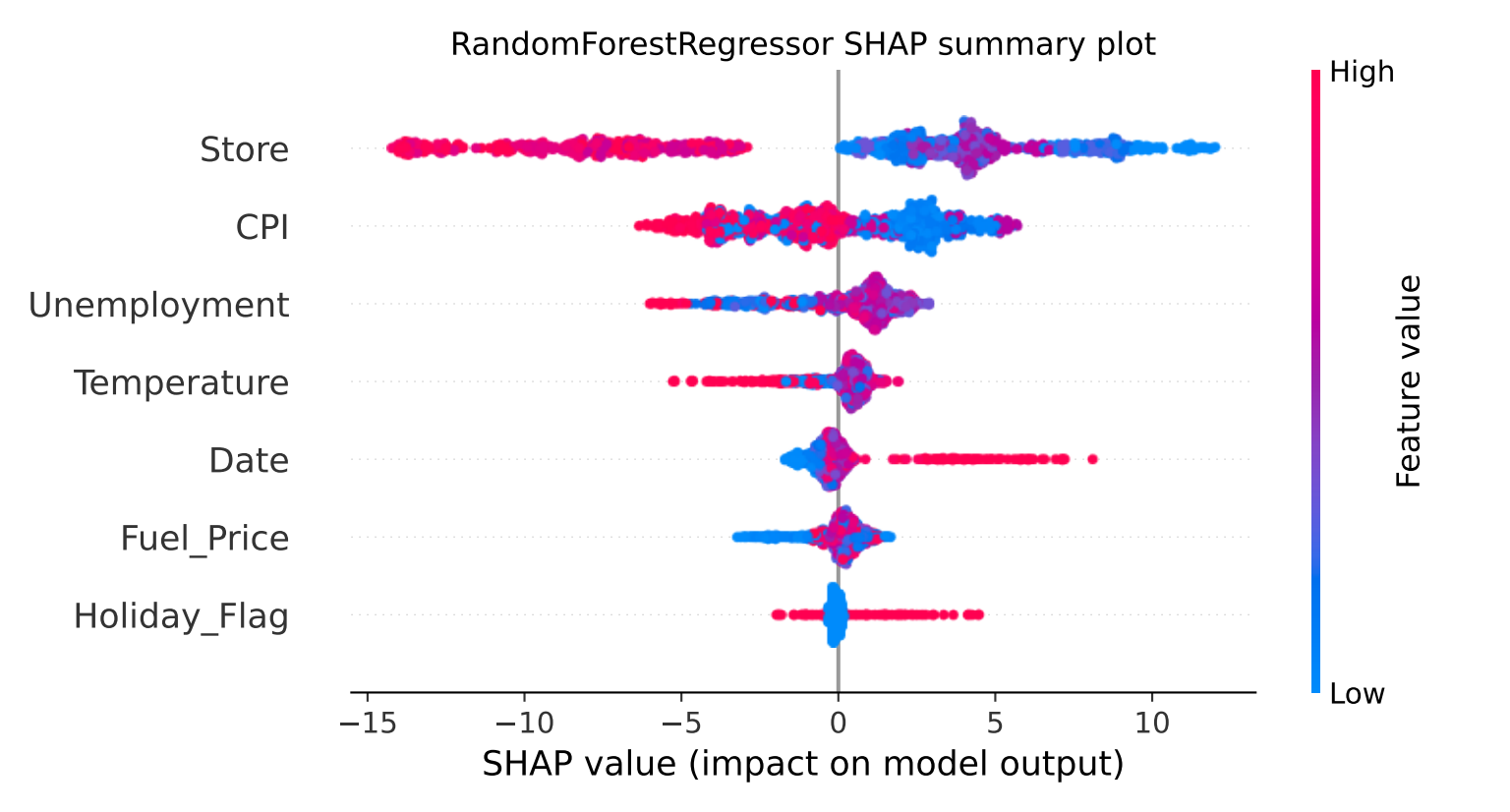
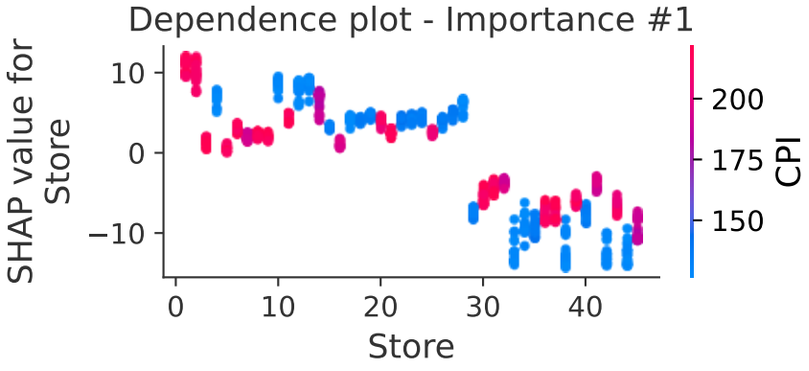
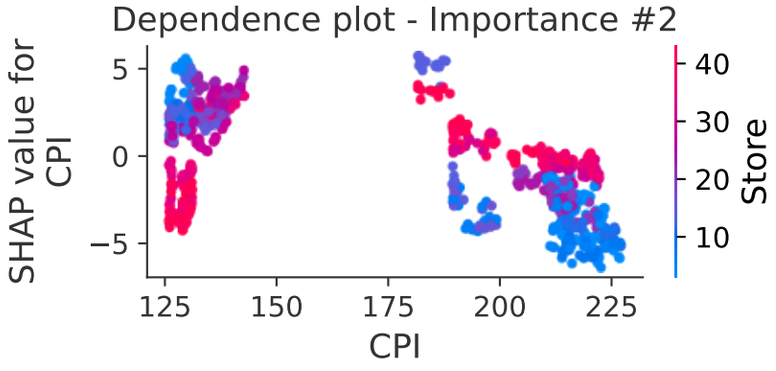
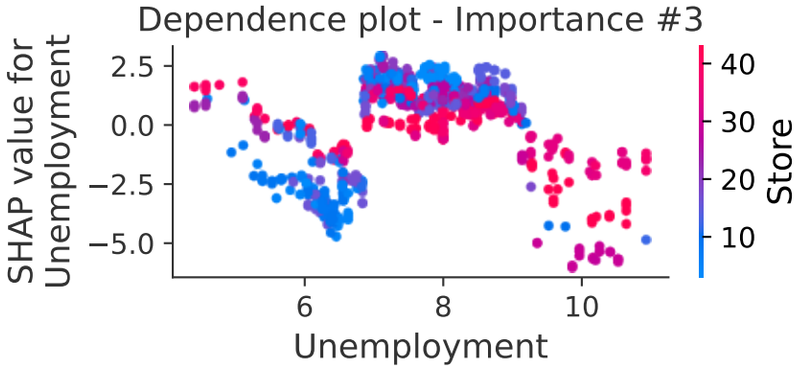
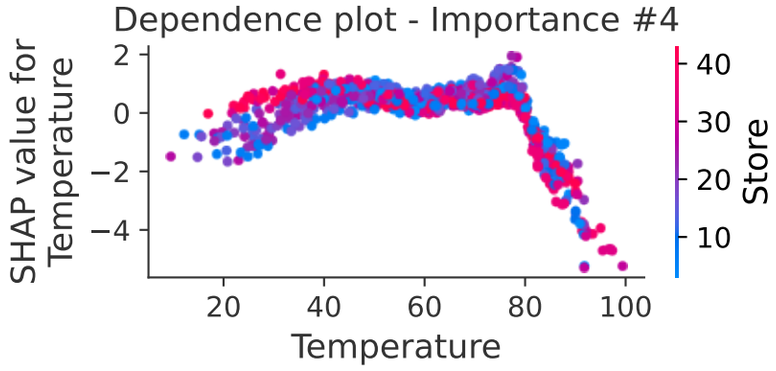
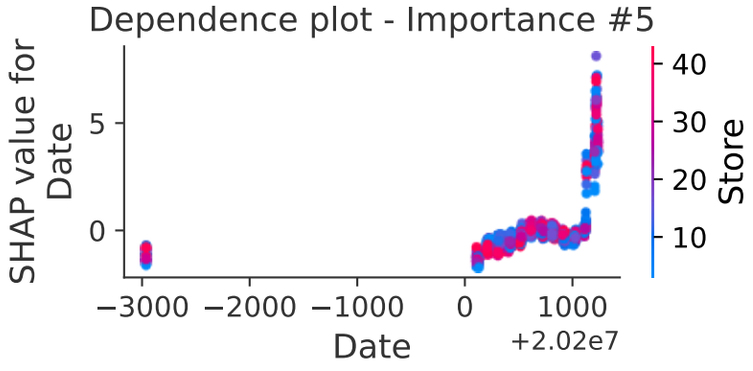

RandomForestRegressor SHAP summary plot
Store
CPI
Unemployment
Temperature
Date
Fuel_Price
Holiday_Flag
−15
−10
−5
0
5
10
SHAP value (impact on model output)
High
Feature value
Low

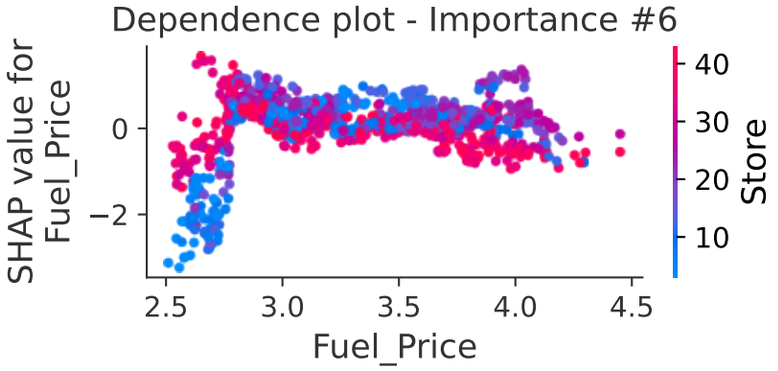

Dependence plot - Importance #1
SHAP value for Store
Store
CPI

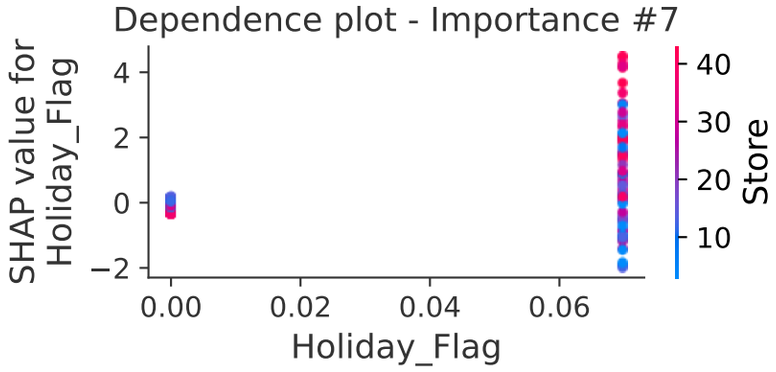

Dependence plot - Importance #2
SHAP value for CPI
CPI
Store

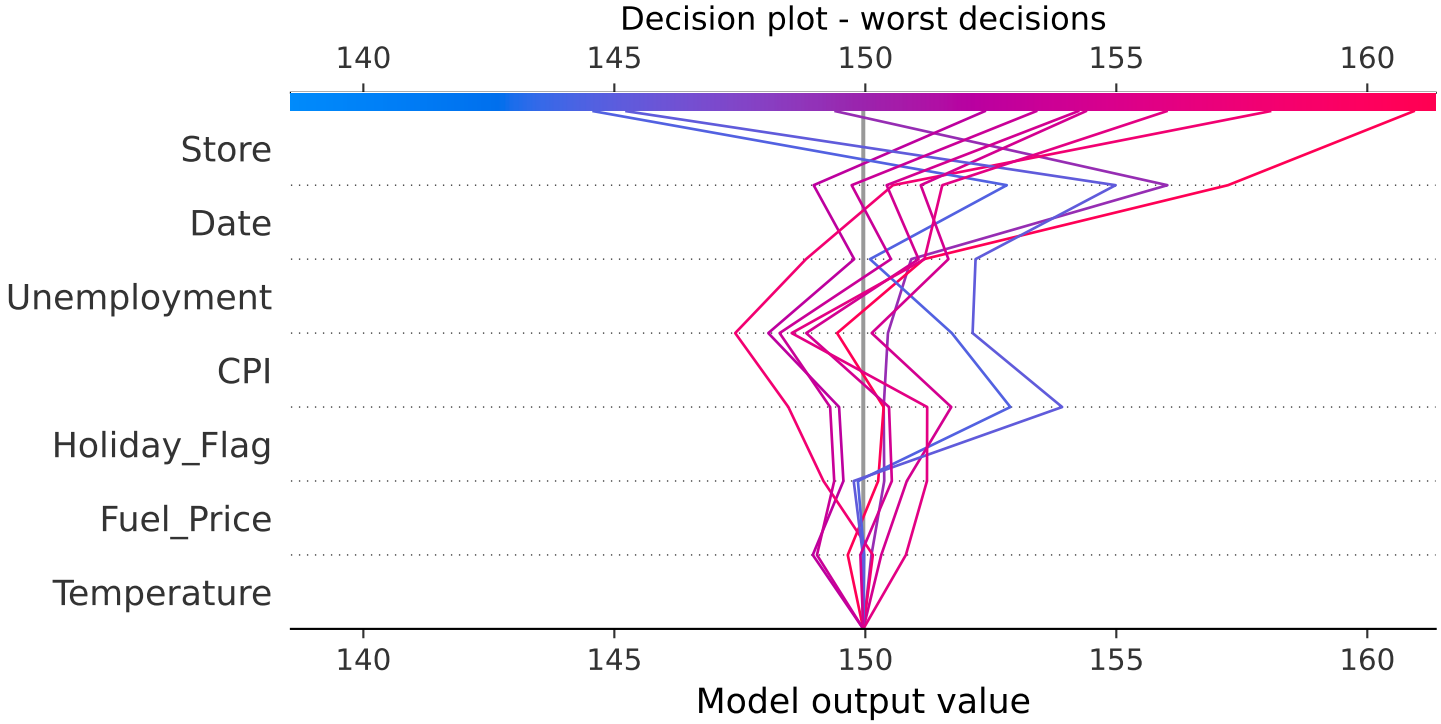

Dependence plot - Importance #3
SHAP value for Unemployment
Unemployment
Store

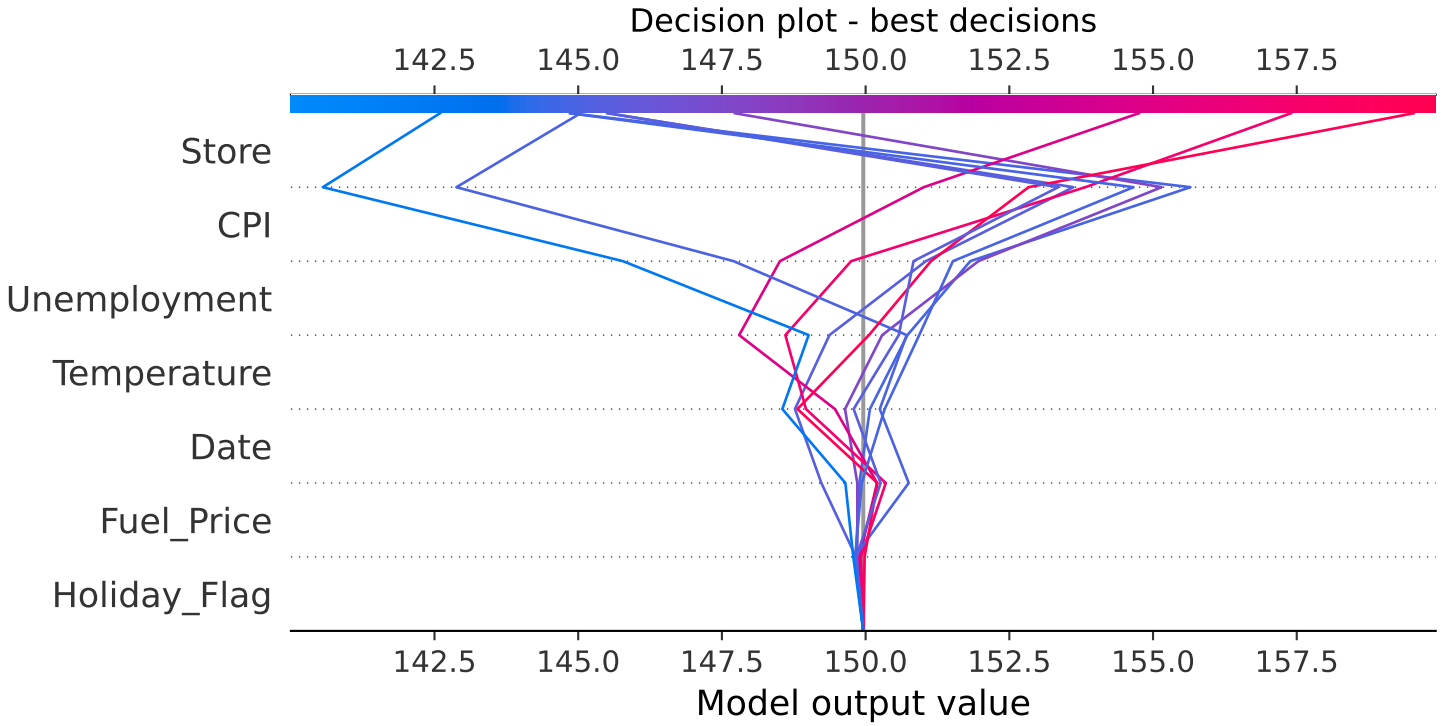

Dependence plot - Importance #4
SHAP value for Temperature
Temperature
Store

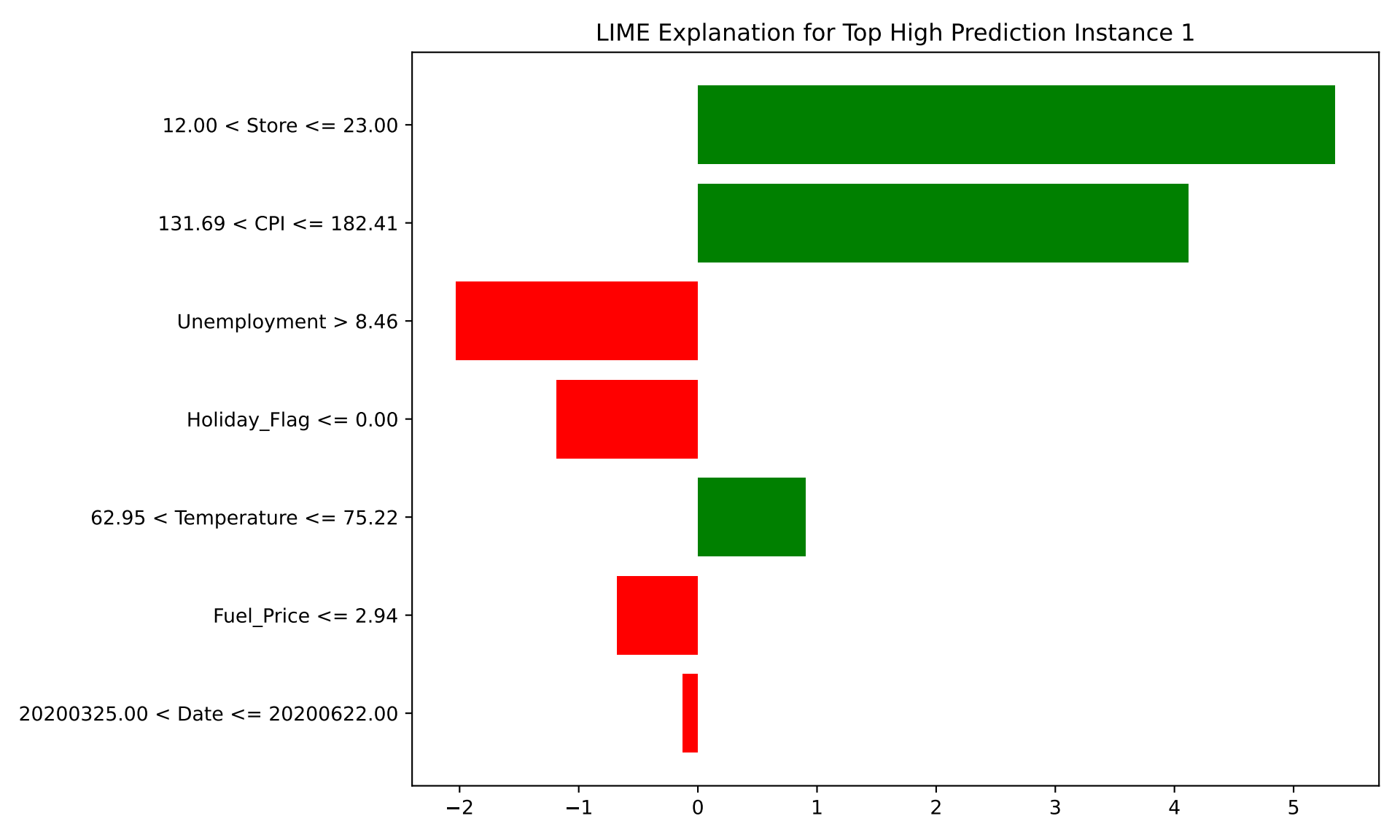

Dependence plot - Importance #5
SHAP value for Date
Date
+2.02e7
Store

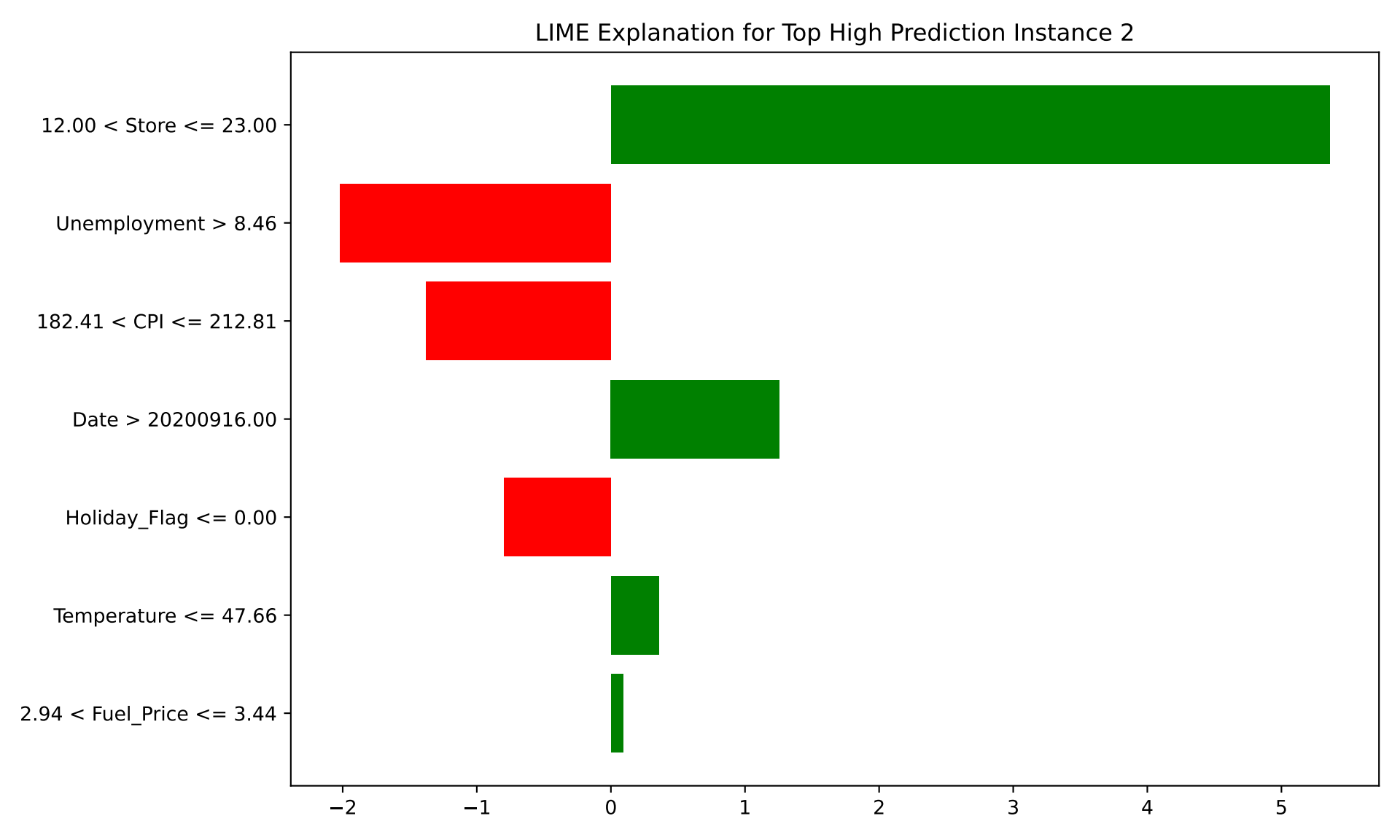

Dependence plot - Importance #6
SHAP value for Fuel_Price
Fuel_Price
Store

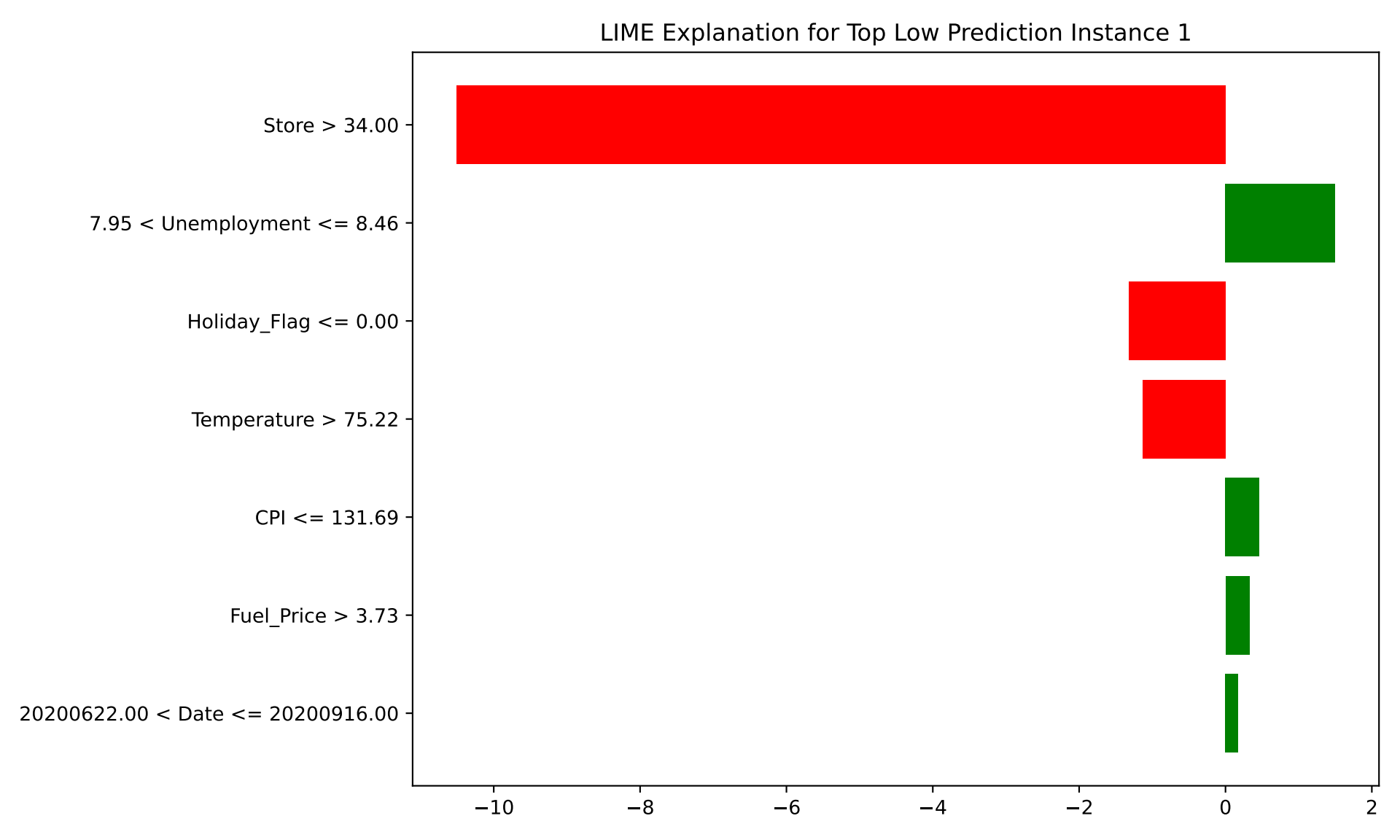

Dependence plot - Importance #7
SHAP value for Holiday_Flag
Holiday_Flag
Store

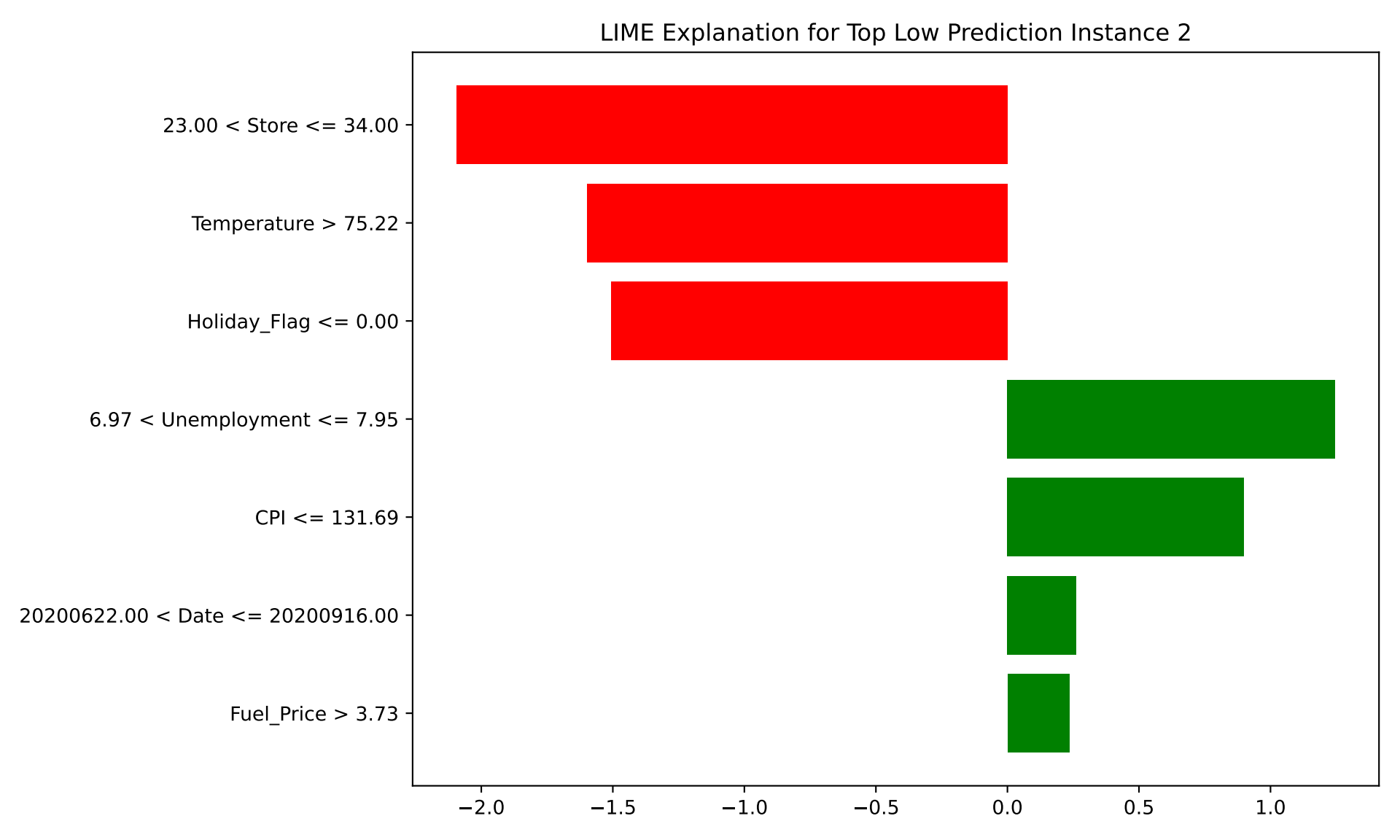

Decision plot - worst decisions
140
145
150
155
160
Store
Date
Unemployment
CPI
Holiday_Flag
Fuel_Price
Temperature
140
145
150
155
160
Model output value

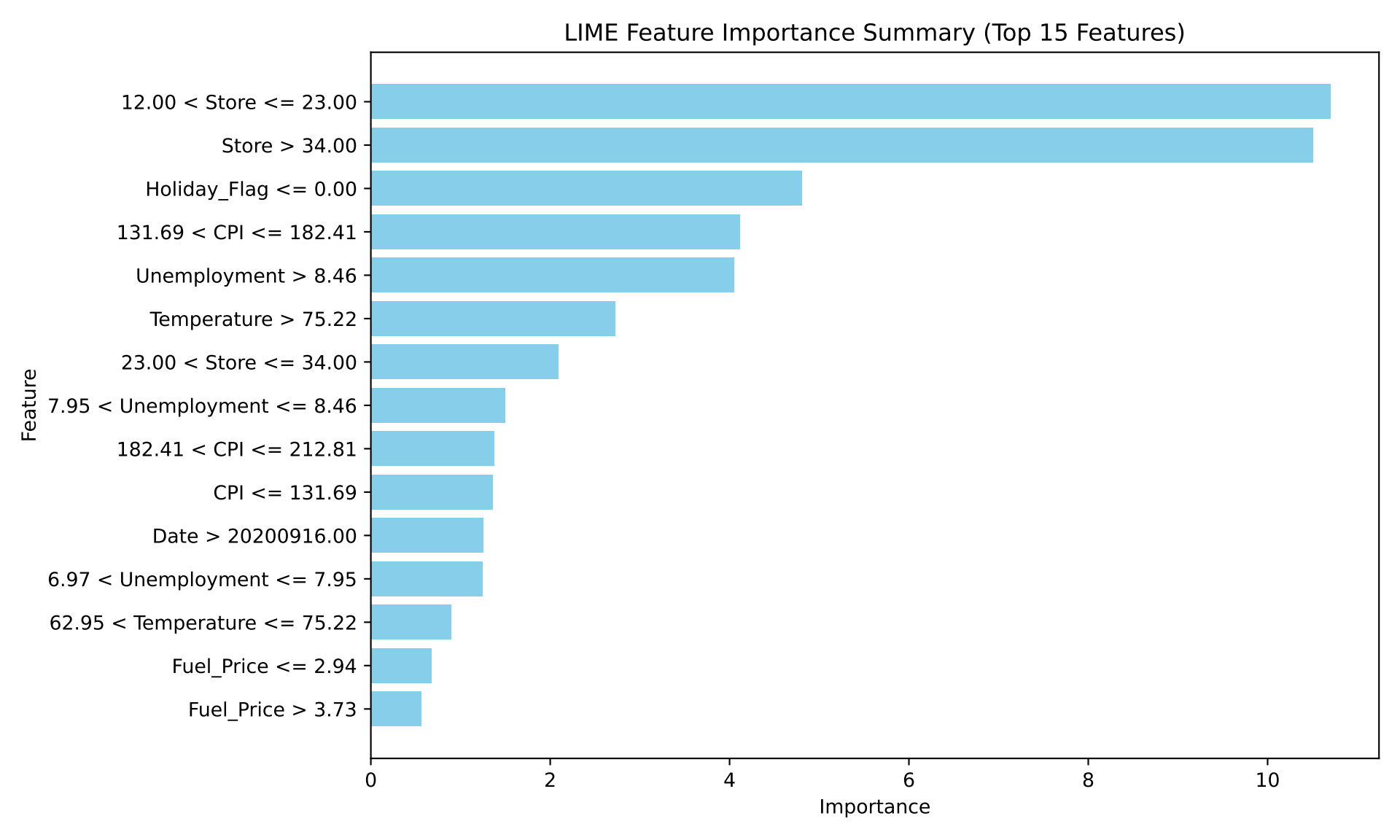

Decision plot - best decisions
142.5
145.0
147.5
150.0
152.5
155.0
157.5
Store
CPI
Unemployment
Temperature
Date
Fuel_Price
Holiday_Flag
142.5
145.0
147.5
150.0
152.5
155.0
157.5
Model output value

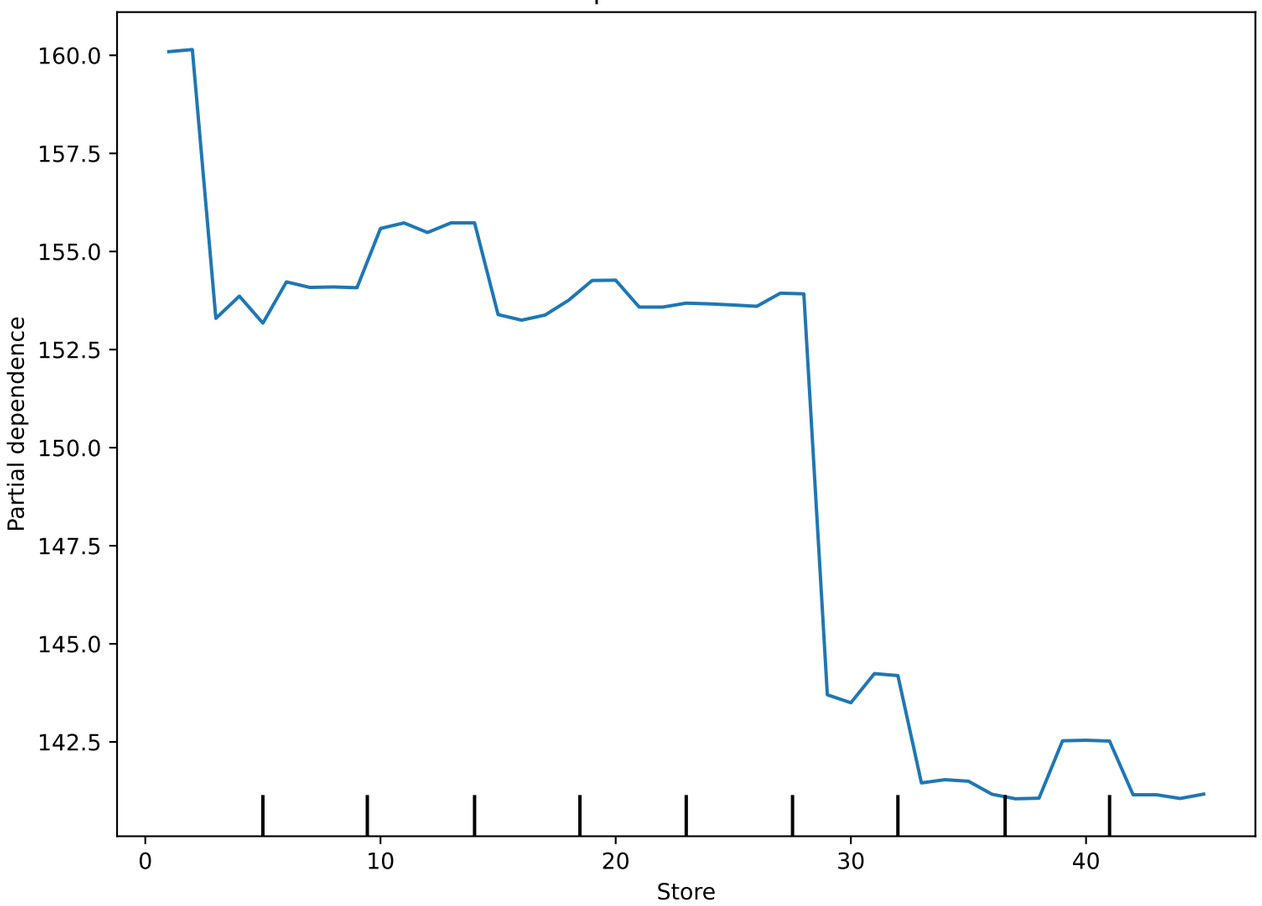

LIME Explanation for Top High Prediction Instance 1
12.00 < Store <= 23.00
131.69 < CPI <= 182.41
Unemployment > 8.46
Holiday_Flag <= 0.00
62.95 < Temperature <= 75.22
Fuel_Price <= 2.94
20200325.00 < Date <= 20200622.00
−2
−1
0
1
2
3
4
5

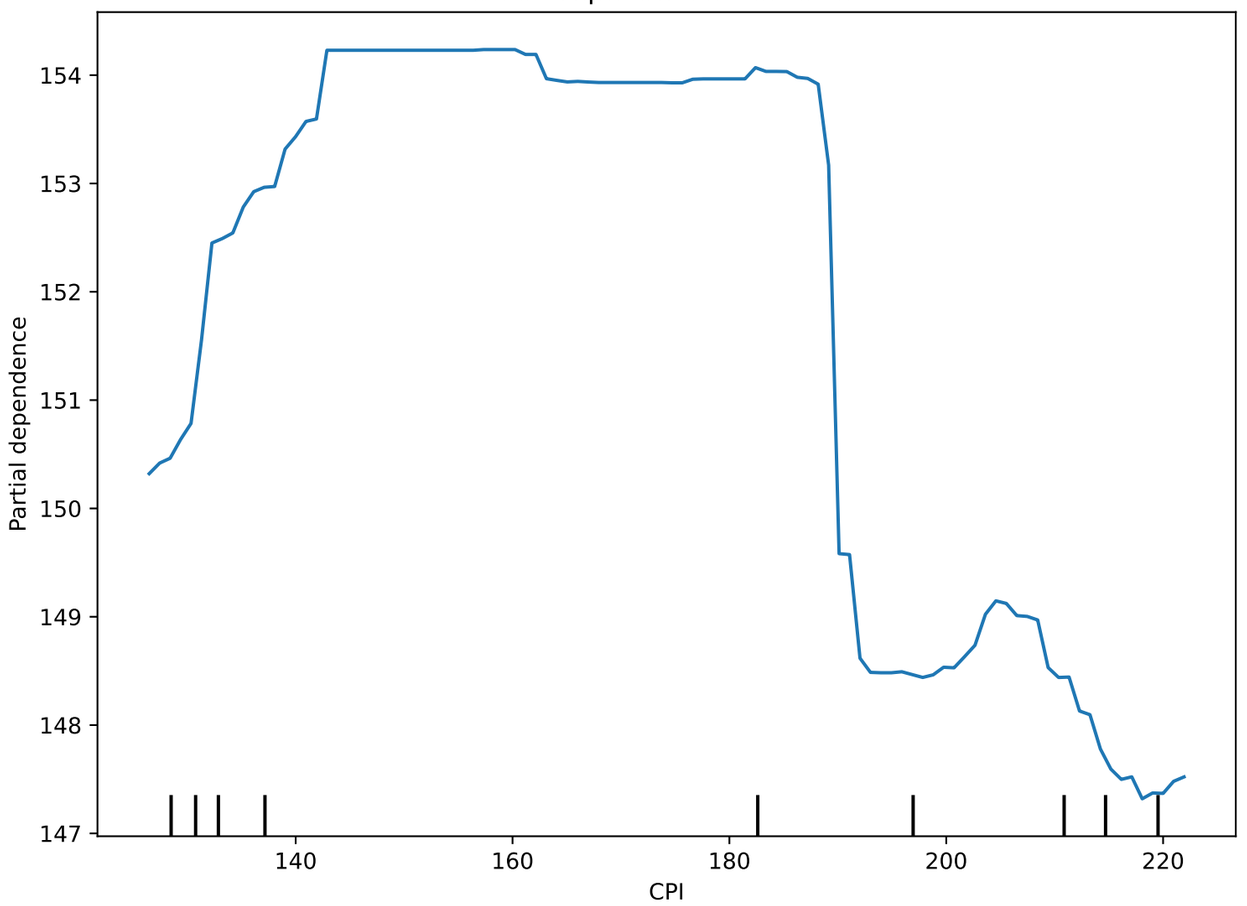

LIME Explanation for Top High Prediction Instance 2
12.00 < Store <= 23.00
Unemployment > 8.46
182.41 < CPI <= 212.81
Date > 20200916.00
Holiday_Flag <= 0.00
Temperature <= 47.66
2.94 < Fuel_Price <= 3.44
−2
−1
0
1
2
3
4
5

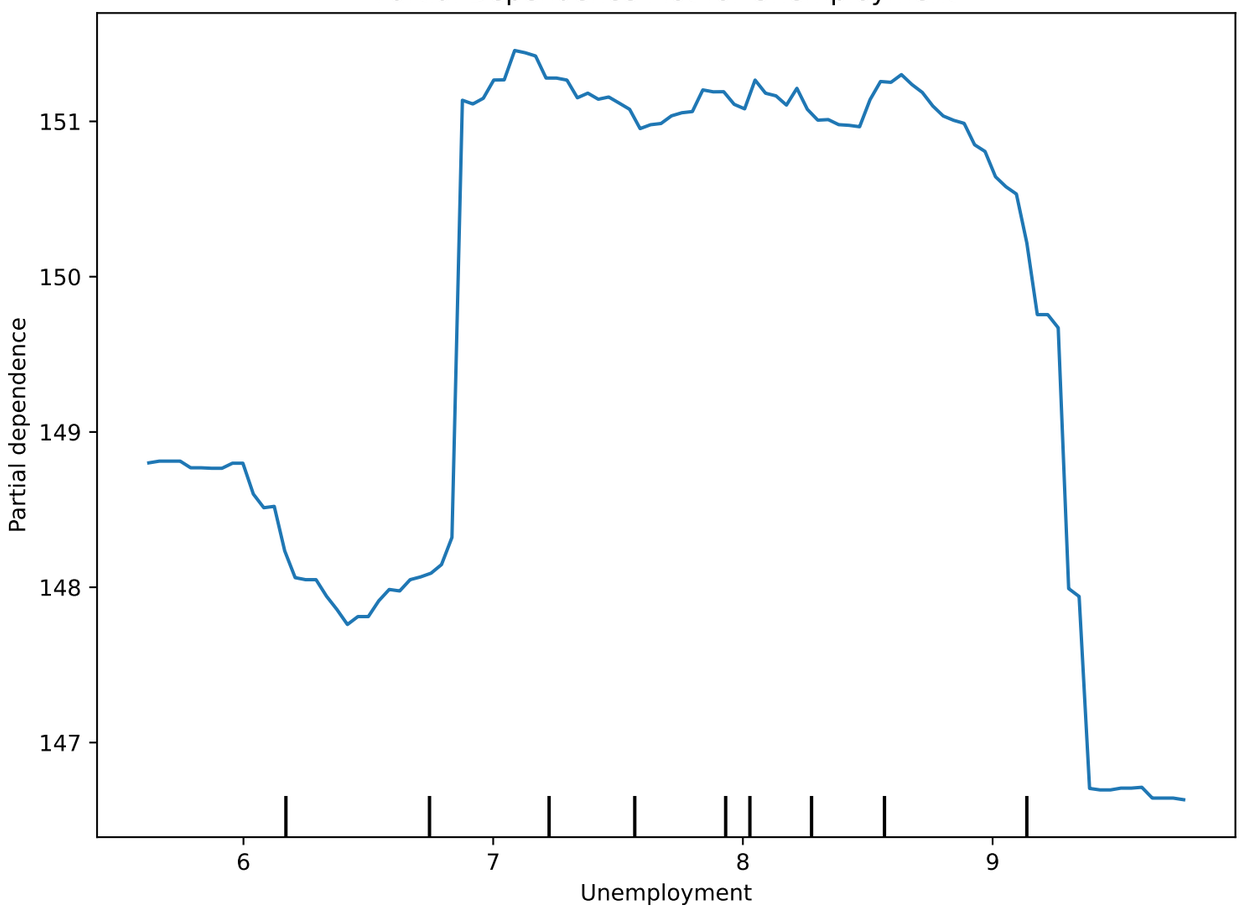

LIME Explanation for Top Low Prediction Instance 1
Store > 34.00
7.95 < Unemployment <= 8.46
Holiday_Flag <= 0.00
Temperature > 75.22
CPI <= 131.69
Fuel_Price > 3.73
20200622.00 < Date <= 20200916.00
−10
−8
−6
−4
−2
0
2

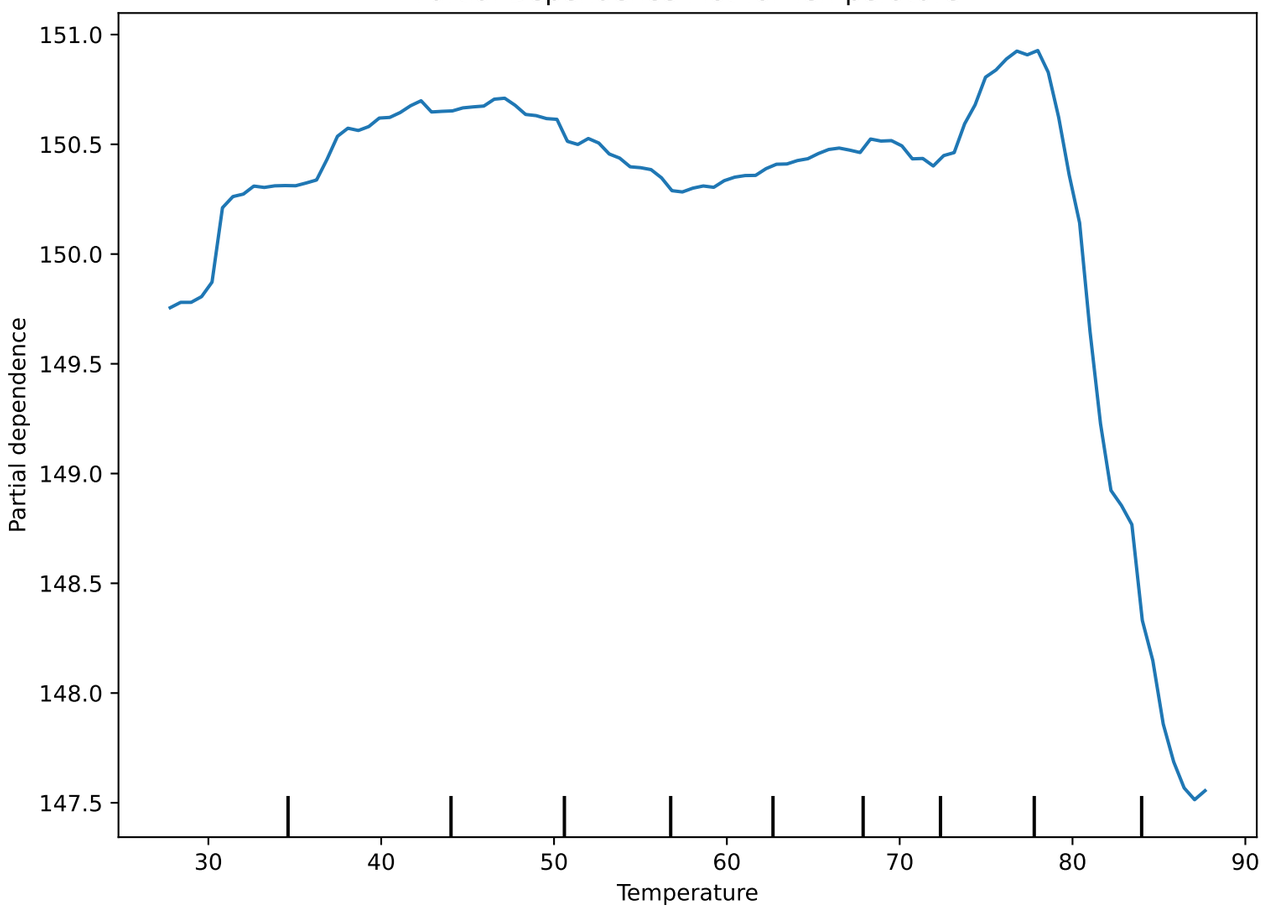

LIME Explanation for Top Low Prediction Instance 2
23.00 < Store <= 34.00
Temperature > 75.22
Holiday_Flag <= 0.00
6.97 < Unemployment <= 7.95
CPI <= 131.69
20200622.00 < Date <= 20200916.00
Fuel_Price > 3.73
−2.0
−1.5
−1.0
−0.5
0.0
0.5
1.0

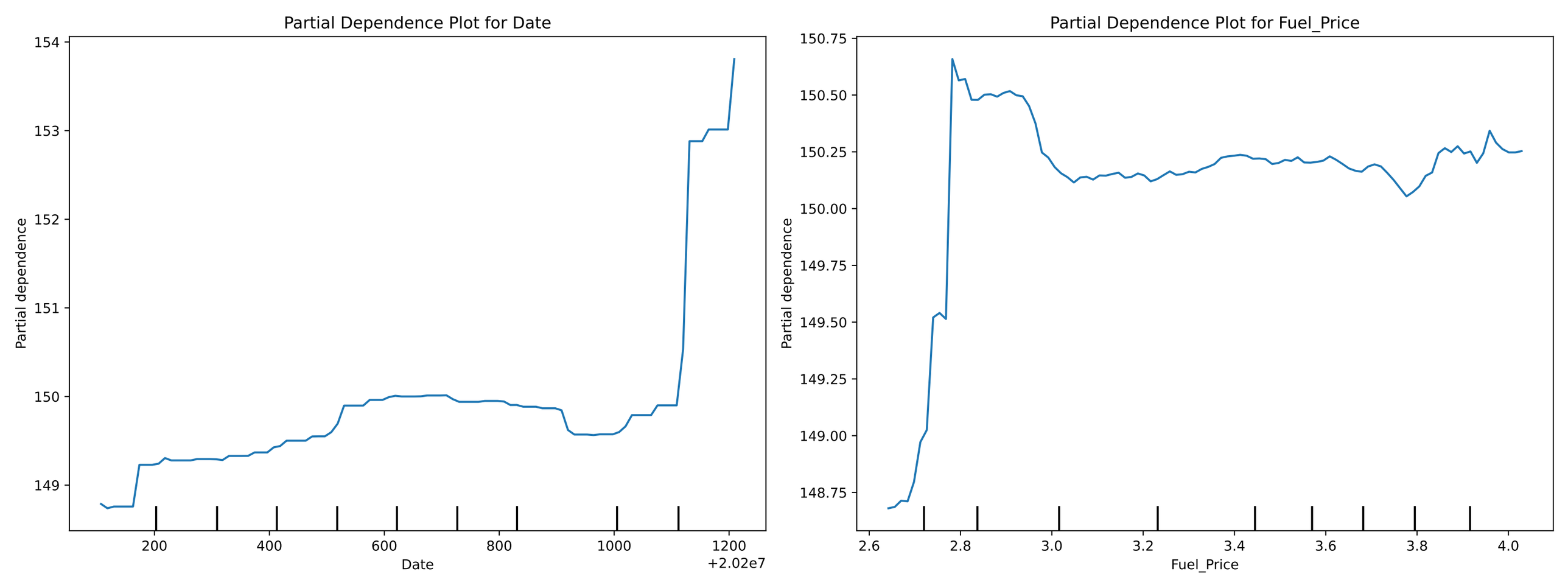

LIME Feature Importance Summary (Top 15 Features)
12.00 < Store <= 23.00
Store > 34.00
Holiday_Flag <= 0.00
131.69 < CPI <= 182.41
Unemployment > 8.46
Temperature > 75.22
23.00 < Store <= 34.00
7.95 < Unemployment <= 8.46
182.41 < CPI <= 212.81
CPI <= 131.69
Date > 20200916.00
6.97 < Unemployment <= 7.95
62.95 < Temperature <= 75.22
Fuel_Price <= 2.94
Fuel_Price > 3.73
Feature
0
2
4
6
8
10
Importance

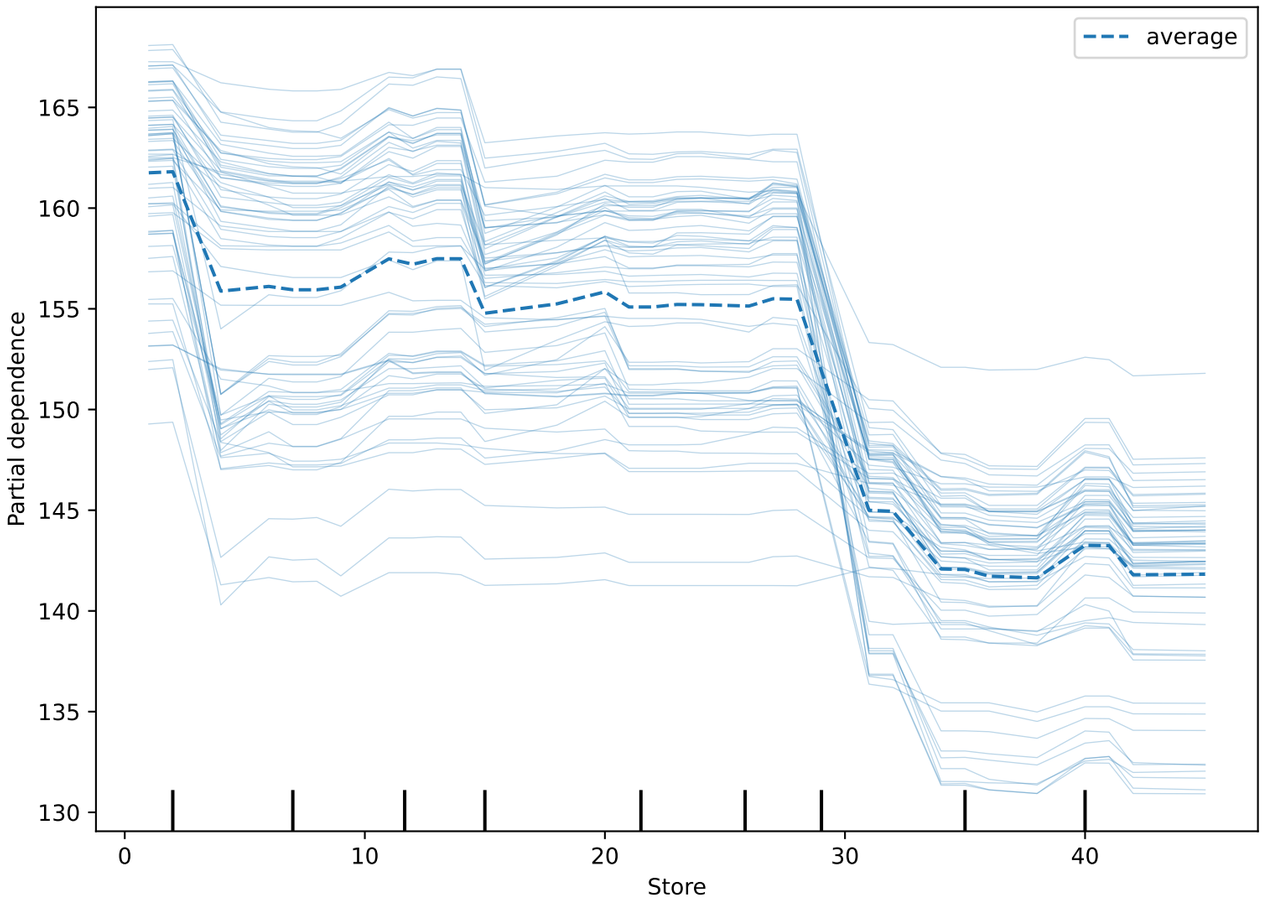

Partial Dependence Plot for Store
Partial dependence
160.0
157.5
155.0
152.5
150.0
147.5
145.0
142.5
0
10
20
30
40
Store

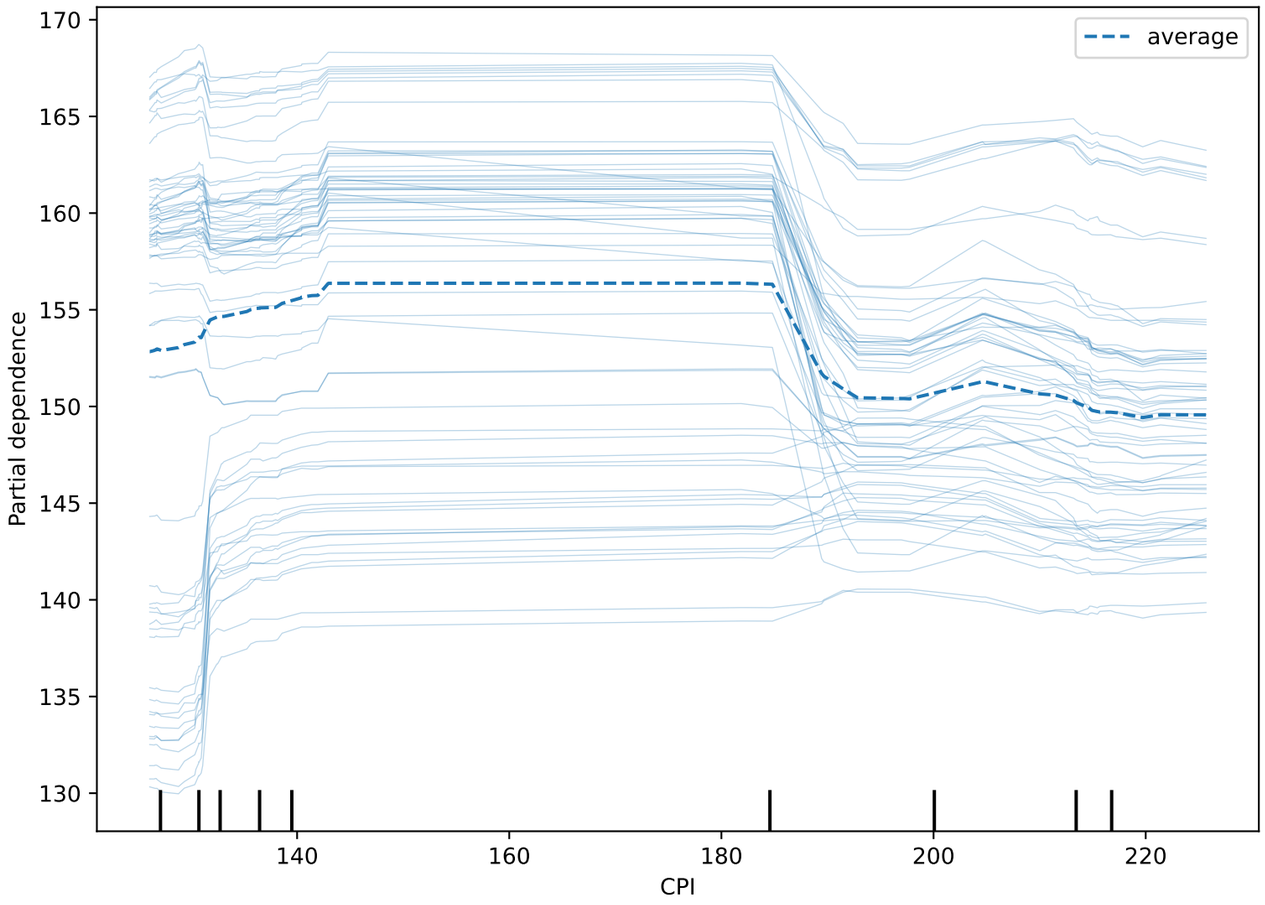

Partial Dependence Plot for CPI
Partial dependence
154
153
152
151
150
149
148
147
140
160
180
200
220
CPI

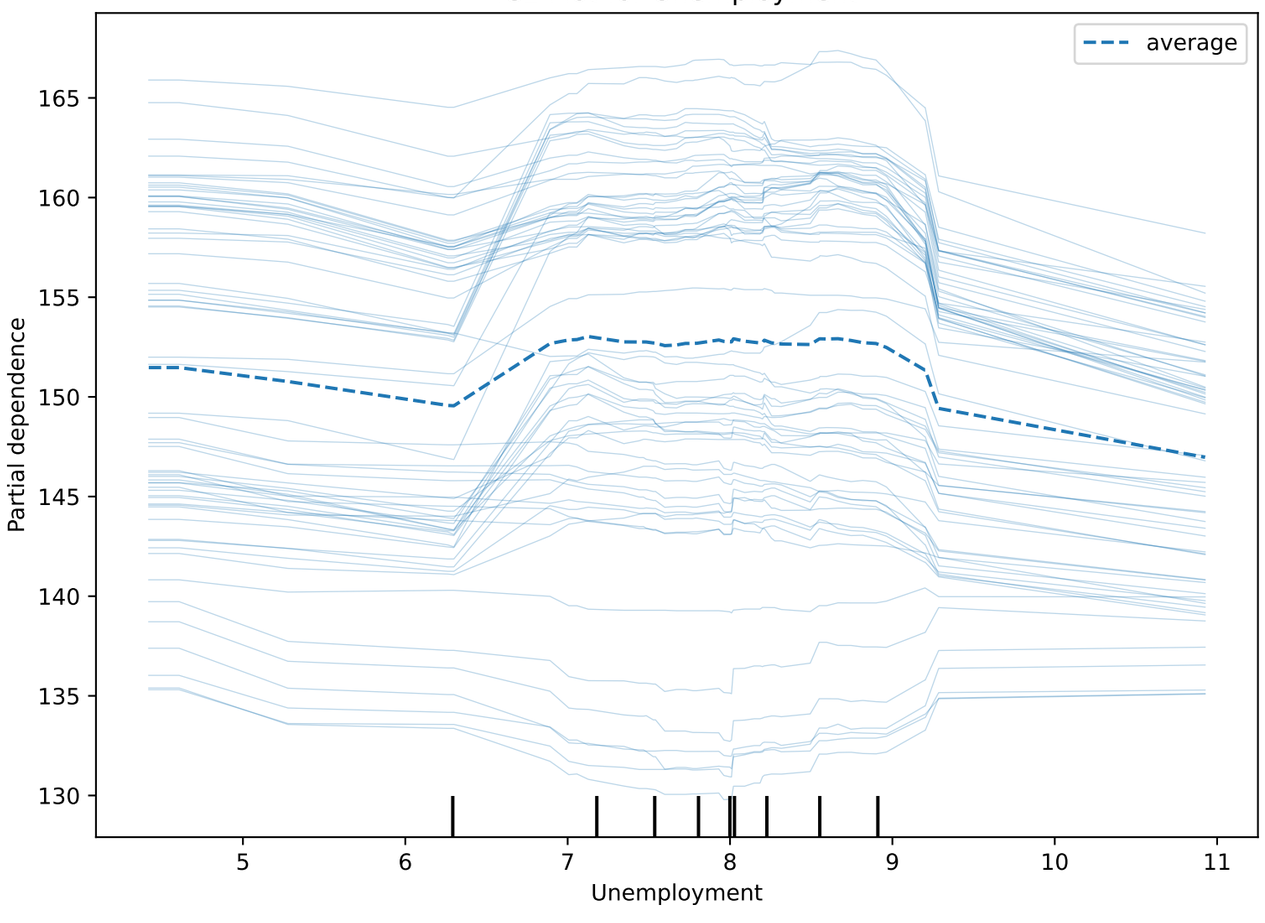

Partial Dependence Plot for Unemployment
Partial dependence
151
150
149
148
147
6
7
8
9
Unemployment

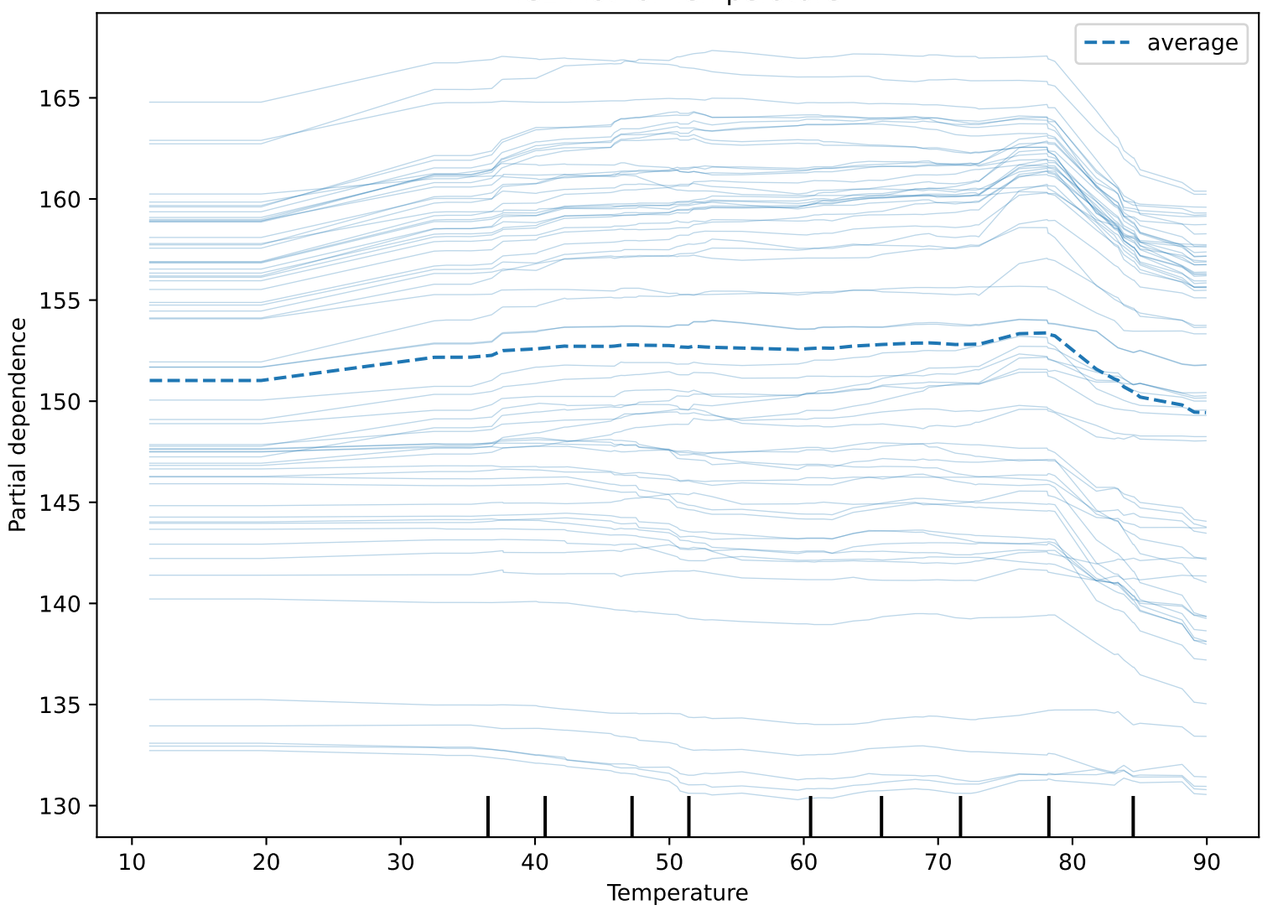

Partial Dependence Plot for Temperature
Partial dependence
151.0
150.5
150.0
149.5
149.0
148.5
148.0
147.5
30
40
50
60
70
80
90
Temperature

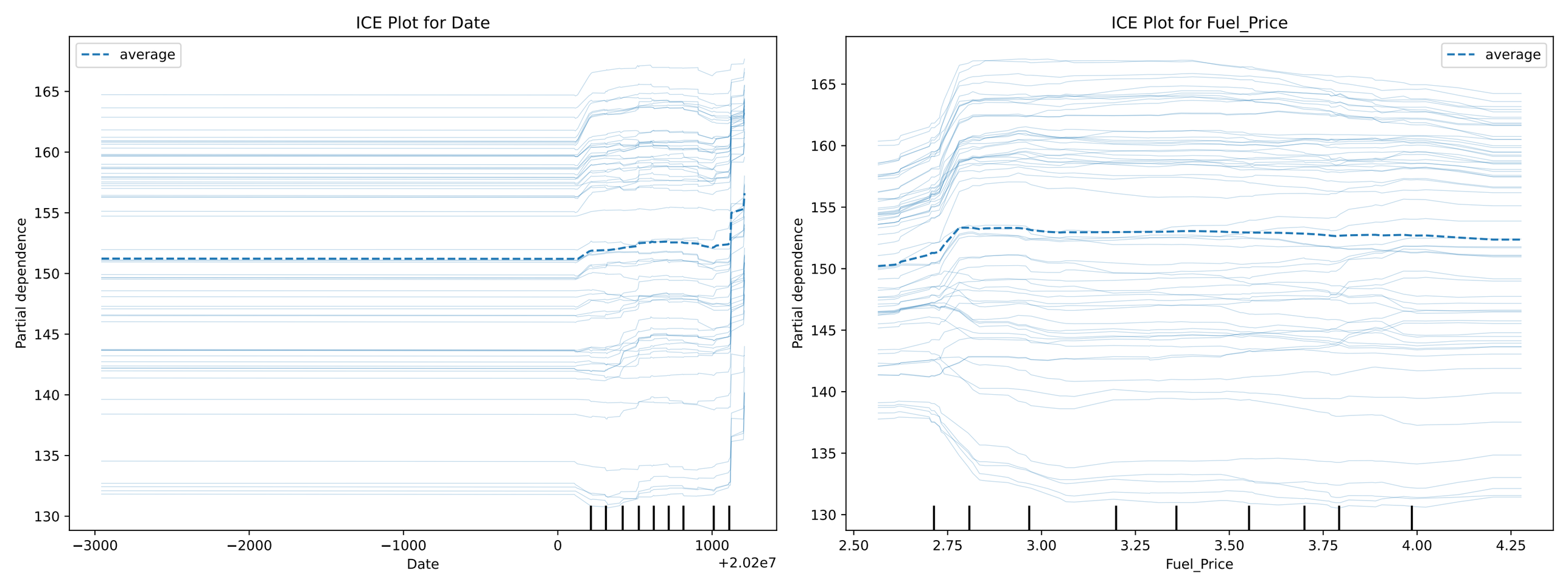

Partial Dependence Plot for Date
Partial dependence
154
153
152
151
150
149
200
400
600
800
1000
1200
Date
+2.02e7
Partial Dependence Plot for Fuel_Price
Partial dependence
150.75
150.50
150.25
150.00
149.75
149.50
149.25
149.00
148.75
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
Fuel_Price


ICE Plot for Store
average
Partial dependence
Store
130
135
140
145
150
155
160
165
0
10
20
30
40


ICE Plot for CPI
average
Partial dependence
CPI
130
135
140
145
150
155
160
165
170
140
160
180
200
220


ICE Plot for Unemployment
average
Partial dependence
Unemployment
130
135
140
145
150
155
160
165
5
6
7
8
9
10
11


ICE Plot for Temperature
average
Partial dependence
Temperature
130
135
140
145
150
155
160
165
10
20
30
40
50
60
70
80
90


ICE Plot for Date
average
Partial dependence
165
160
155
150
145
140
135
130
−3000
−2000
−1000
0
1000
+2.02e7
Date
ICE Plot for Fuel_Price
average
Partial dependence
165
160
155
150
145
140
135
130
2.50
2.75
3.00
3.25
3.50
3.75
4.00
4.25
Fuel_Price