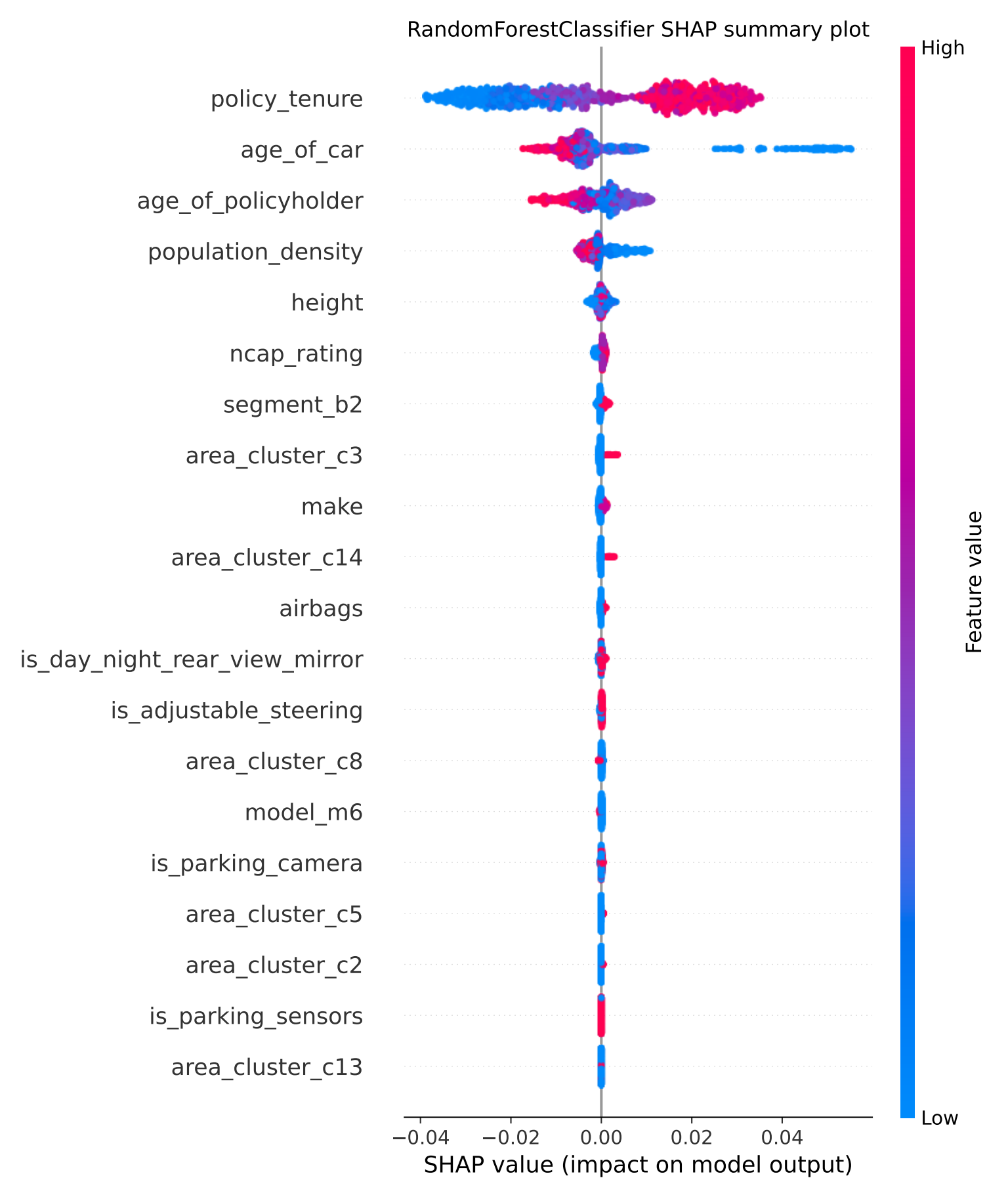
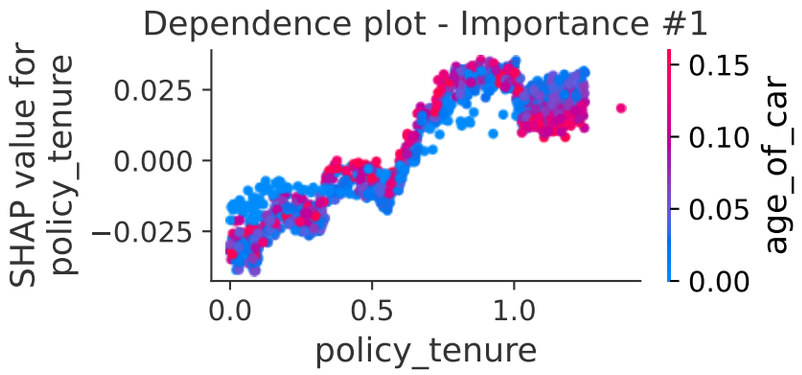
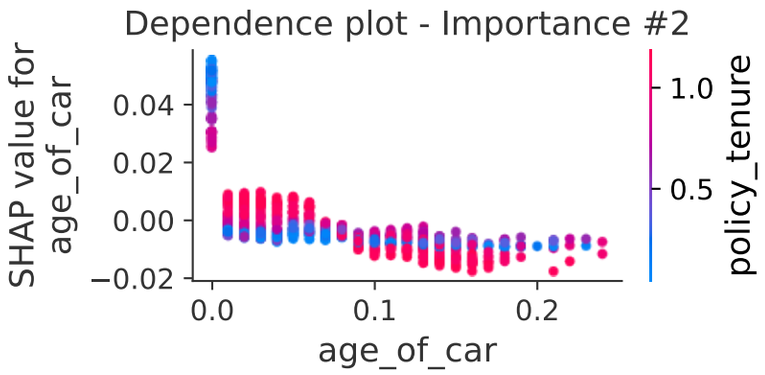
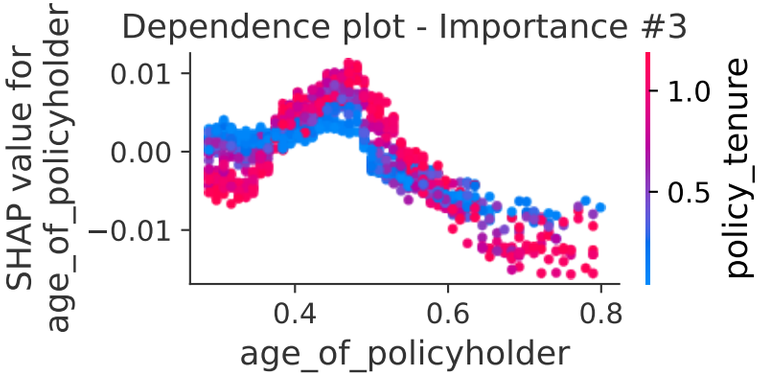
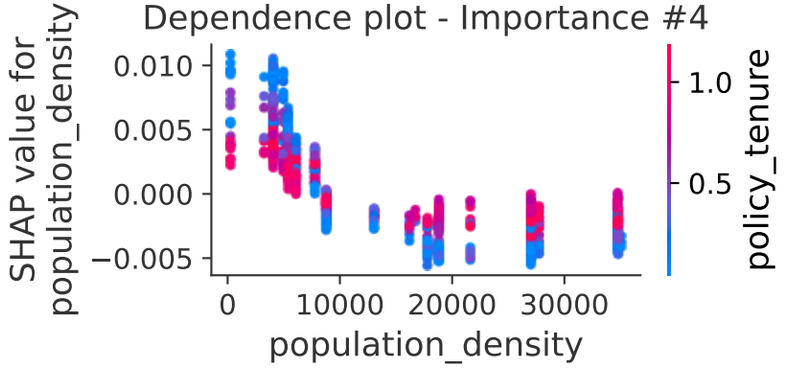
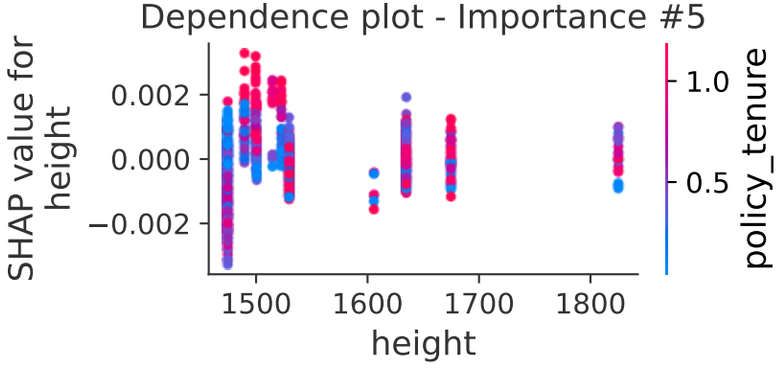

RandomForestClassifier SHAP summary plot
policy_tenure
age_of_car
age_of_policyholder
population_density
height
ncap_rating
segment_b2
area_cluster_c3
make
area_cluster_c14
airbags
is_day_night_rear_view_mirror
is_adjustable_steering
area_cluster_c8
model_m6
is_parking_camera
area_cluster_c5
area_cluster_c2
is_parking_sensors
area_cluster_c13
−0.04
−0.02
0.00
0.02
0.04
SHAP value (impact on model output)
High
Feature value
Low

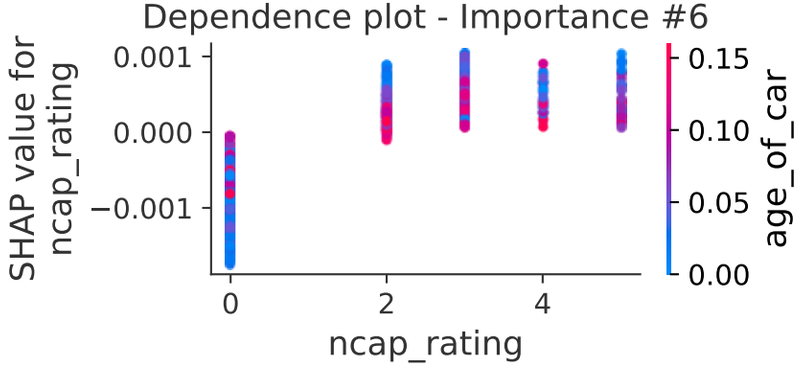

Dependence plot - Importance #1
SHAP value for policy_tenure
0.025
0.000
−0.025
0.0
0.5
1.0
policy_tenure
0.15
0.10
0.05
0.00
age_of_car

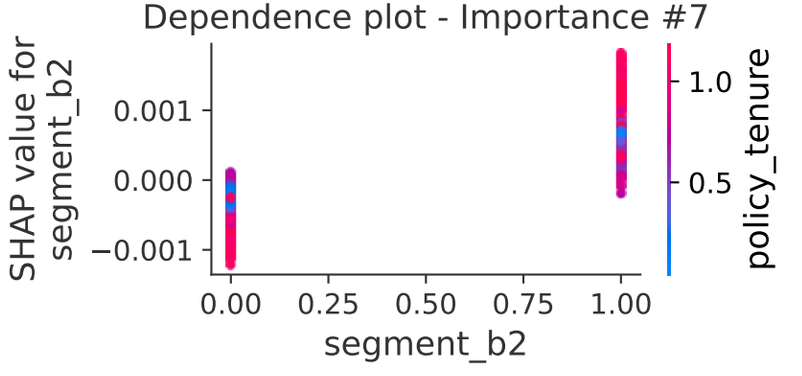

Dependence plot - Importance #2
SHAP value for age_of_car
0.04
0.02
0.00
−0.02
0.0
0.1
0.2
age_of_car
1.0
0.5
policy_tenure


Dependence plot - Importance #3
SHAP value for age_of_policyholder
0.01
0.00
−0.01
0.4
0.6
0.8
age_of_policyholder
1.0
0.5
policy_tenure

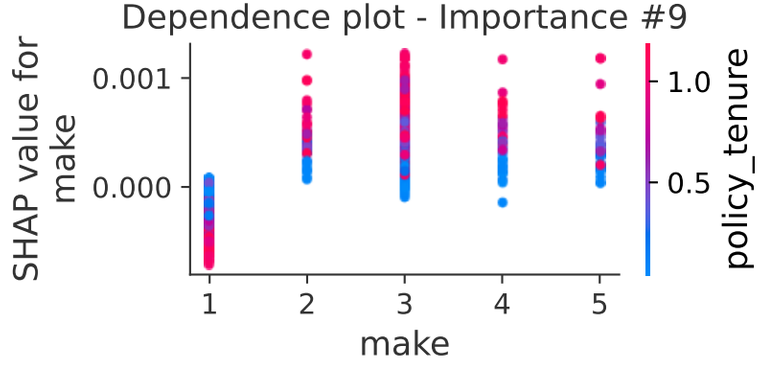

Dependence plot - Importance #4
SHAP value for population_density
0.010
0.005
0.000
−0.005
0
10000
20000
30000
population_density
1.0
0.5
policy_tenure

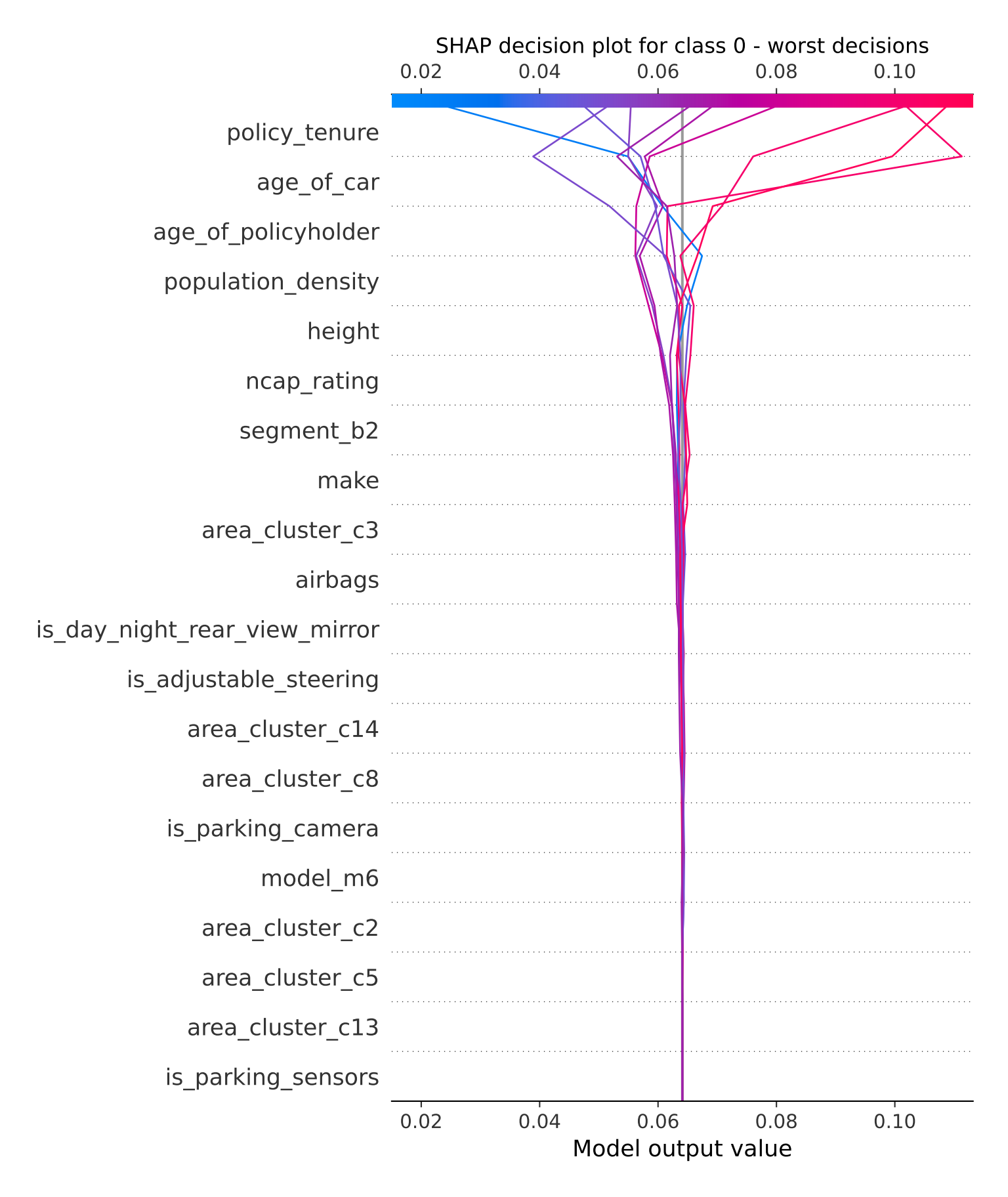

Dependence plot - Importance #5
SHAP value for height
0.002
0.000
−0.002
1500
1600
1700
1800
height
1.0
0.5
policy_tenure

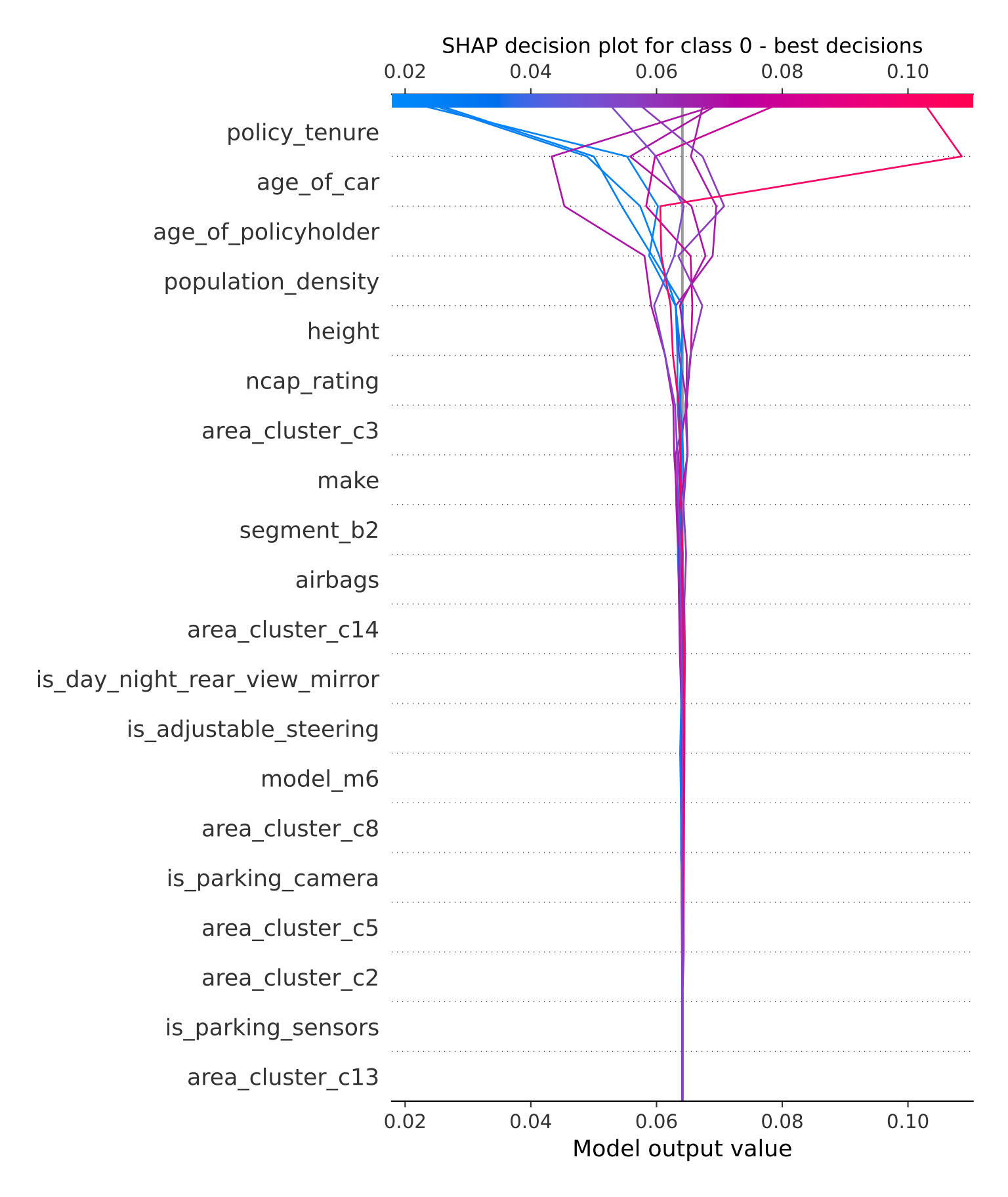

Dependence plot - Importance #6
SHAP value for ncap_rating
0.001
0.000
−0.001
0
2
4
ncap_rating
0.15
0.10
0.05
0.00
age_of_car

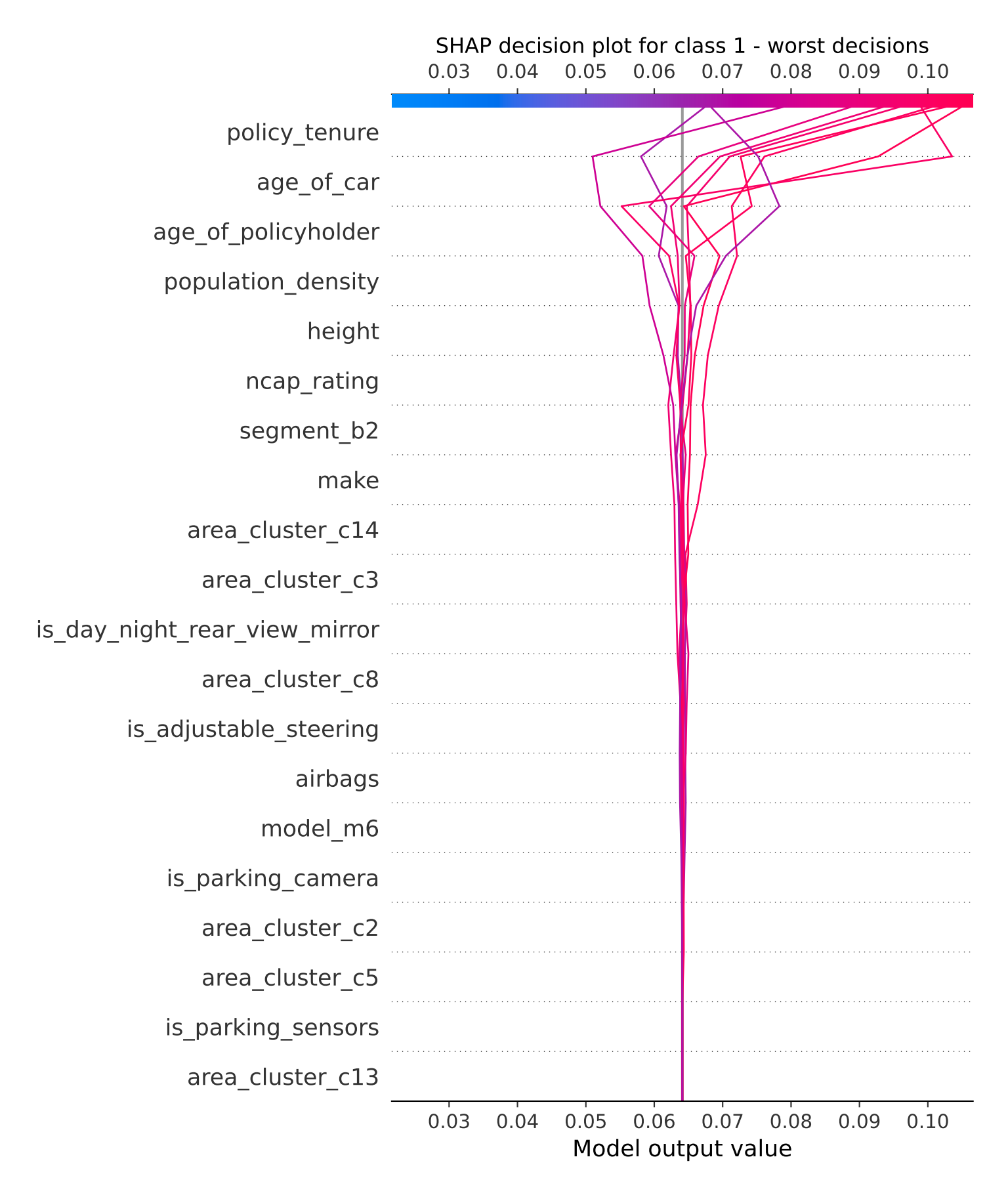

Dependence plot - Importance #7
SHAP value for segment_b2
0.001
0.000
−0.001
0.00
0.25
0.50
0.75
1.00
segment_b2
1.0
0.5
policy_tenure

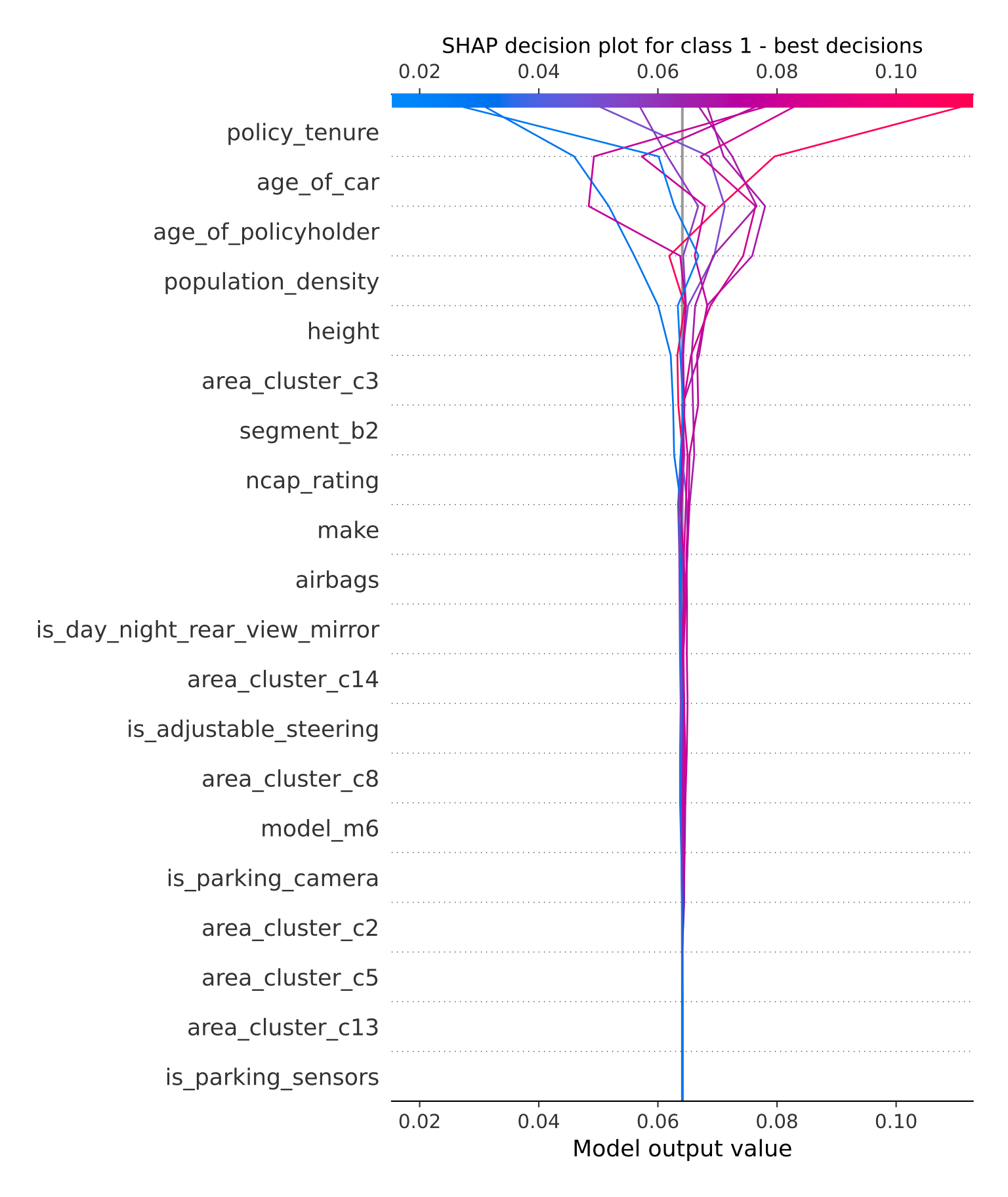
Dependence plot - Importance #8
SHAP value for area_cluster_c3
0.002
0.000
0.00
0.25
0.50
0.75
1.00
area_cluster_c3
1.0
0.5
policy_tenure

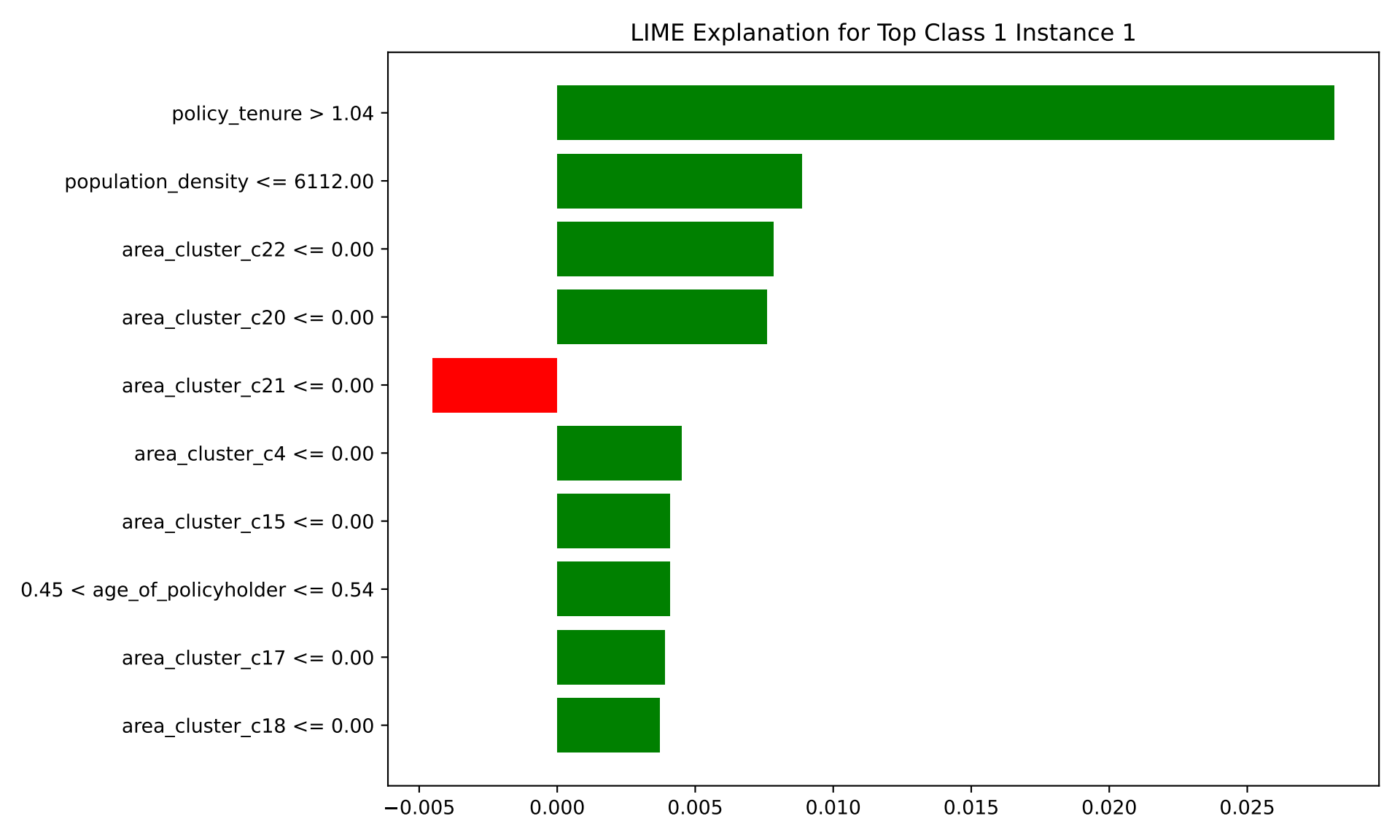

Dependence plot - Importance #9
SHAP value for make
0.001
0.000
1
2
3
4
5
make
1.0
0.5
policy_tenure

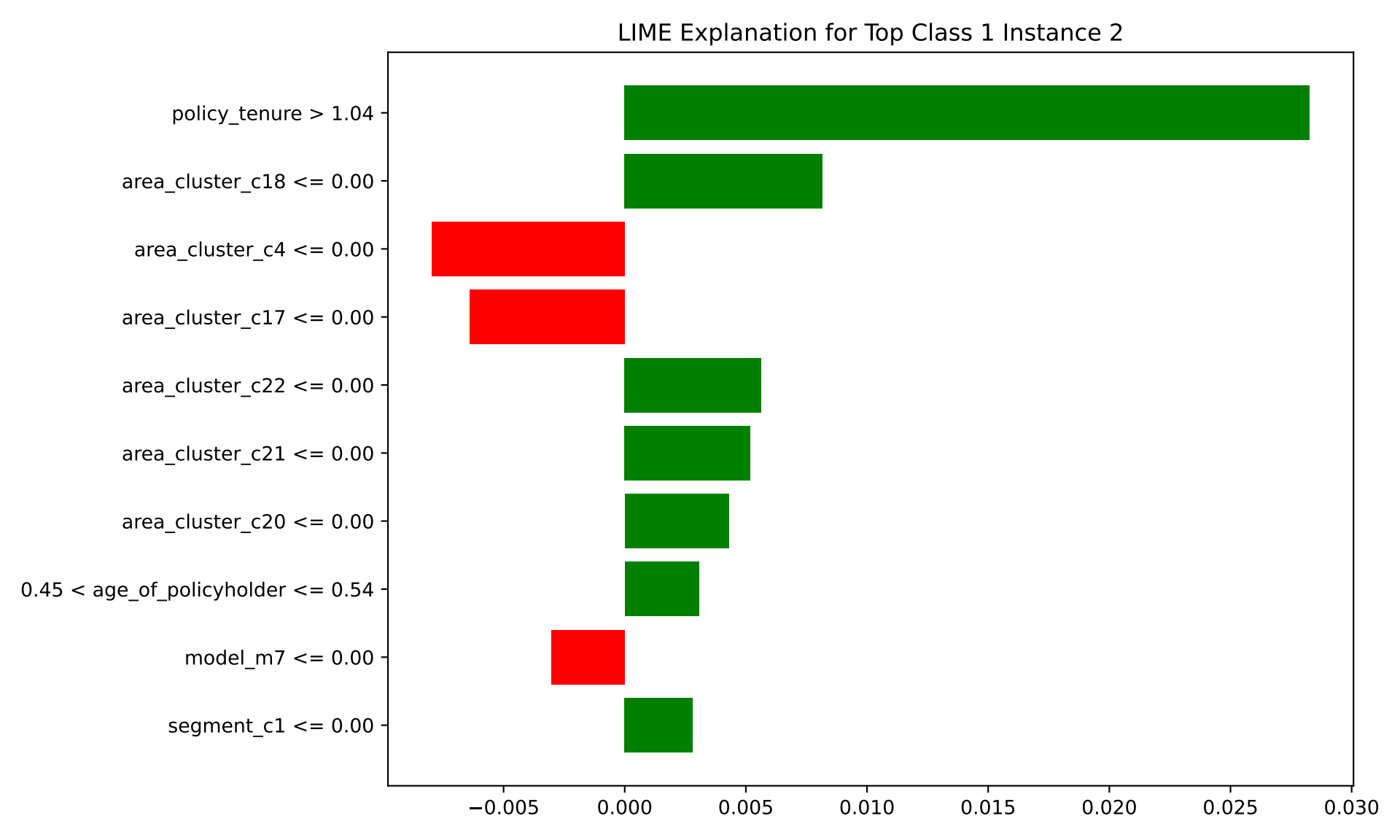

SHAP decision plot for class 0 - worst decisions
0.02
0.04
0.06
0.08
0.10
policy_tenure
age_of_car
age_of_policyholder
population_density
height
ncap_rating
segment_b2
make
area_cluster_c3
airbags
is_day_night_rear_view_mirror
is_adjustable_steering
area_cluster_c14
area_cluster_c8
is_parking_camera
model_m6
area_cluster_c2
area_cluster_c5
area_cluster_c13
is_parking_sensors
0.02
0.04
0.06
0.08
0.10
Model output value

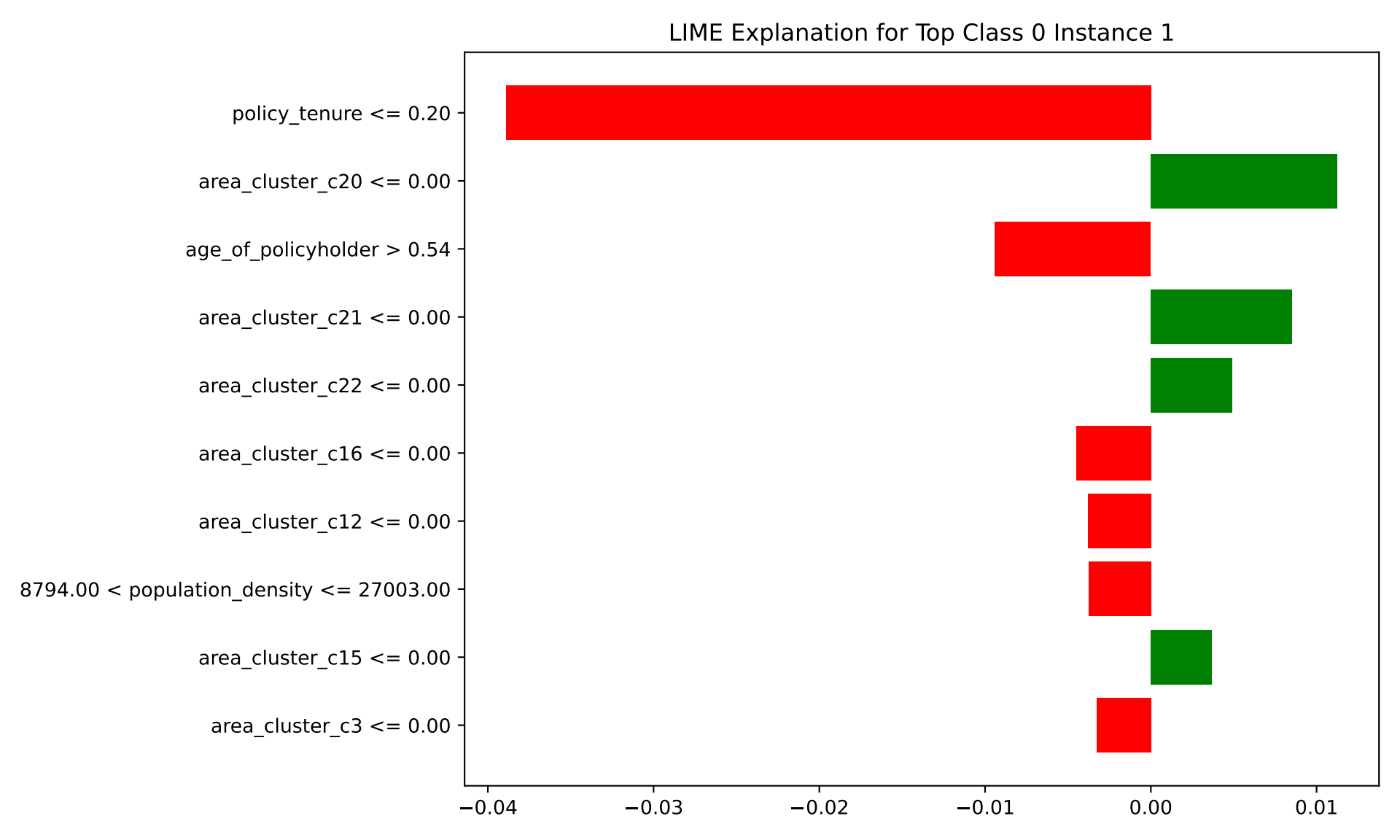

SHAP decision plot for class 0 - best decisions
0.02
0.04
0.06
0.08
0.10
policy_tenure
age_of_car
age_of_policyholder
population_density
height
ncap_rating
area_cluster_c3
make
segment_b2
airbags
area_cluster_c14
is_day_night_rear_view_mirror
is_adjustable_steering
model_m6
area_cluster_c8
is_parking_camera
area_cluster_c5
area_cluster_c2
is_parking_sensors
area_cluster_c13
0.02
0.04
0.06
0.08
0.10
Model output value

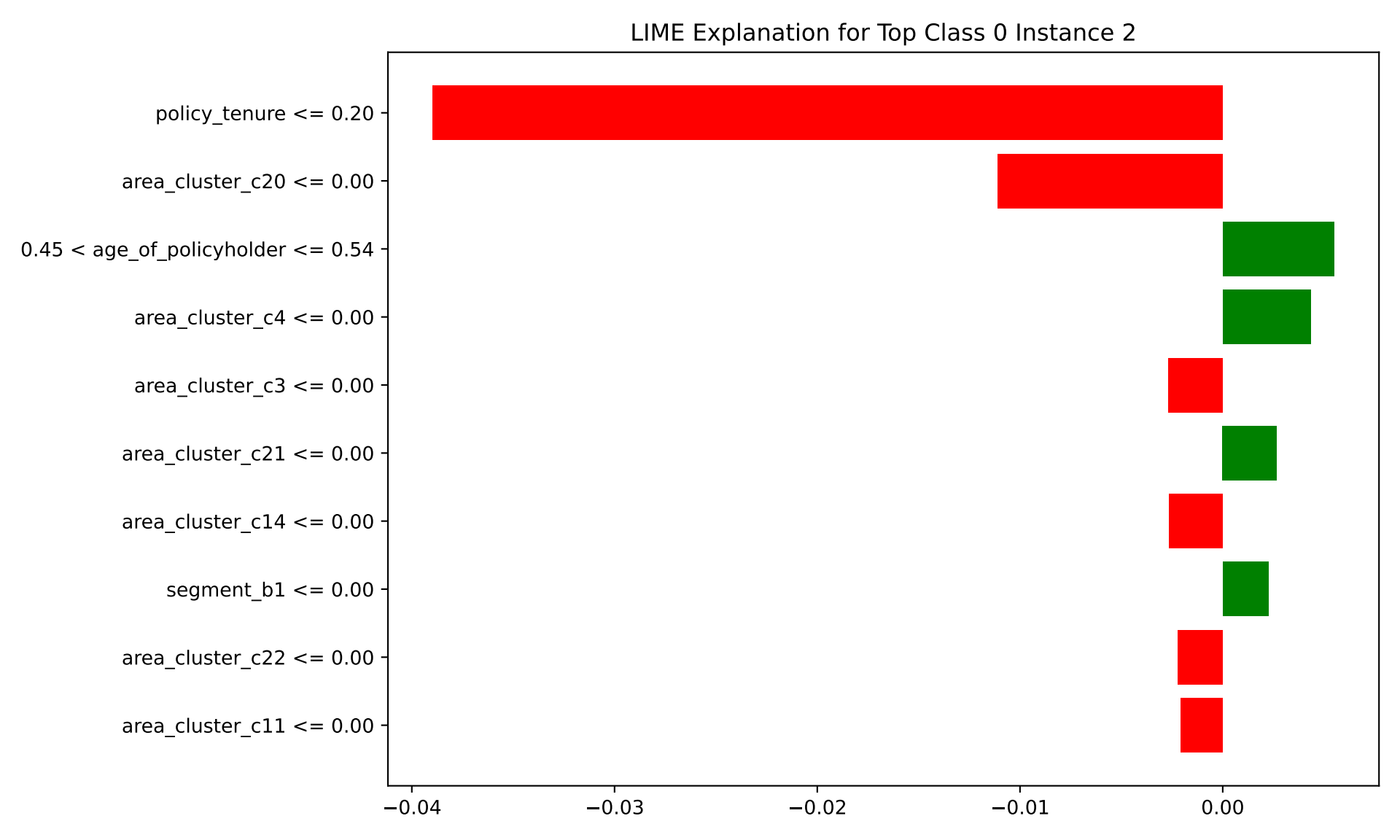

SHAP decision plot for class 1 - worst decisions
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.10
policy_tenure
age_of_car
age_of_policyholder
population_density
height
ncap_rating
segment_b2
make
area_cluster_c14
area_cluster_c3
is_day_night_rear_view_mirror
area_cluster_c8
is_adjustable_steering
airbags
model_m6
is_parking_camera
area_cluster_c2
area_cluster_c5
is_parking_sensors
area_cluster_c13
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.10
Model output value

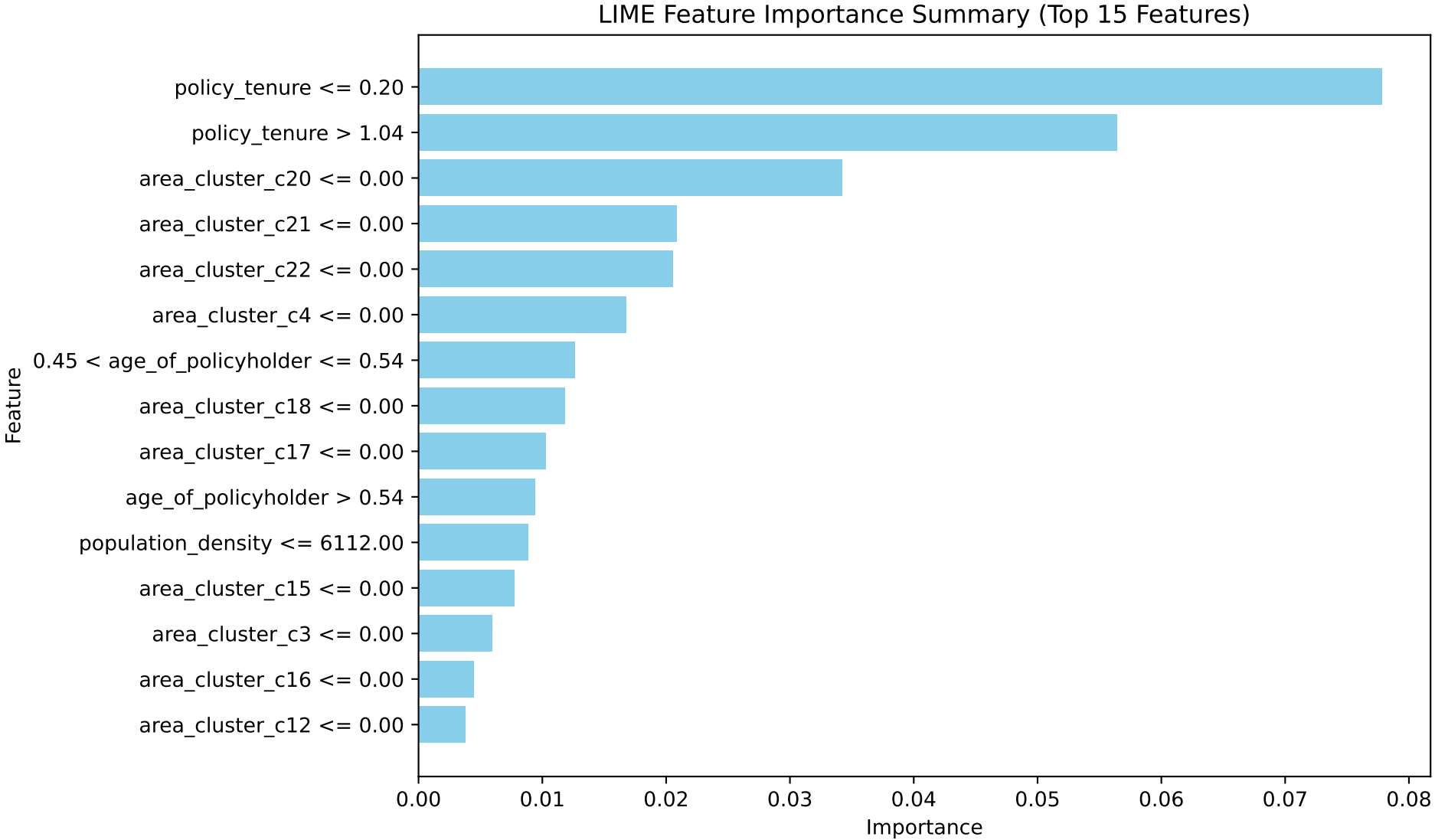

SHAP decision plot for class 1 - best decisions
0.02
0.04
0.06
0.08
0.10
policy_tenure
age_of_car
age_of_policyholder
population_density
height
area_cluster_c3
segment_b2
ncap_rating
make
airbags
is_day_night_rear_view_mirror
area_cluster_c14
is_adjustable_steering
area_cluster_c8
model_m6
is_parking_camera
area_cluster_c2
area_cluster_c5
area_cluster_c13
is_parking_sensors
0.02
0.04
0.06
0.08
0.10
Model output value

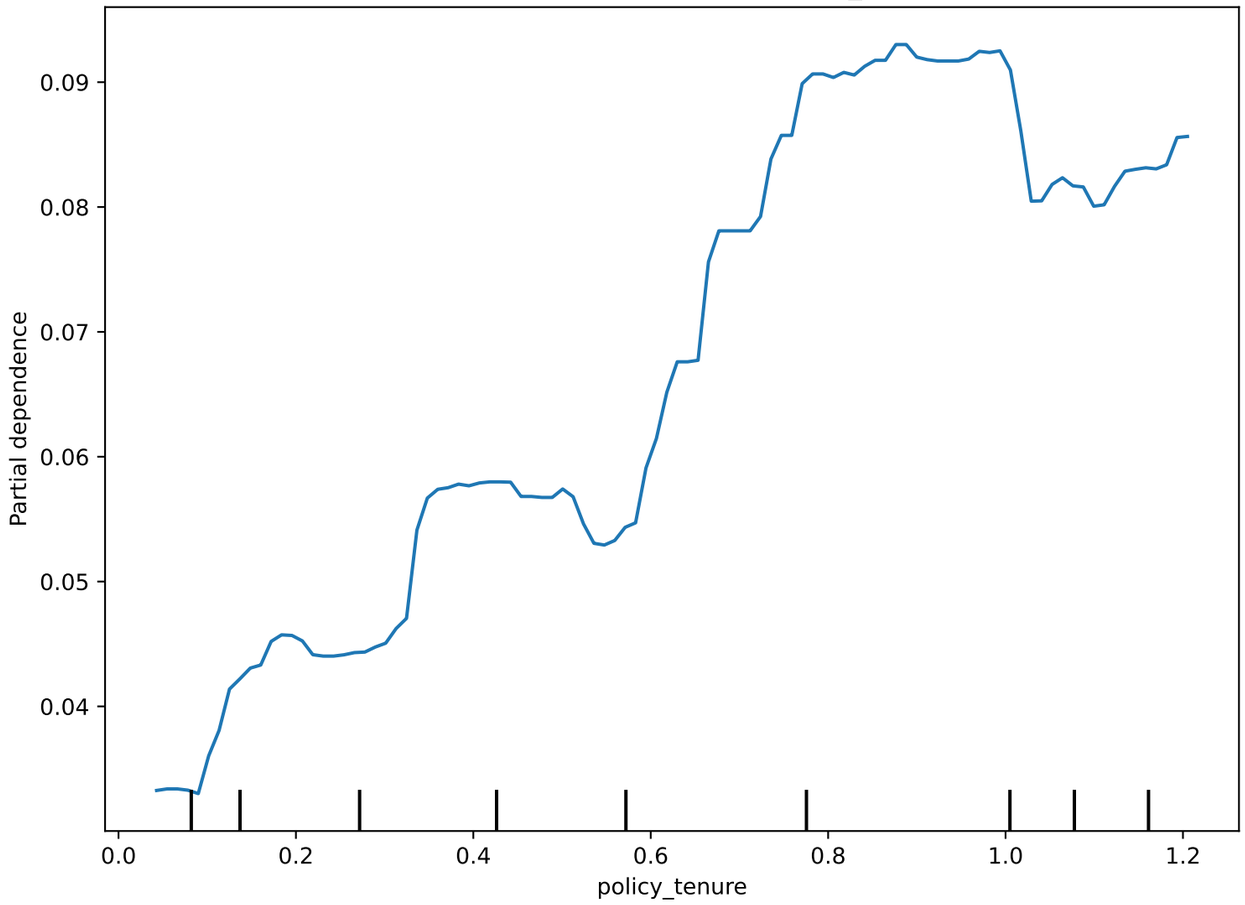

LIME Explanation for Top Class 1 Instance 1
policy_tenure > 1.04
population_density <= 6112.00
area_cluster_c22 <= 0.00
area_cluster_c20 <= 0.00
area_cluster_c21 <= 0.00
area_cluster_c4 <= 0.00
area_cluster_c15 <= 0.00
0.45 < age_of_policyholder <= 0.54
area_cluster_c17 <= 0.00
area_cluster_c18 <= 0.00
−0.005
0.000
0.005
0.010
0.015
0.020
0.025

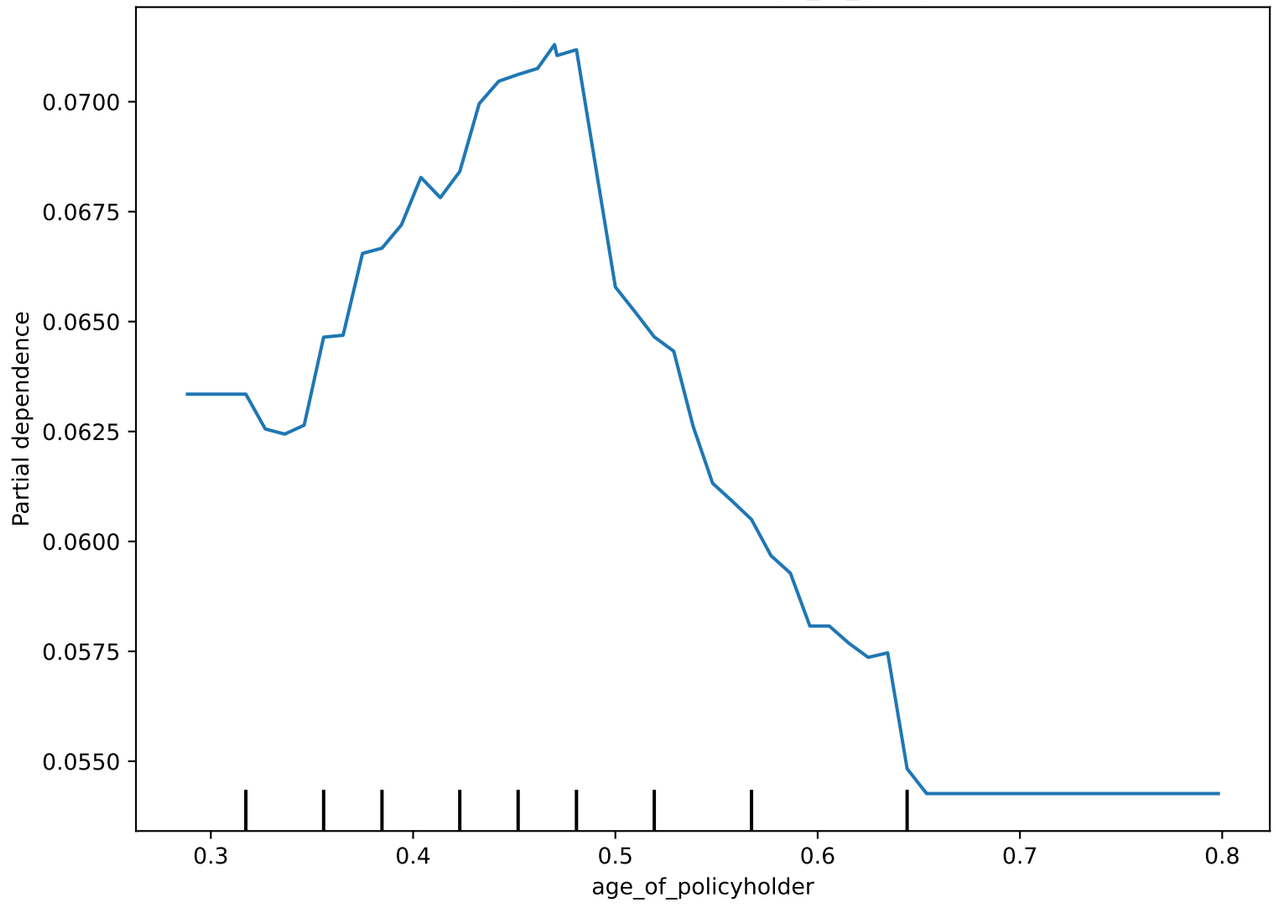

LIME Explanation for Top Class 1 Instance 2
policy_tenure > 1.04
area_cluster_c18 <= 0.00
area_cluster_c4 <= 0.00
area_cluster_c17 <= 0.00
area_cluster_c22 <= 0.00
area_cluster_c21 <= 0.00
area_cluster_c20 <= 0.00
0.45 < age_of_policyholder <= 0.54
model_m7 <= 0.00
segment_c1 <= 0.00
−0.005
0.000
0.005
0.010
0.015
0.020
0.025
0.030

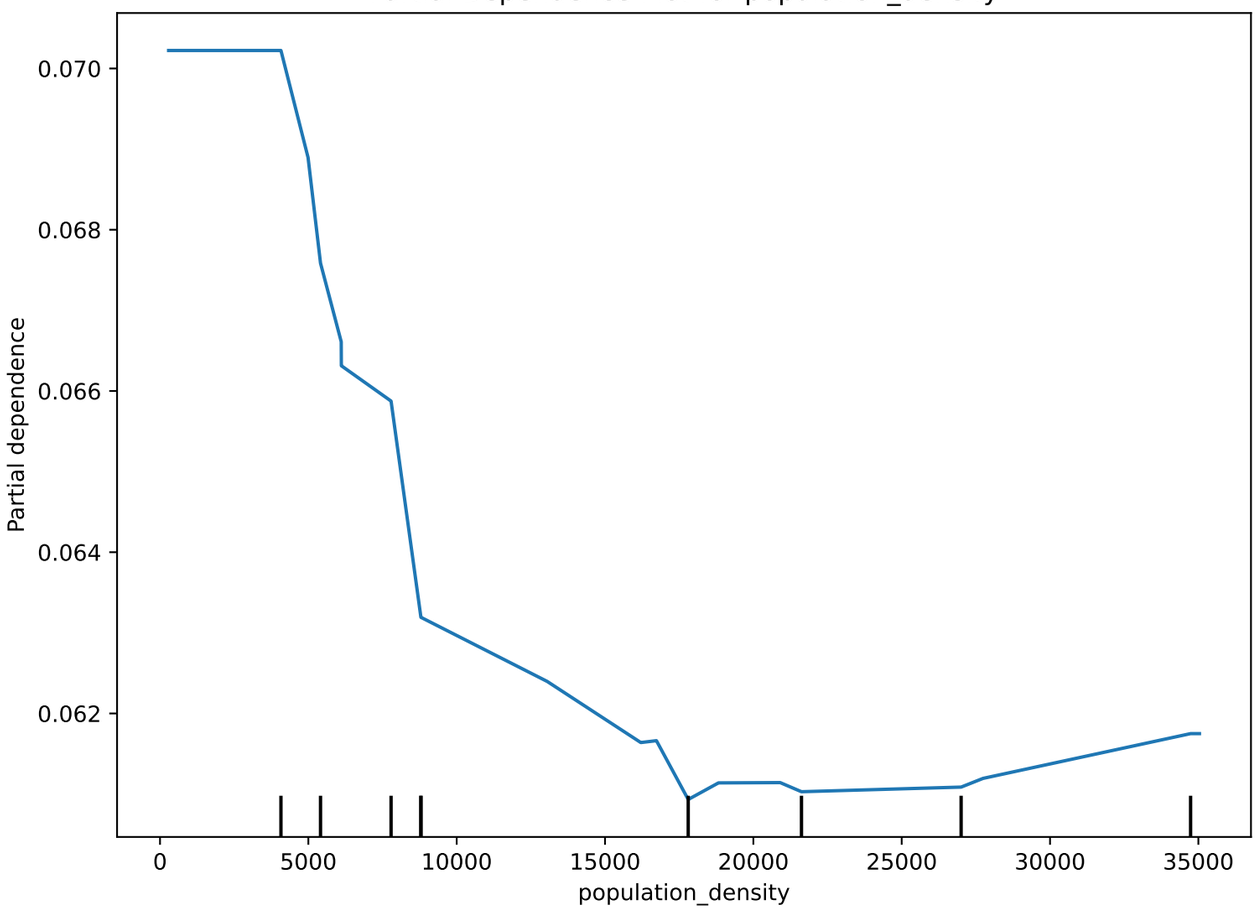

LIME Explanation for Top Class 0 Instance 1
policy_tenure <= 0.20
area_cluster_c20 <= 0.00
age_of_policyholder > 0.54
area_cluster_c21 <= 0.00
area_cluster_c22 <= 0.00
area_cluster_c16 <= 0.00
area_cluster_c12 <= 0.00
8794.00 < population_density <= 27003.00
area_cluster_c15 <= 0.00
area_cluster_c3 <= 0.00
−0.04
−0.03
−0.02
−0.01
0.00
0.01

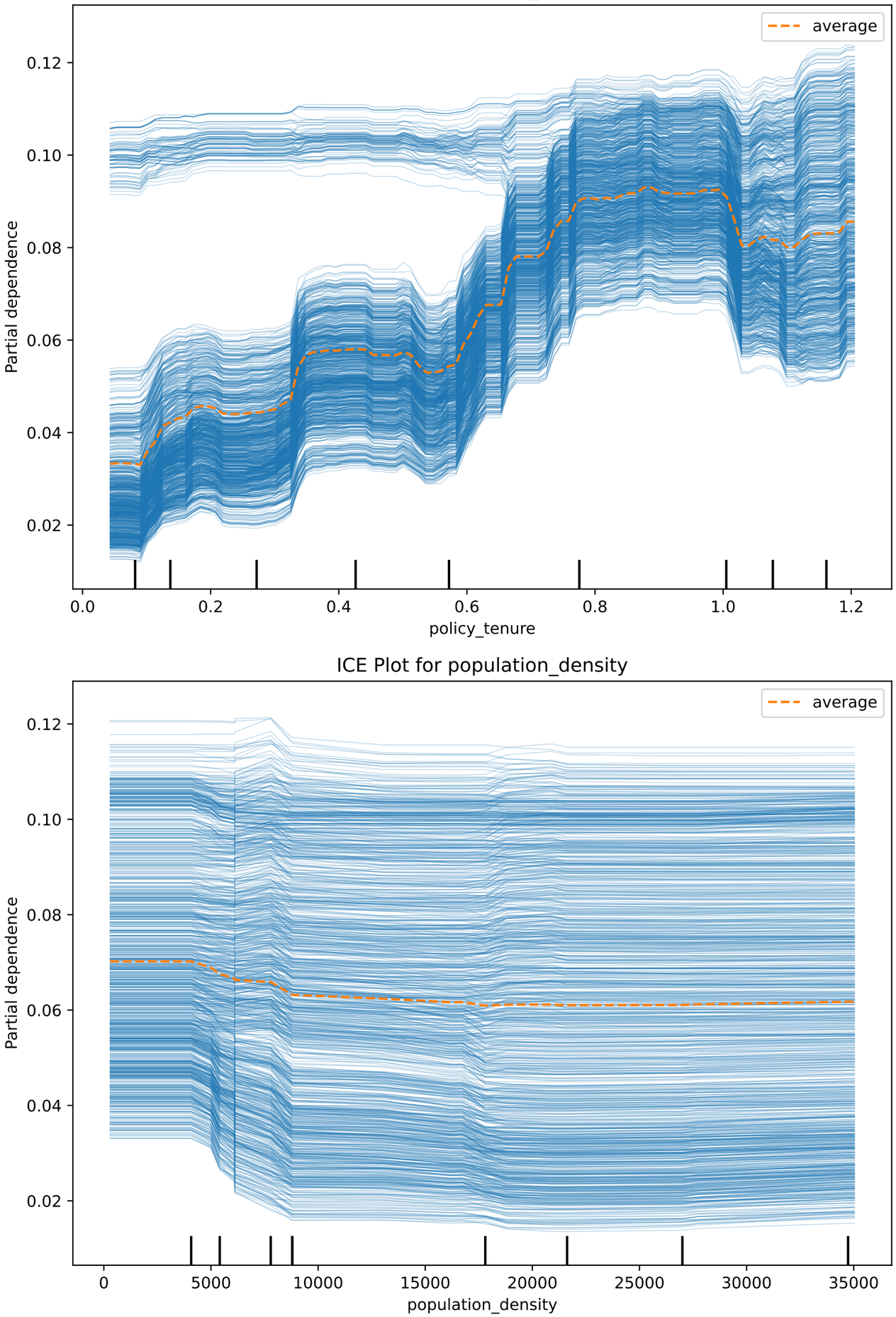

LIME Explanation for Top Class 0 Instance 2
policy_tenure <= 0.20
area_cluster_c20 <= 0.00
0.45 < age_of_policyholder <= 0.54
area_cluster_c4 <= 0.00
area_cluster_c3 <= 0.00
area_cluster_c21 <= 0.00
area_cluster_c14 <= 0.00
segment_b1 <= 0.00
area_cluster_c22 <= 0.00
area_cluster_c11 <= 0.00
−0.04
−0.03
−0.02
−0.01
0.00

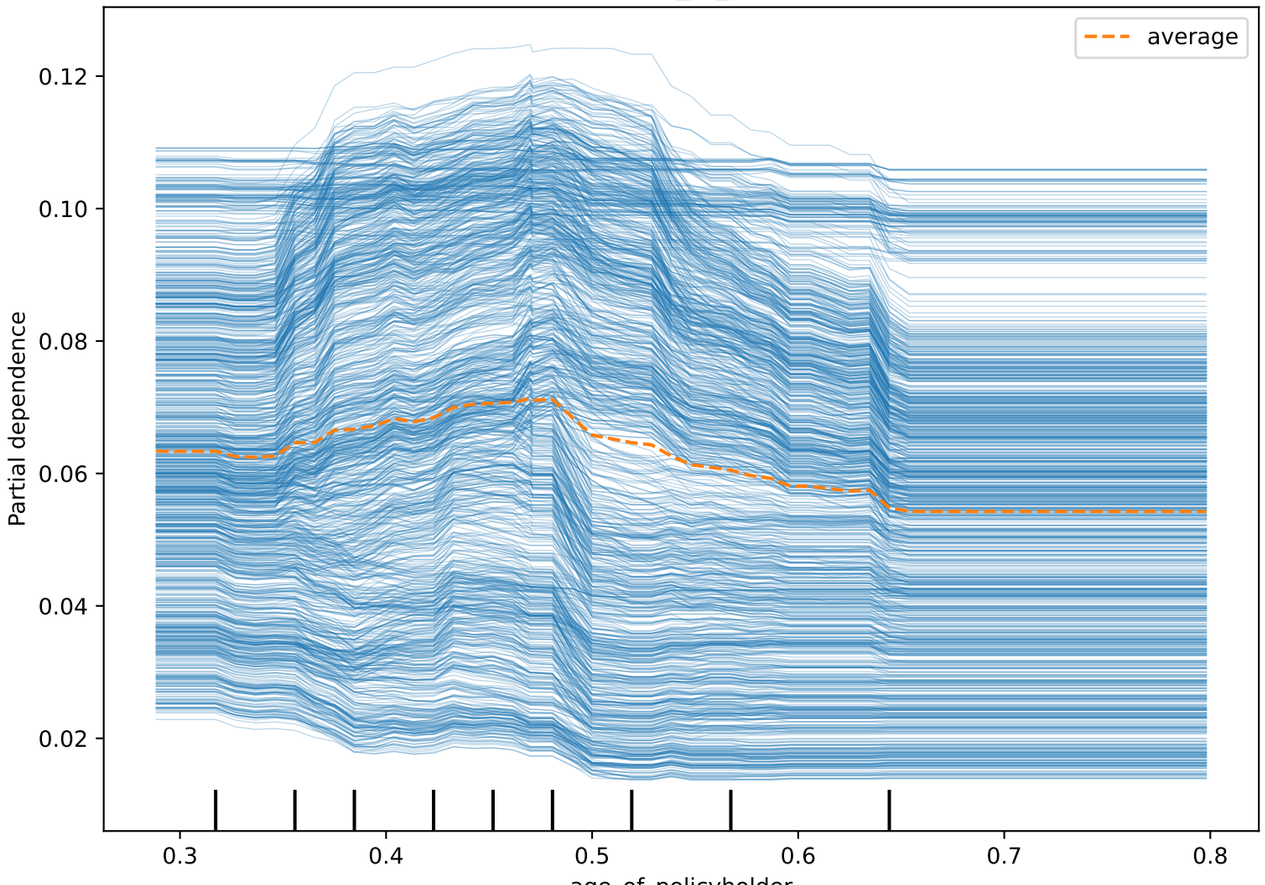

LIME Feature Importance Summary (Top 15 Features)
policy_tenure <= 0.20
policy_tenure > 1.04
area_cluster_c20 <= 0.00
area_cluster_c21 <= 0.00
area_cluster_c22 <= 0.00
area_cluster_c4 <= 0.00
0.45 < age_of_policyholder <= 0.54
area_cluster_c18 <= 0.00
area_cluster_c17 <= 0.00
age_of_policyholder > 0.54
population_density <= 6112.00
area_cluster_c15 <= 0.00
area_cluster_c3 <= 0.00
area_cluster_c16 <= 0.00
area_cluster_c12 <= 0.00
Feature
0.00
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
Importance


Partial Dependence Plot for policy_tenure
Partial dependence
0.09
0.08
0.07
0.06
0.05
0.04
0.0
0.2
0.4
0.6
0.8
1.0
1.2
policy_tenure


Partial Dependence Plot for age_of_policyholder
Partial dependence
0.0700
0.0675
0.0650
0.0625
0.0600
0.0575
0.0550
0.3
0.4
0.5
0.6
0.7
0.8
age_of_policyholder


Partial Dependence Plot for population_density
Partial dependence
0.070
0.068
0.066
0.064
0.062
0
5000
10000
15000
20000
25000
30000
35000
population_density


ICE Plot for policy_tenure
average
Partial dependence
0.12
0.10
0.08
0.06
0.04
0.02
0.0
0.2
0.4
0.6
0.8
1.0
1.2
policy_tenure


ICE Plot for age_of_policyholder
average
Partial dependence
0.12
0.10
0.08
0.06
0.04
0.02
0.3
0.4
0.5
0.6
0.7
0.8
age_of_policyholder


ICE Plot for population_density
average
Partial dependence
0.12
0.10
0.08
0.06
0.04
0.02
0
5000
10000
15000
20000
25000
30000
35000
population_density