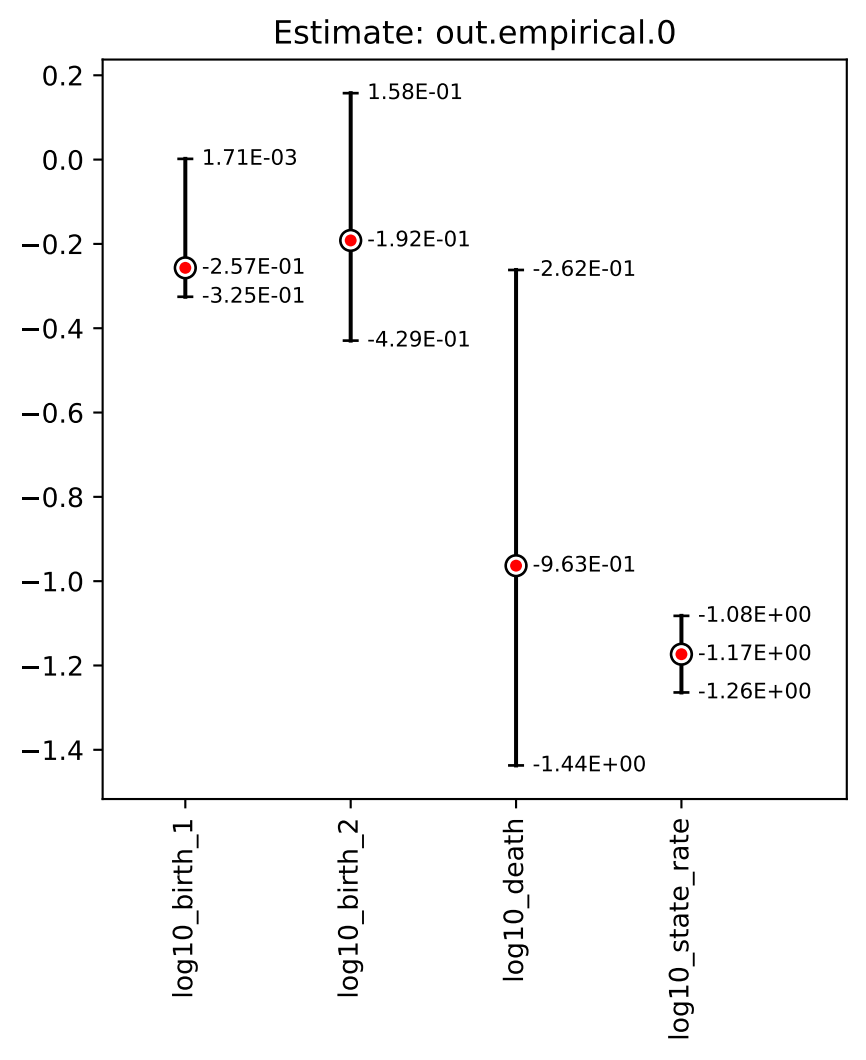
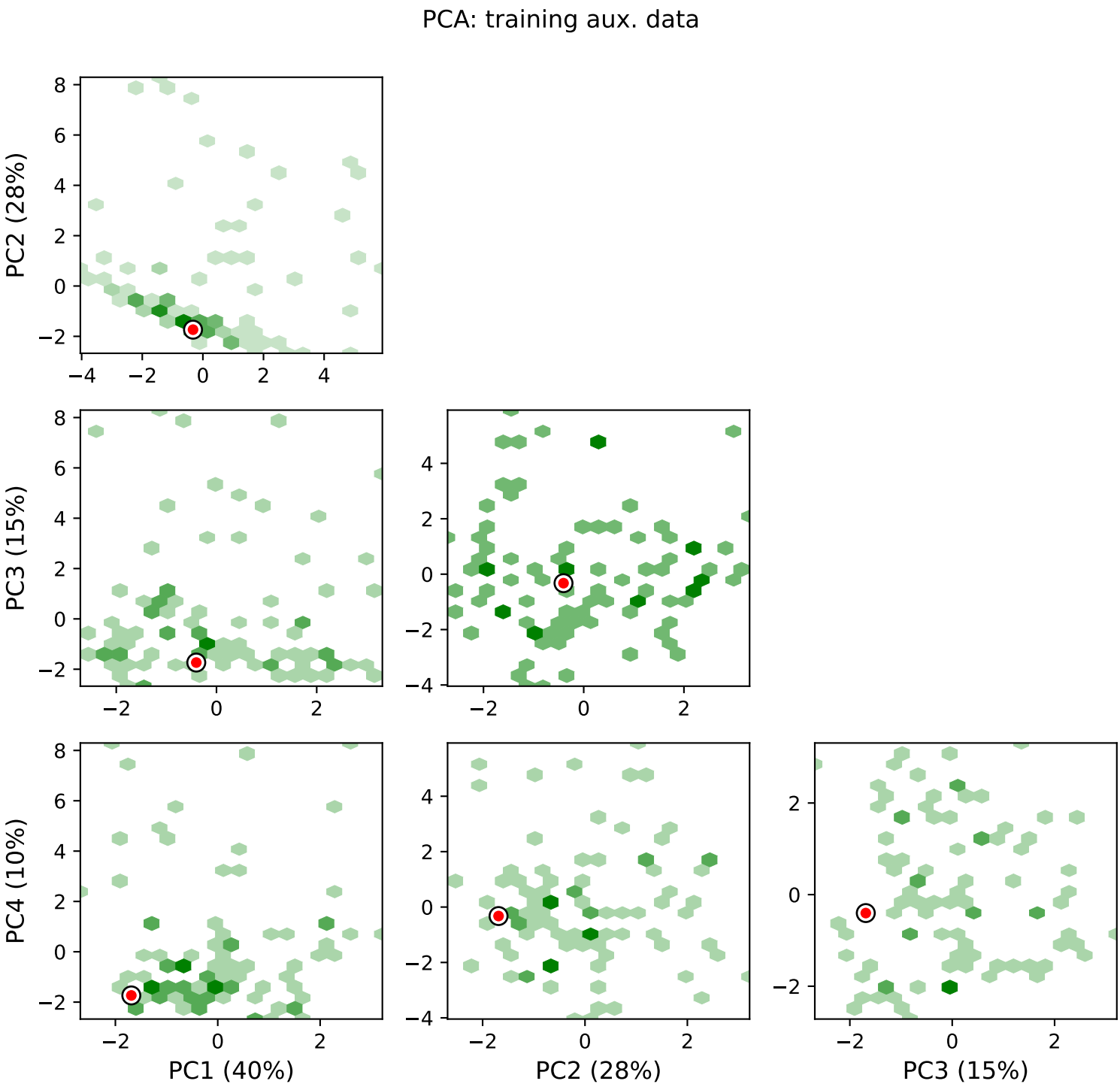
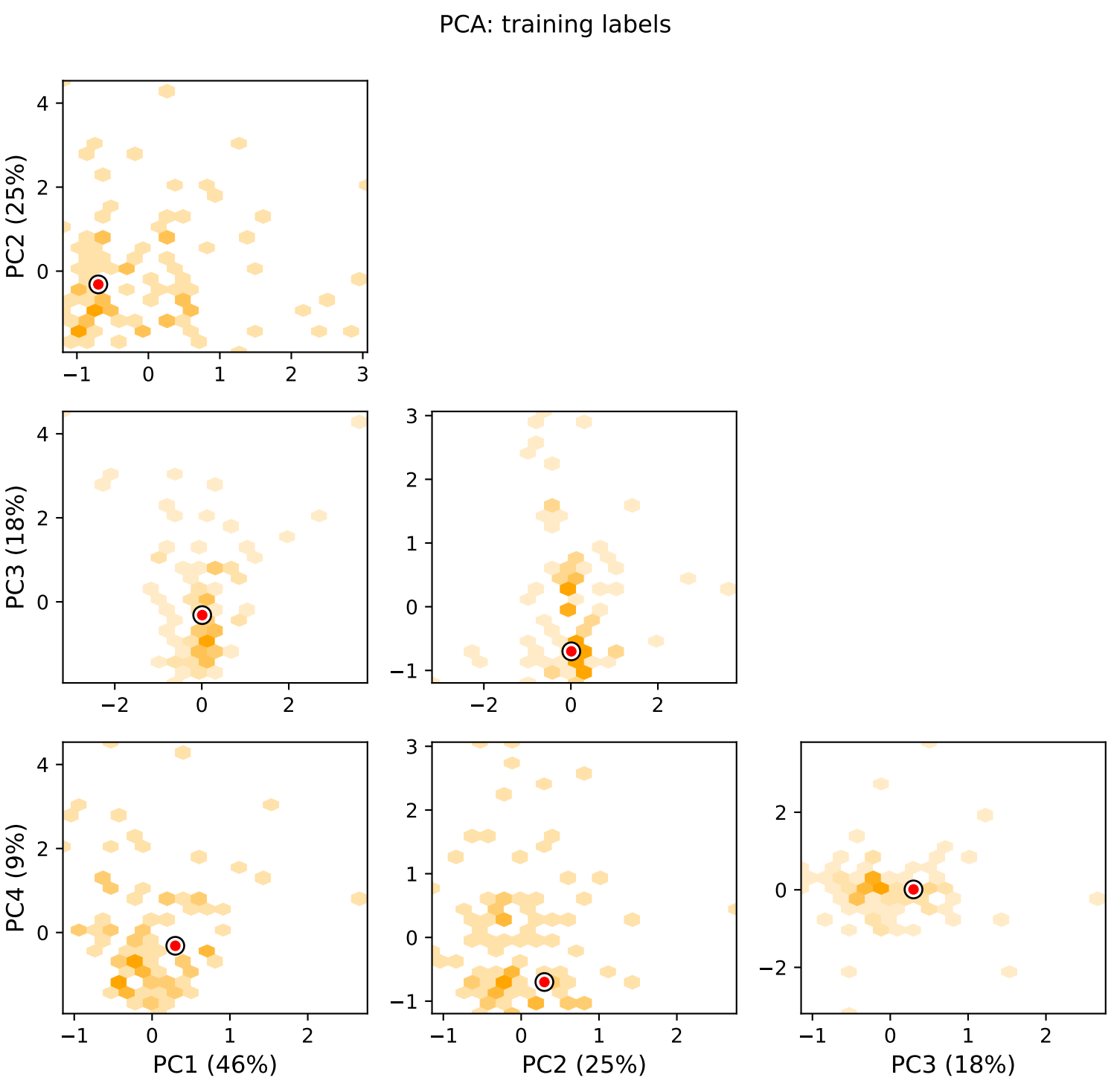
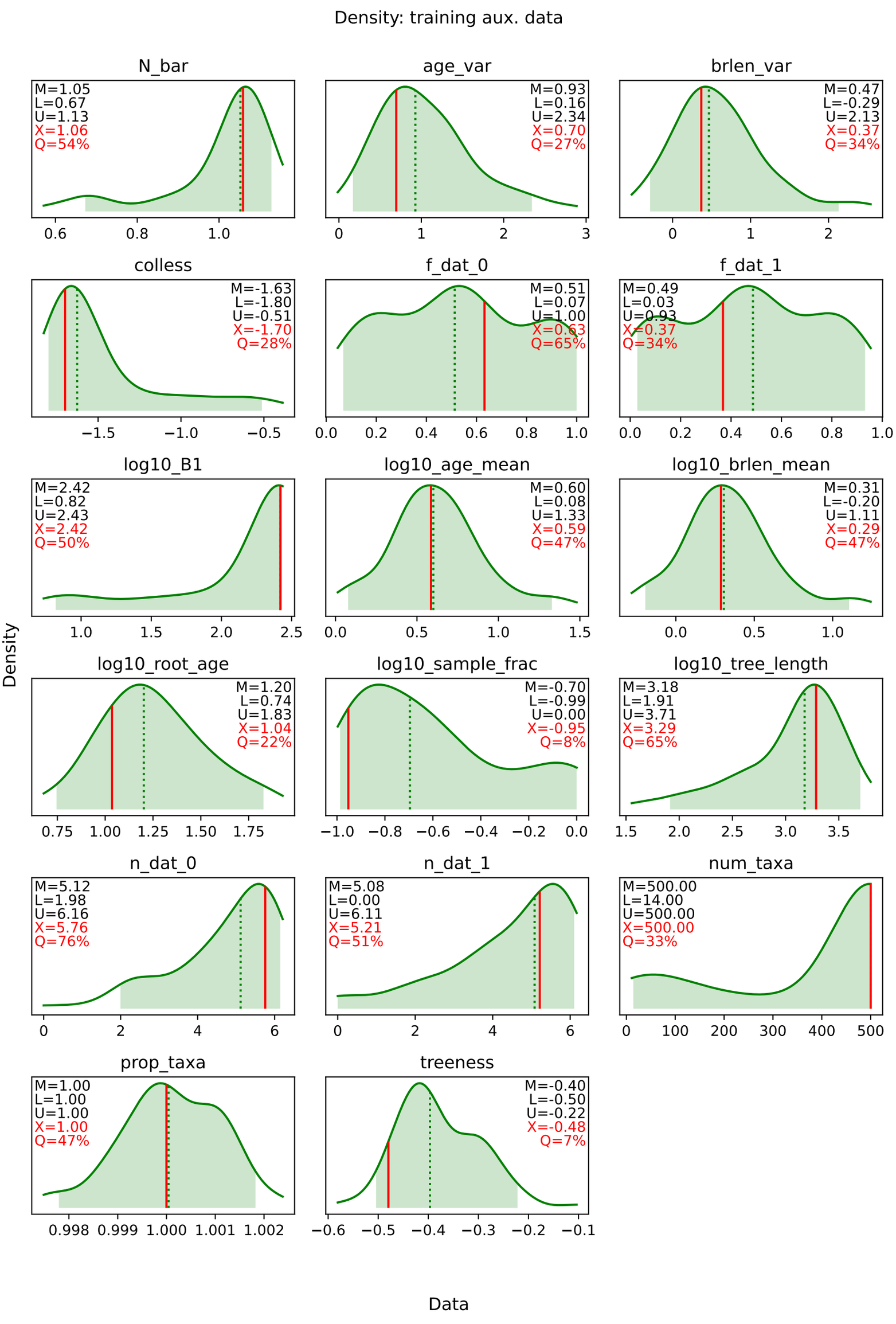
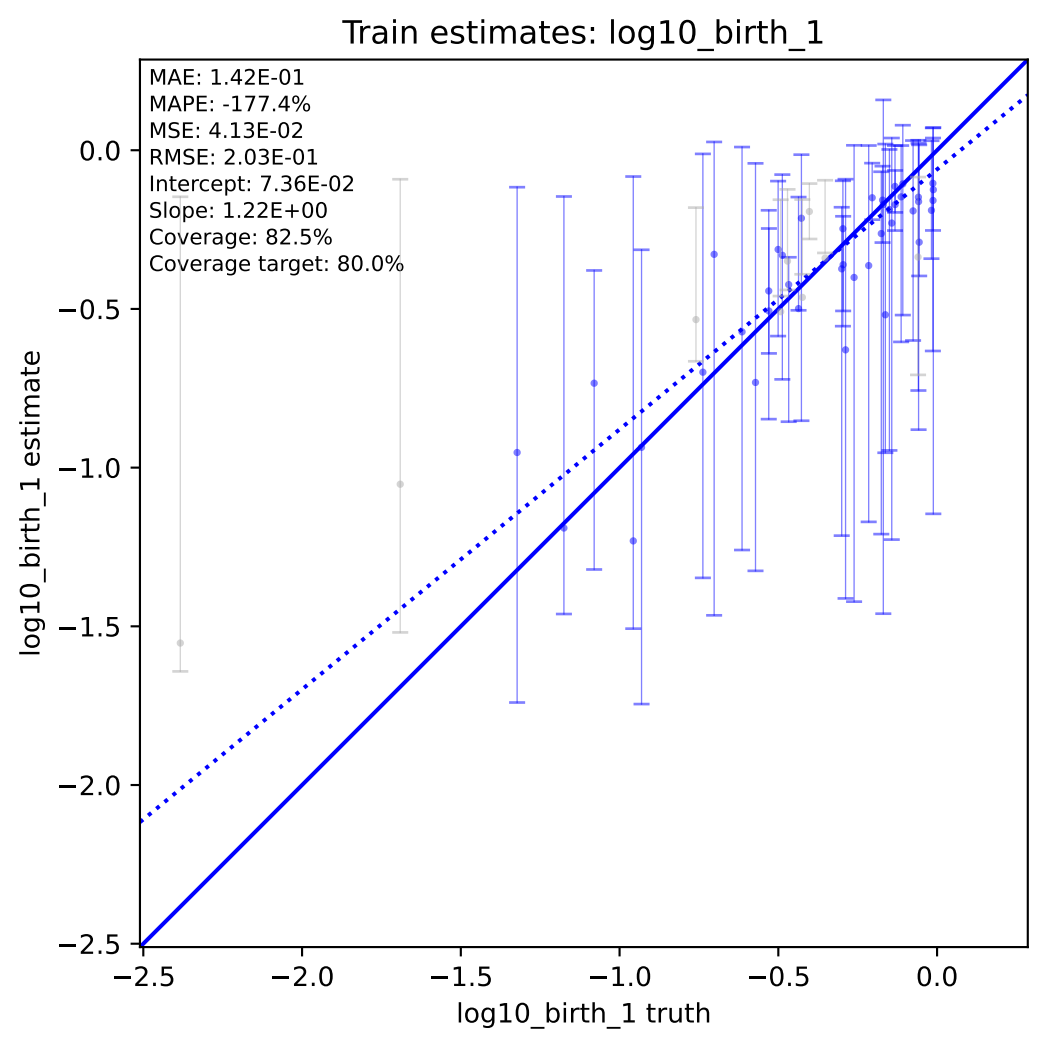

Estimate: out.empirical.0
0.2
0.0
−0.2
−0.4
−0.6
−0.8
−1.0
−1.2
−1.4
1.71E-03
-2.57E-01
-3.25E-01
1.58E-01
-1.92E-01
-4.29E-01
-2.62E-01
-9.63E-01
-1.44E+00
-1.08E+00
-1.17E+00
-1.26E+00
log10_birth_1
log10_birth_2
log10_death
log10_state_rate

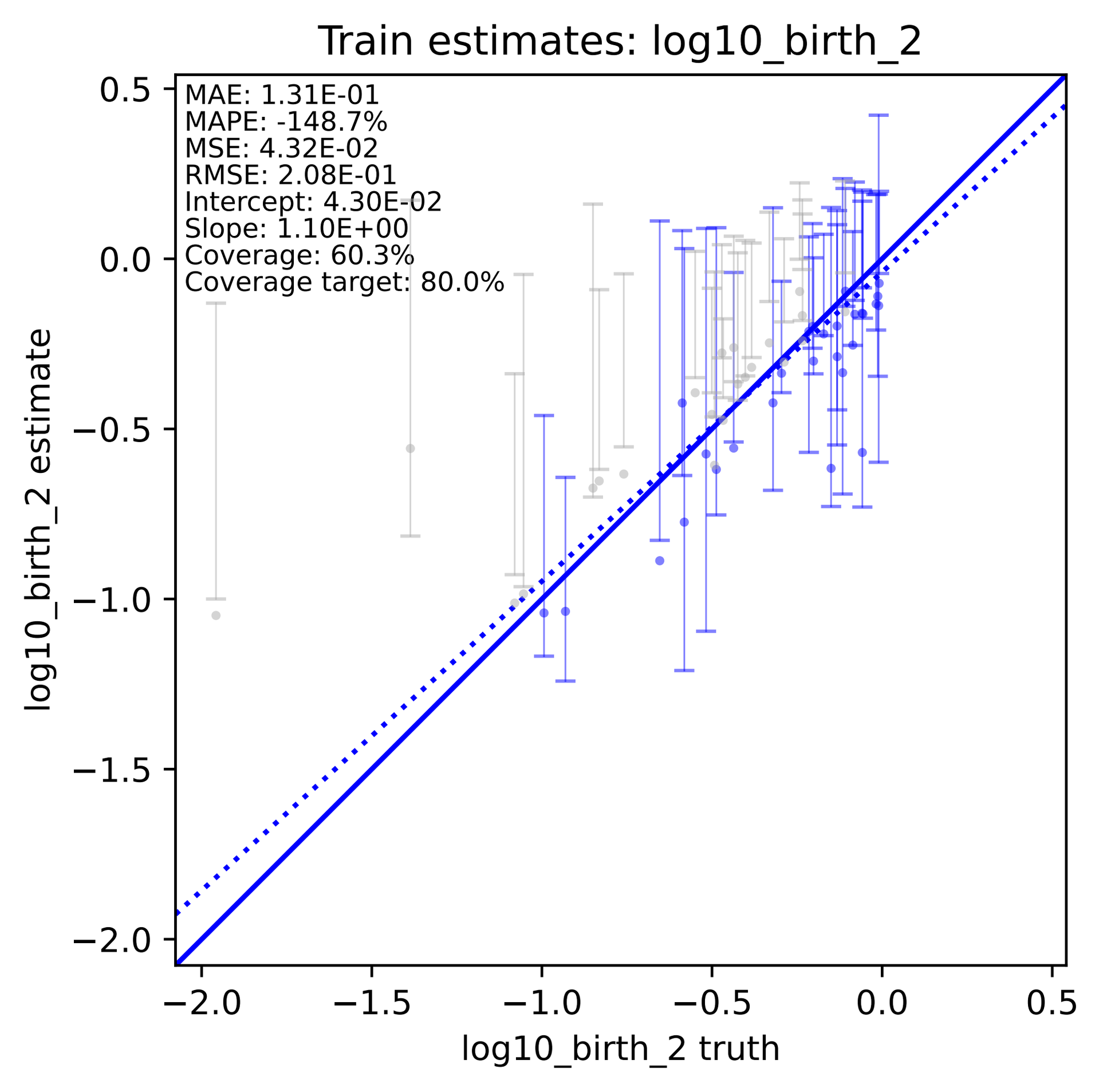

PCA: training aux. data
PC2 (28%)
PC3 (15%)
PC4 (10%)
PC1 (40%)
PC2 (28%)
PC3 (15%)

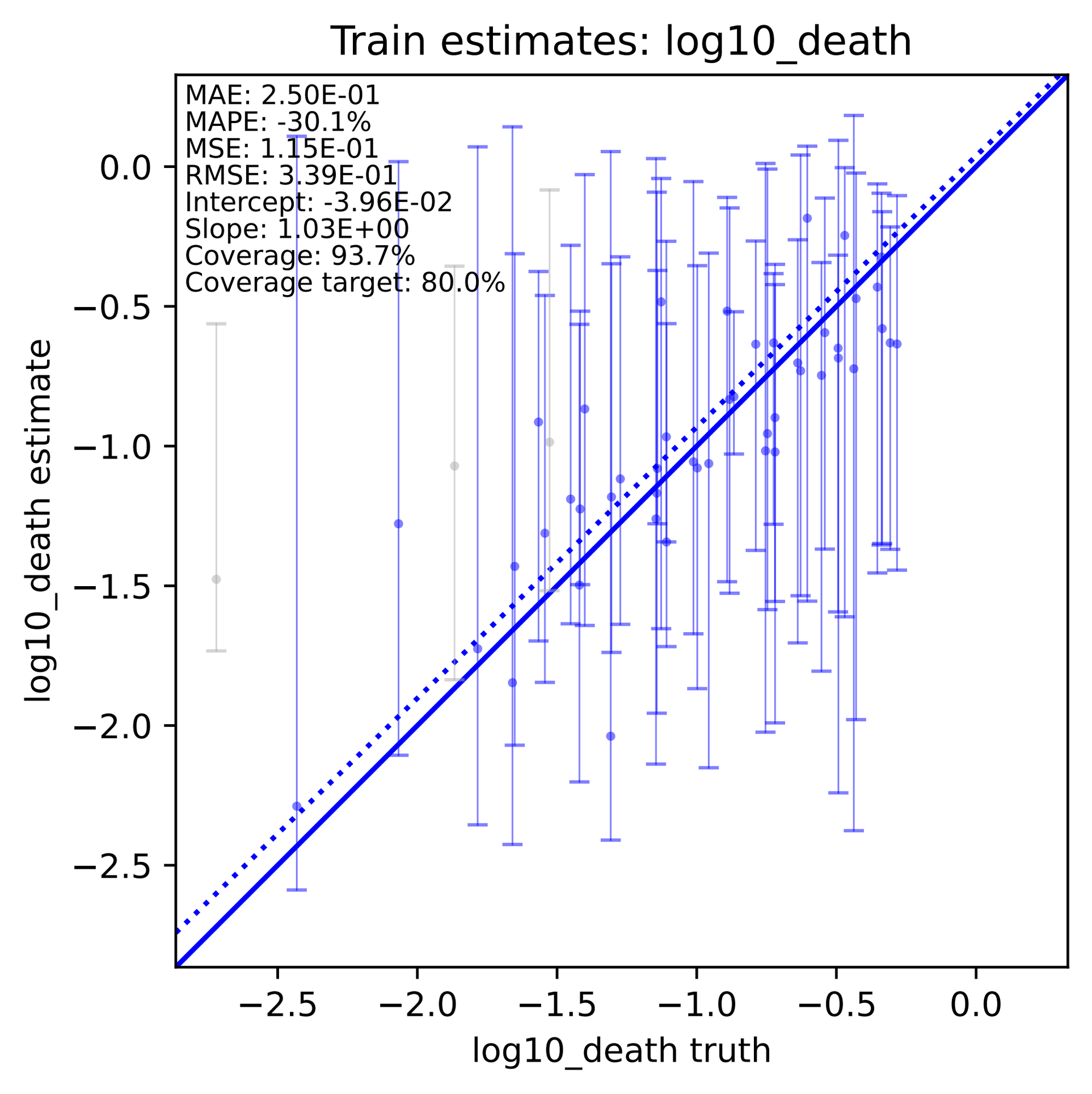

PCA: training labels
PC2 (25%)
PC3 (18%)
PC4 (9%)
PC1 (46%)
PC2 (25%)
PC3 (18%)

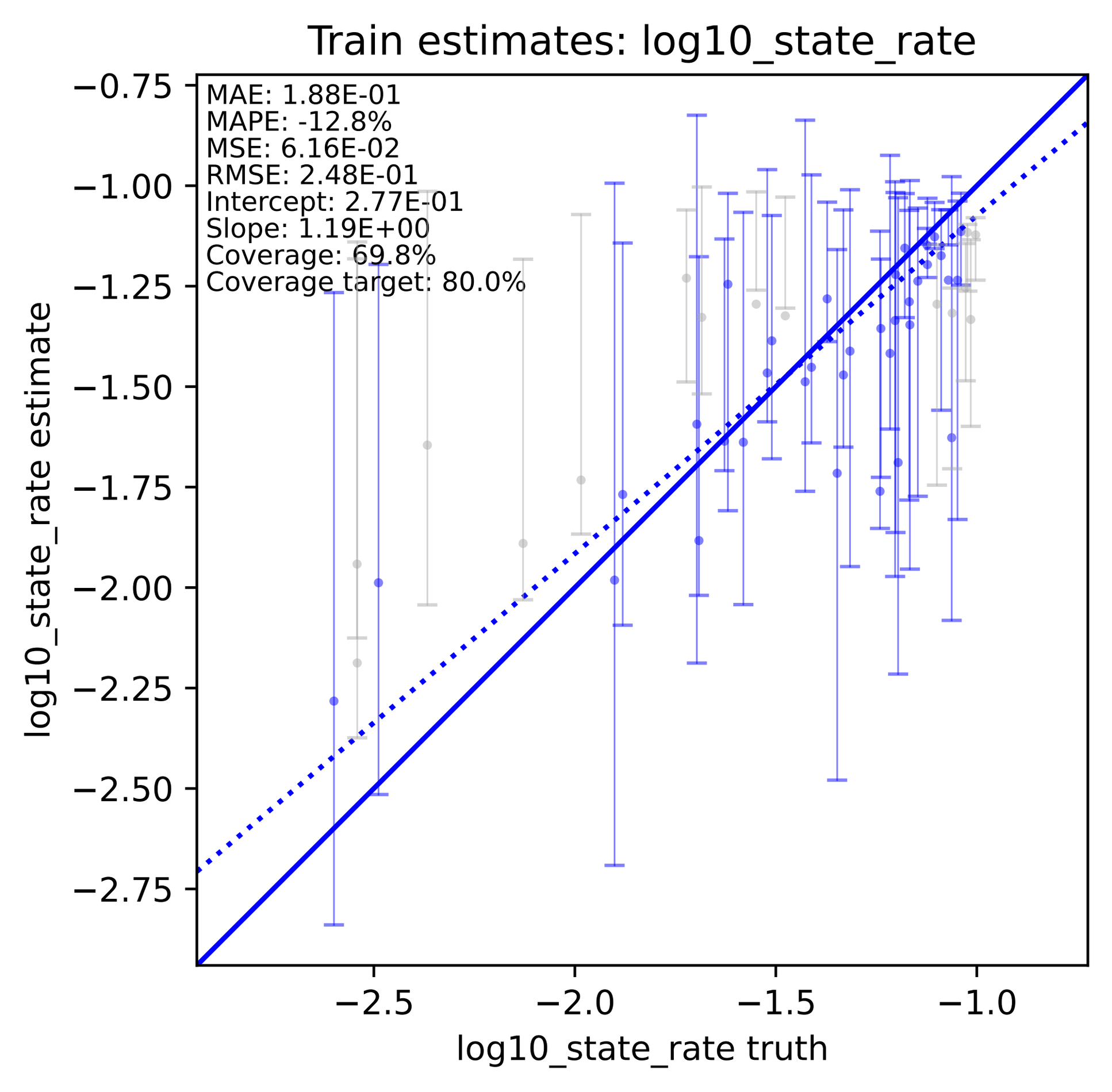

Density: training aux. data
N_bar
M=1.05
L=0.67
U=1.13
X=1.06
Q=54%
age_var
M=0.93
L=0.16
U=2.34
X=0.70
Q=27%
brlen_var
M=0.47
L=-0.29
U=2.13
X=0.37
Q=34%
colless
M=-1.63
L=-1.80
U=-0.51
X=-1.70
Q=28%
f_dat_0
M=0.51
L=0.07
U=1.00
X=0.63
Q=65%
f_dat_1
M=0.49
L=0.03
U=0.93
X=0.37
Q=34%
log10_B1
M=2.42
L=0.82
U=2.43
X=2.42
Q=50%
log10_age_mean
M=0.60
L=0.08
U=1.33
X=0.59
Q=47%
log10_brlen_mean
M=0.31
L=-0.20
U=1.11
X=0.29
Q=47%
log10_root_age
M=1.20
L=0.74
U=1.83
X=1.04
Q=22%
log10_sample_frac
M=-0.70
L=-0.99
U=0.00
X=-0.95
Q=8%
log10_tree_length
M=3.18
L=1.91
U=3.71
X=3.29
Q=65%
n_dat_0
M=5.12
L=1.98
U=6.16
X=5.76
Q=76%
n_dat_1
M=5.08
L=0.00
U=6.11
X=5.21
Q=51%
num_taxa
M=500.00
L=14.00
U=500.00
X=500.00
Q=33%
prop_taxa
M=1.00
L=1.00
U=1.00
X=1.00
Q=47%
treeness
M=-0.40
L=-0.50
U=-0.22
X=-0.48
Q=7%
Density
Data

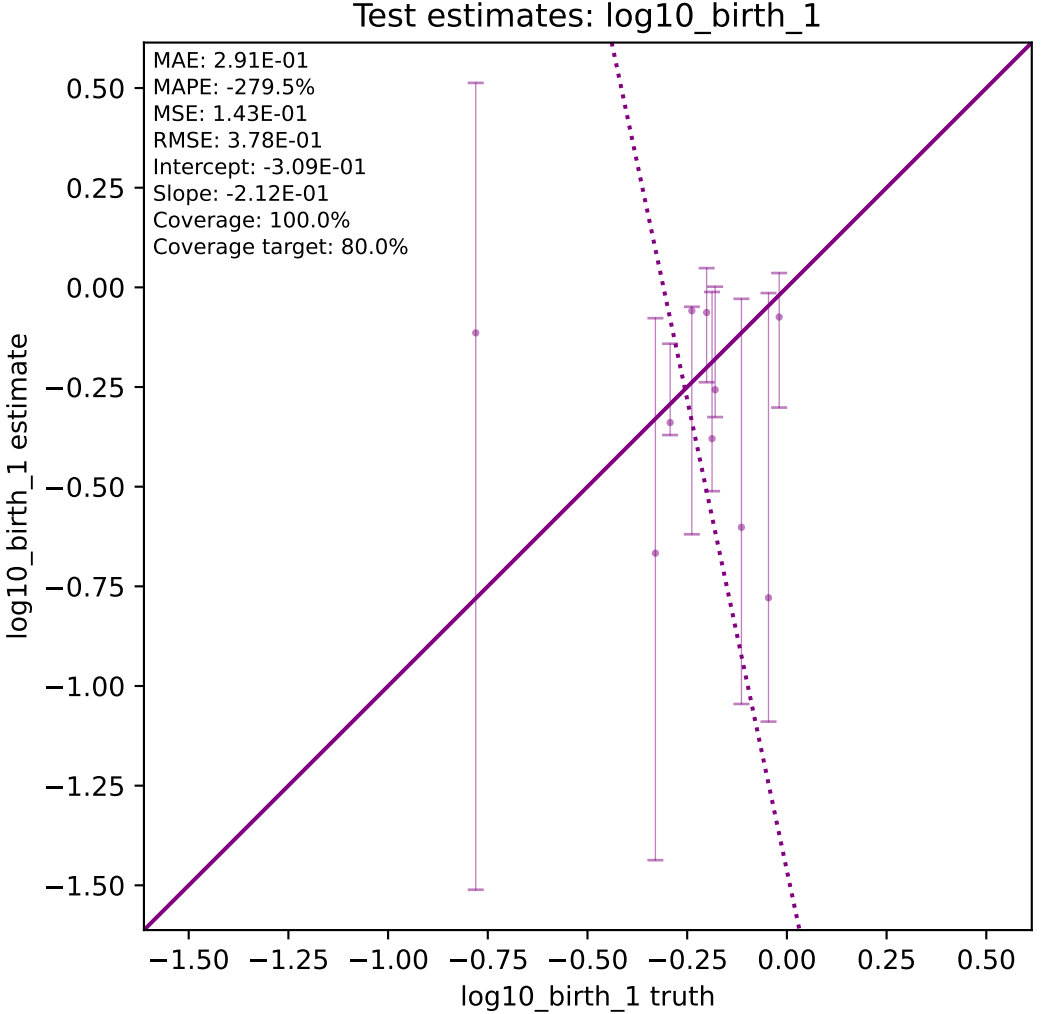
Density: training labels
log10_birth_1
M=-0.22
L=-1.37
U=-0.01
X=-0.26
Q=46%
log10_birth_2
M=-0.24
L=-1.07
U=-0.01
X=-0.19
Q=58%
log10_death
M=-0.75
L=-2.43
U=-0.20
X=-0.96
Q=38%
log10_state_rate
M=-1.32
L=-2.54
U=-1.01
X=-1.17
Q=63%
Density
Data

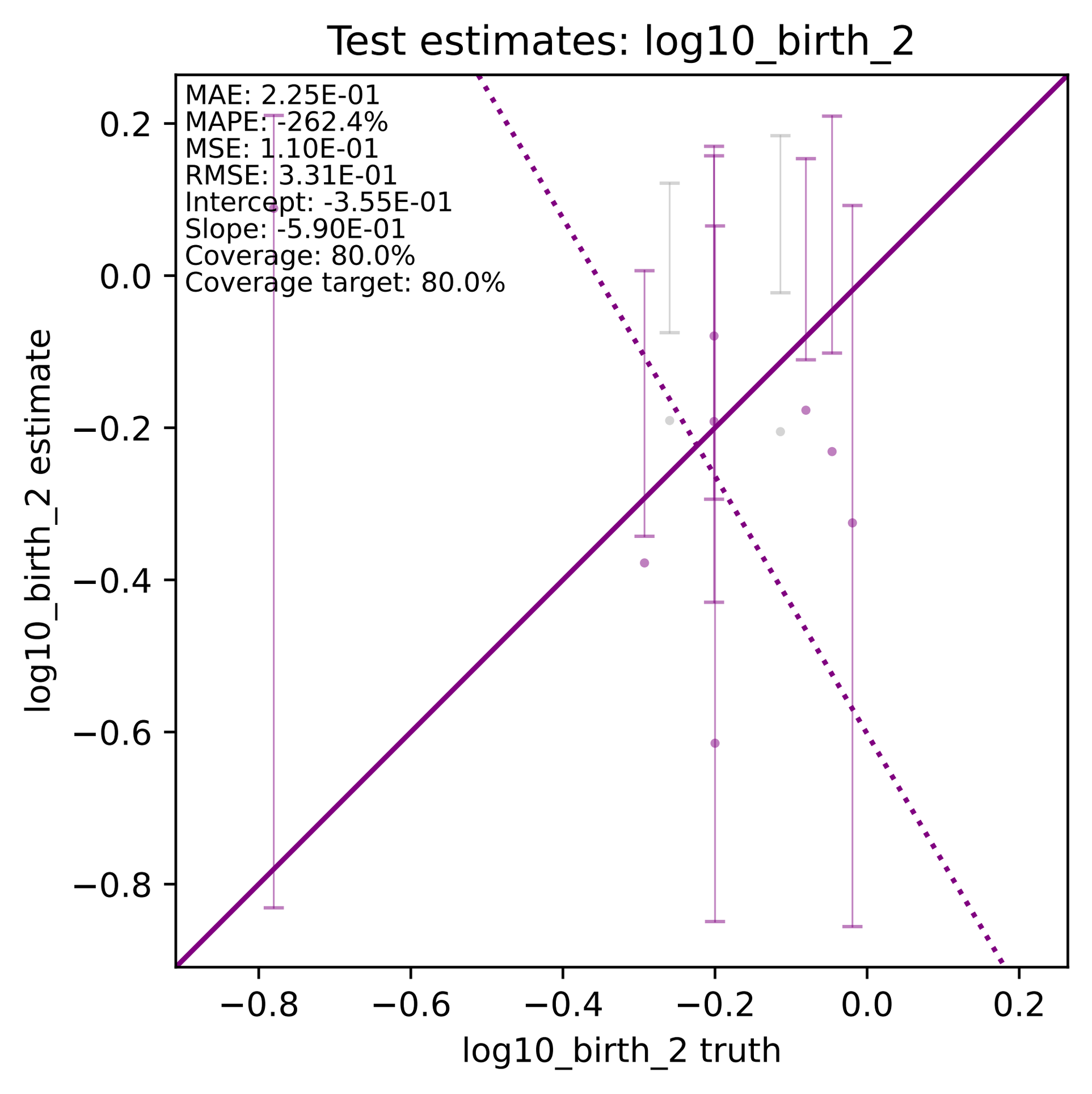

Train estimates: log10_birth_1
MAE: 1.42E-01
MAPE: -177.4%
MSE: 4.13E-02
RMSE: 2.03E-01
Intercept: 7.36E-02
Slope: 1.22E+00
Coverage: 82.5%
Coverage target: 80.0%
log10_birth_1 estimate
log10_birth_1 truth
0.0
−0.5
−1.0
−1.5
−2.0
−2.5

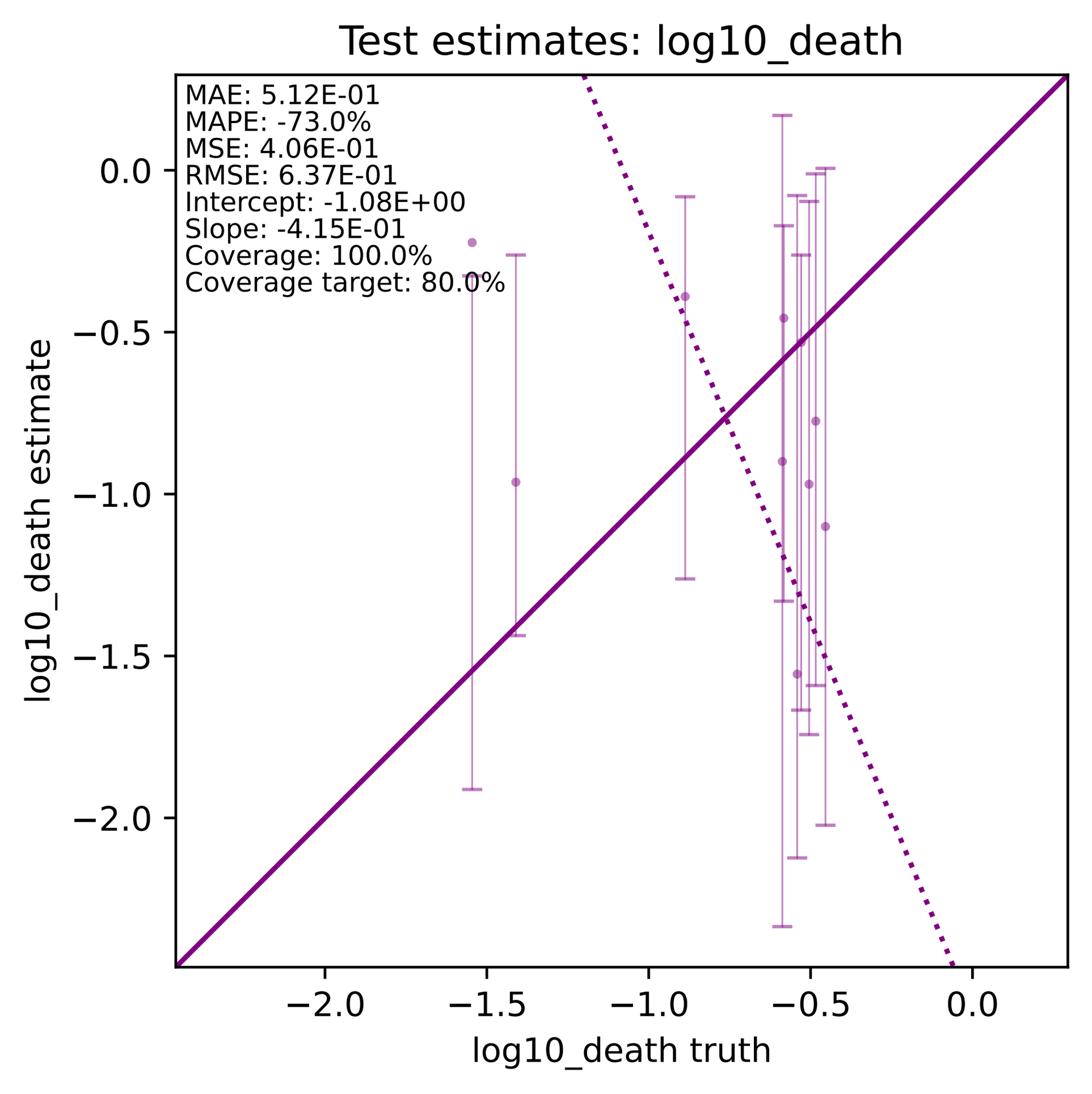

Train estimates: log10_birth_2
MAE: 1.31E-01
MAPE: -148.7%
MSE: 4.32E-02
RMSE: 2.08E-01
Intercept: 4.30E-02
Slope: 1.10E+00
Coverage: 60.3%
Coverage target: 80.0%
log10_birth_2 estimate
log10_birth_2 truth
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.0
−1.5
−1.0
−0.5
0.0
0.5

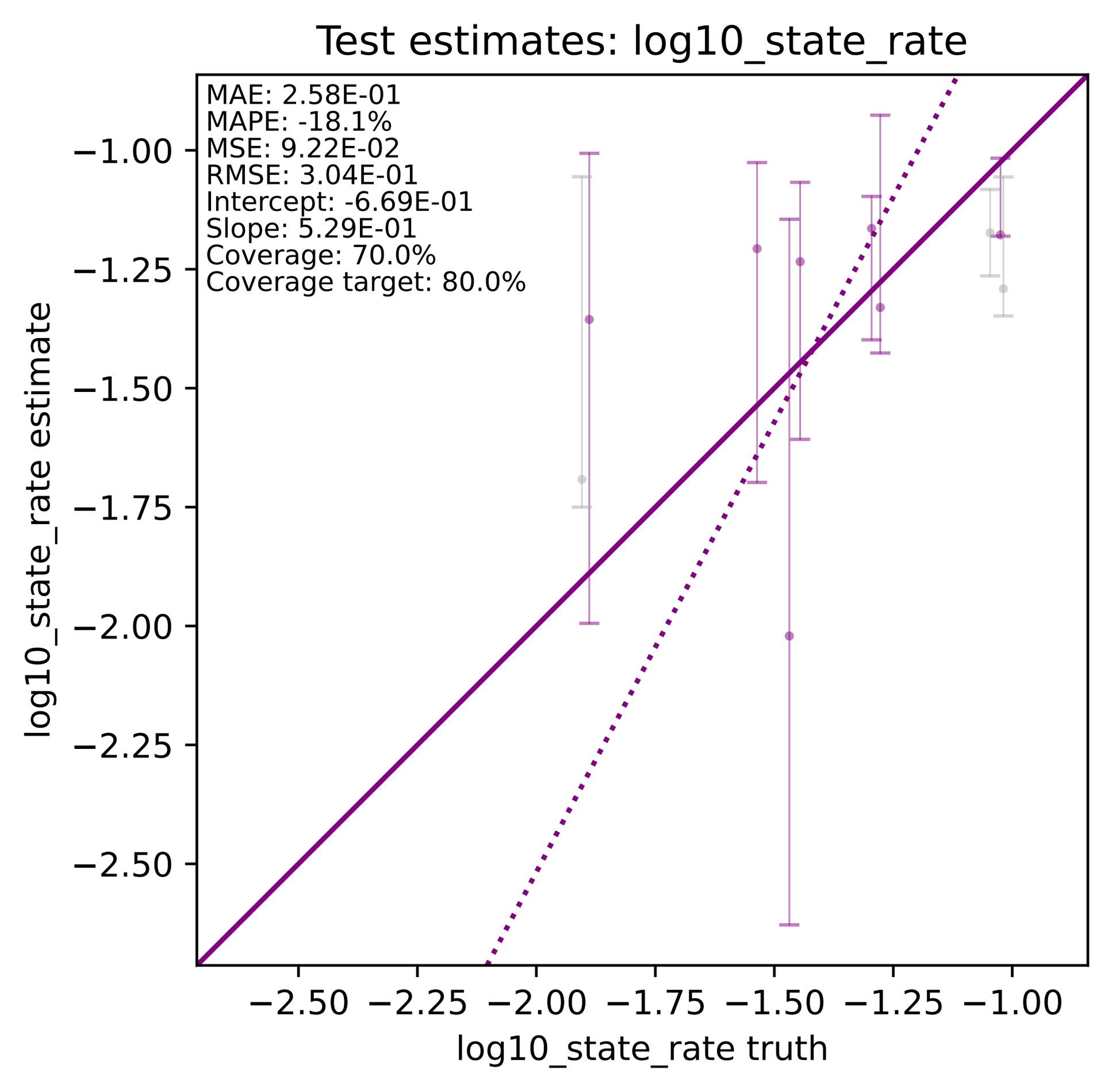

Train estimates: log10_death
MAE: 2.50E-01
MAPE: -30.1%
MSE: 1.15E-01
RMSE: 3.39E-01
Intercept: -3.96E-02
Slope: 1.03E+00
Coverage: 93.7%
Coverage target: 80.0%
log10_death estimate
log10_death truth
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
−2.5
−2.0
−1.5
−1.0
−0.5
0.0

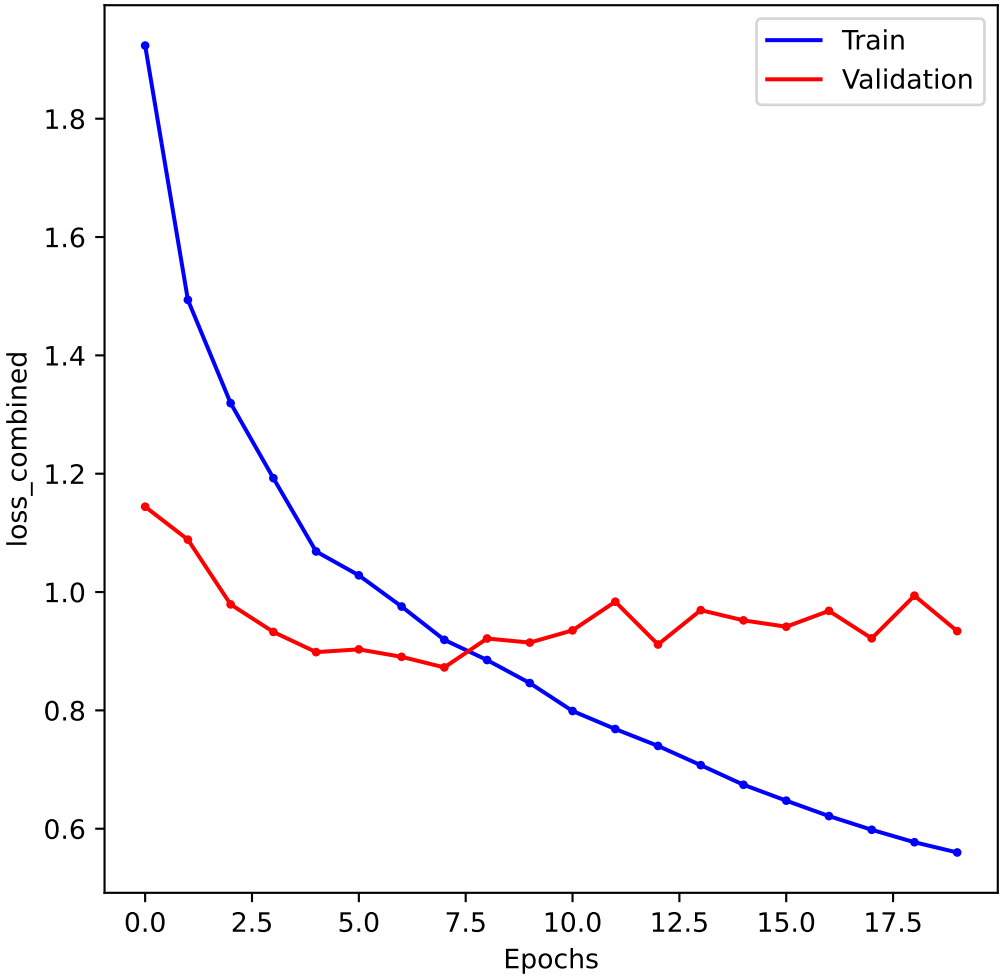

Train estimates: log10_state_rate
MAE: 1.88E-01
MAPE: -12.8%
MSE: 6.16E-02
RMSE: 2.48E-01
Intercept: 2.77E-01
Slope: 1.19E+00
Coverage: 69.8%
Coverage target: 80.0%
log10_state_rate estimate
log10_state_rate truth
−0.75
−1.00
−1.25
−1.50
−1.75
−2.00
−2.25
−2.50
−2.75
−2.5
−2.0
−1.5
−1.0

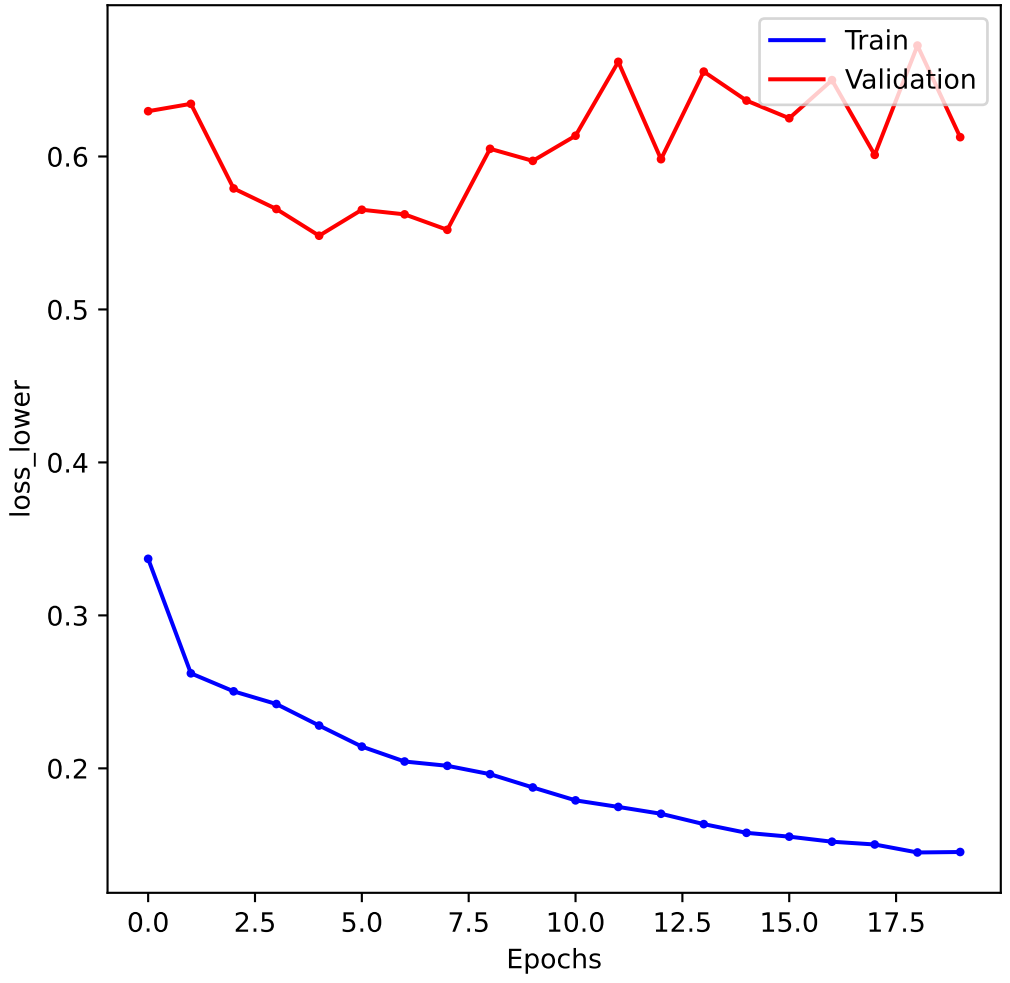

Test estimates: log10_birth_1
MAE: 2.91E-01
MAPE: -279.5%
MSE: 1.43E-01
RMSE: 3.78E-01
Intercept: -3.09E-01
Slope: -2.12E-01
Coverage: 100.0%
Coverage target: 80.0%
log10_birth_1 estimate
log10_birth_1 truth
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
−1.25
−1.50
−1.50
−1.25
−1.00
−0.75
−0.50
−0.25
0.00
0.25
0.50

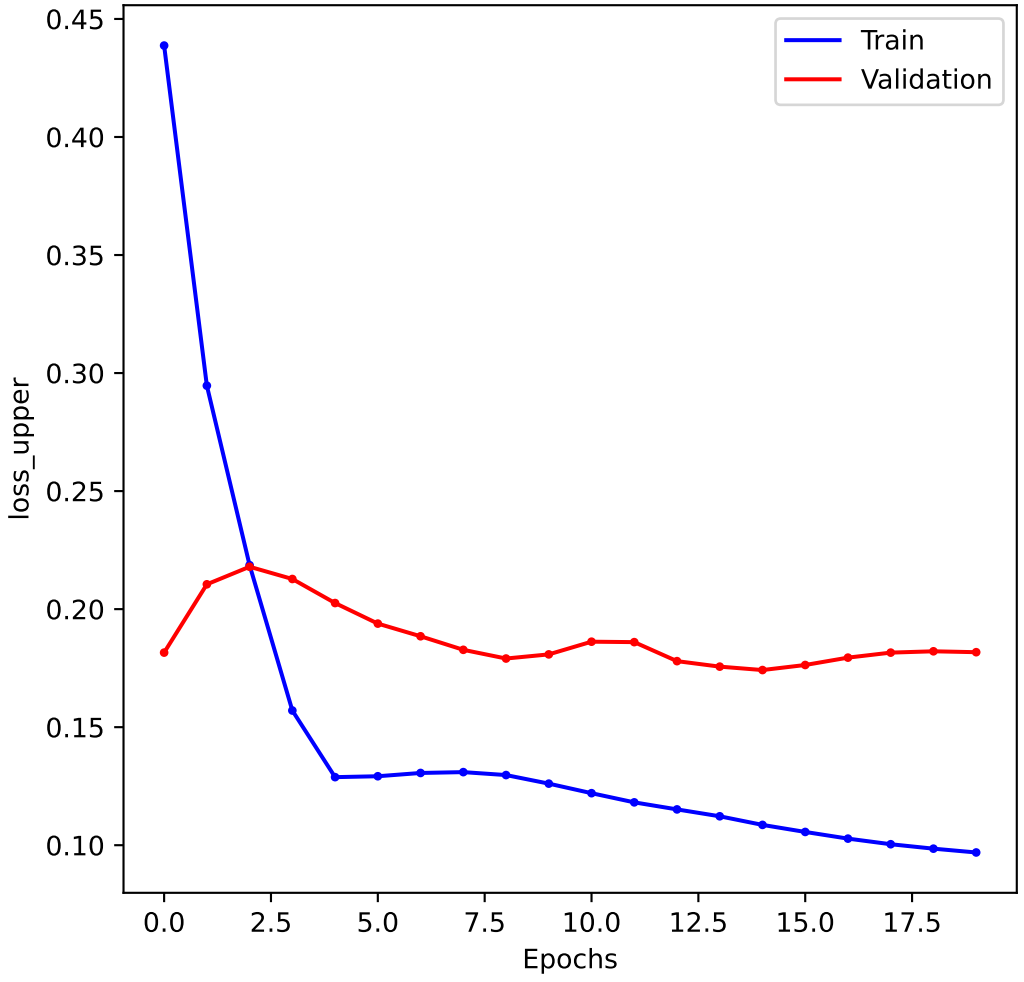

Test estimates: log10_birth_2
MAE: 2.25E-01
MAPE: -262.4%
MSE: 1.10E-01
RMSE: 3.31E-01
Intercept: -3.55E-01
Slope: -5.90E-01
Coverage: 80.0%
Coverage target: 80.0%
log10_birth_2 estimate
log10_birth_2 truth
0.2
0.0
−0.2
−0.4
−0.6
−0.8
−0.8
−0.6
−0.4
−0.2
0.0
0.2

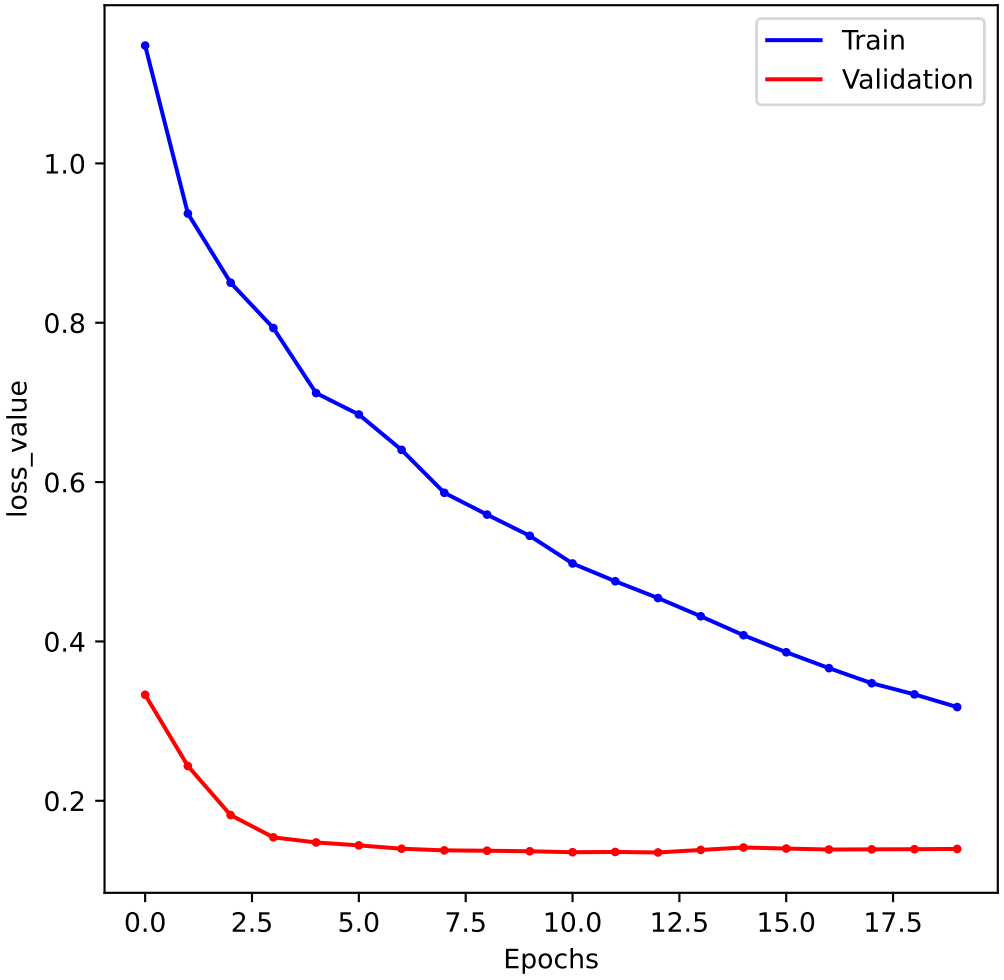

Test estimates: log10_death
MAE: 5.12E-01
MAPE: -73.0%
MSE: 4.06E-01
RMSE: 6.37E-01
Intercept: -1.08E+00
Slope: -4.15E-01
Coverage: 100.0%
Coverage target: 80.0%
log10_death estimate
log10_death truth
0.0
−0.5
−1.0
−1.5
−2.0
−2.0
−1.5
−1.0
−0.5
0.0

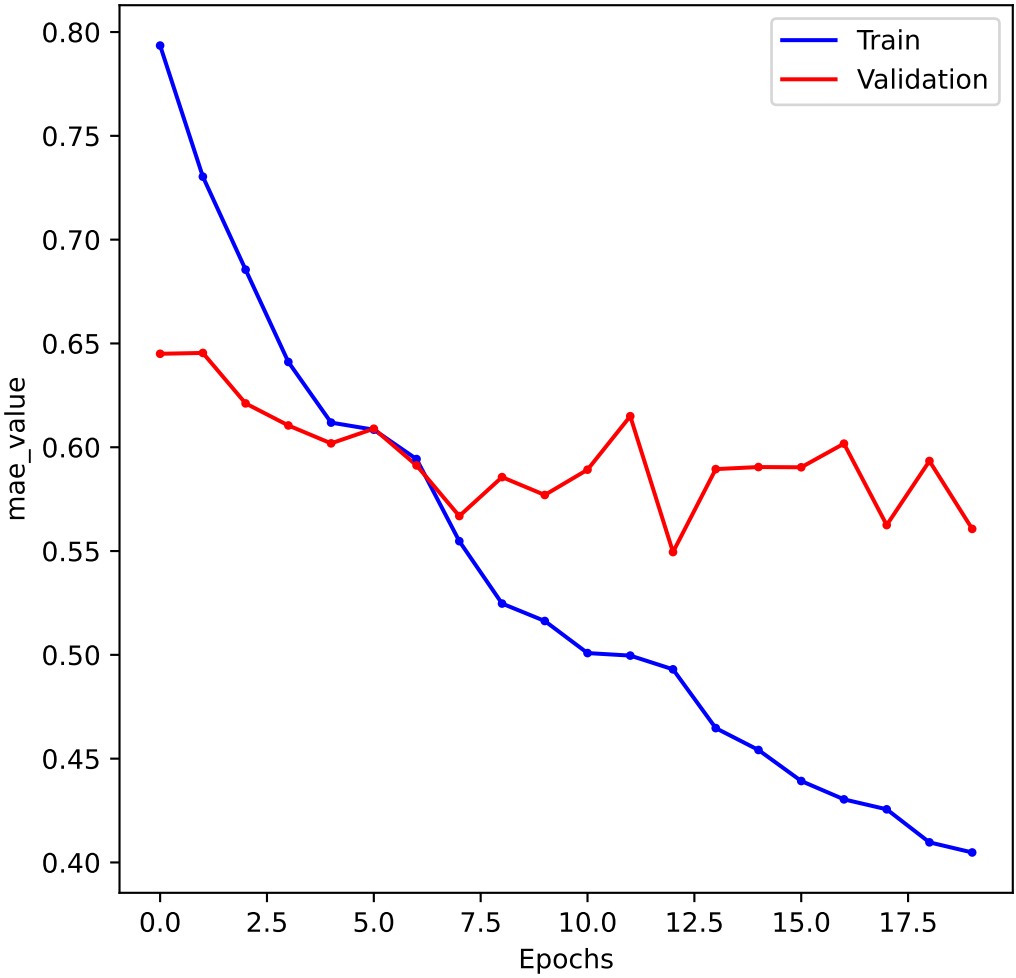

Test estimates: log10_state_rate
MAE: 2.58E-01
MAPE: -18.1%
MSE: 9.22E-02
RMSE: 3.04E-01
Intercept: -6.69E-01
Slope: 5.29E-01
Coverage: 70.0%
Coverage target: 80.0%
log10_state_rate estimate
log10_state_rate truth
−1.00
−1.25
−1.50
−1.75
−2.00
−2.25
−2.50

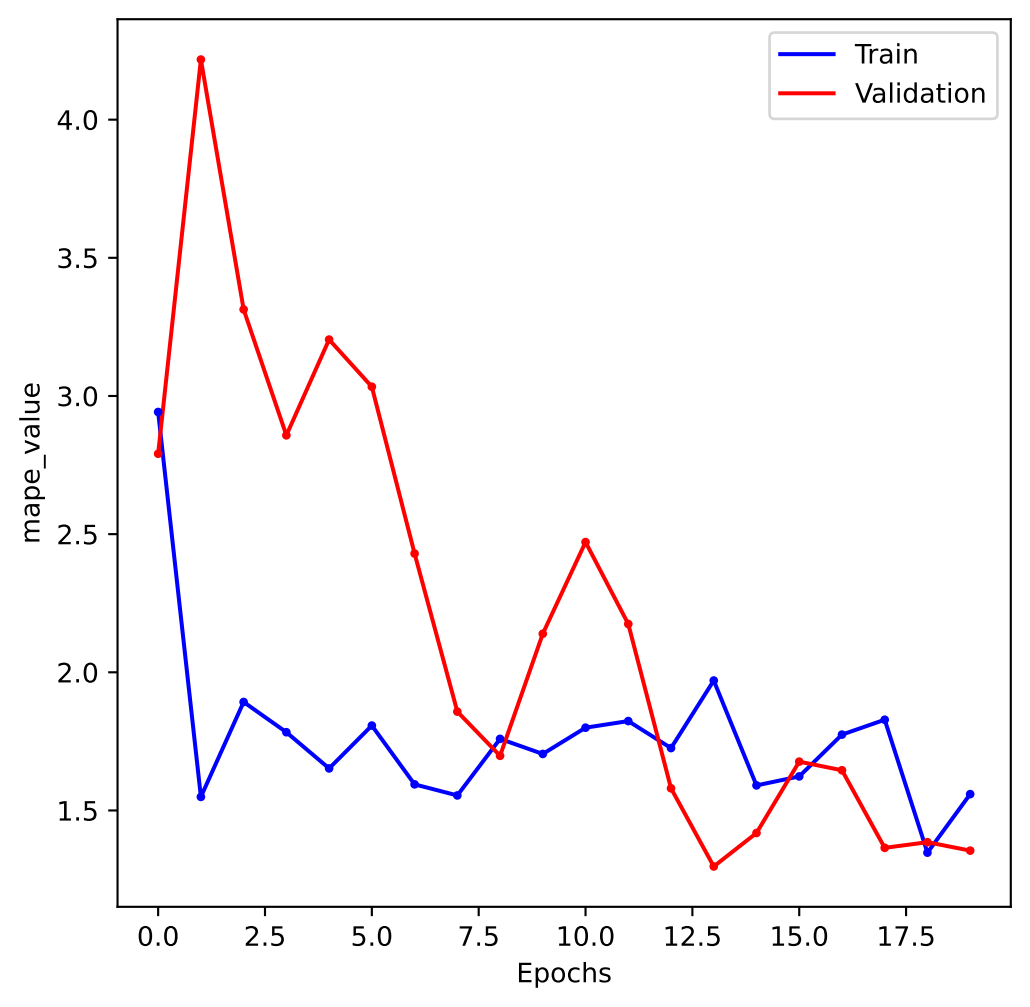

Train
Validation
loss_combined
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs

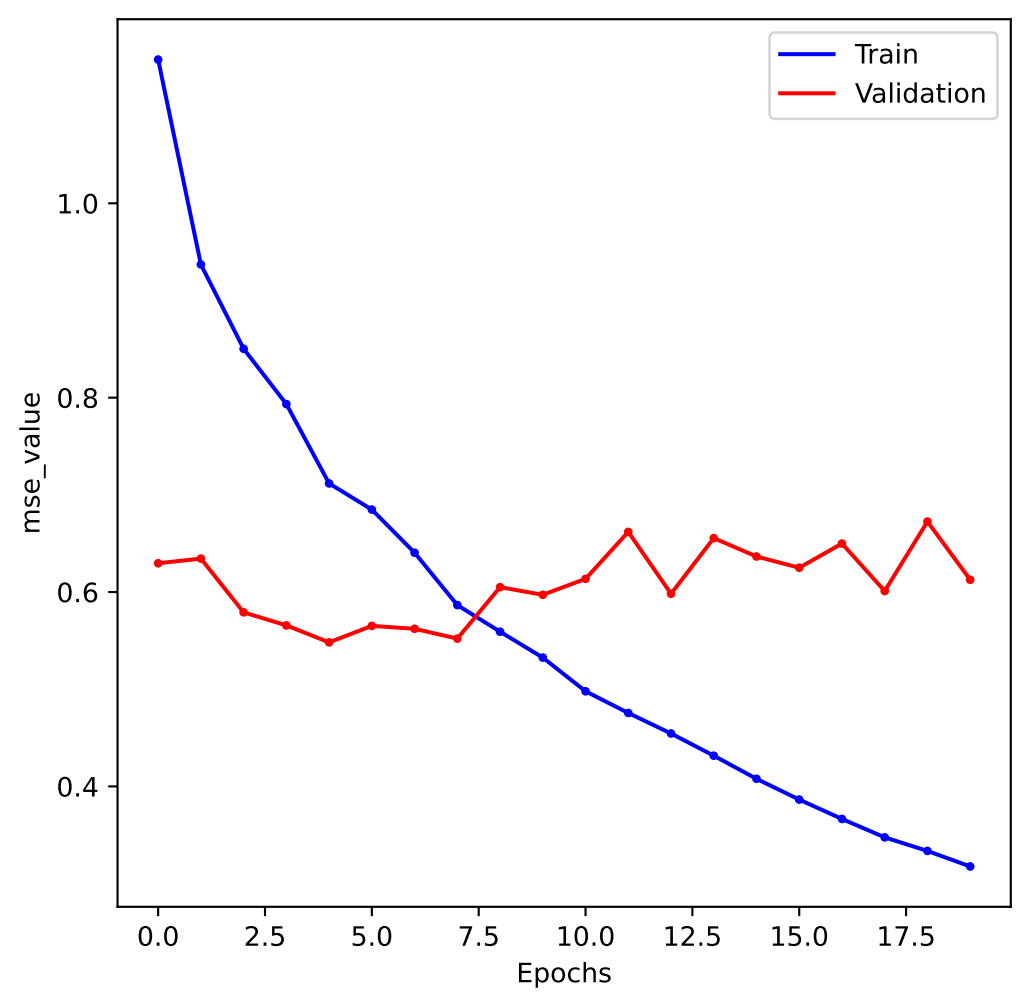

Train
Validation
loss_lower
0.6
0.5
0.4
0.3
0.2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs

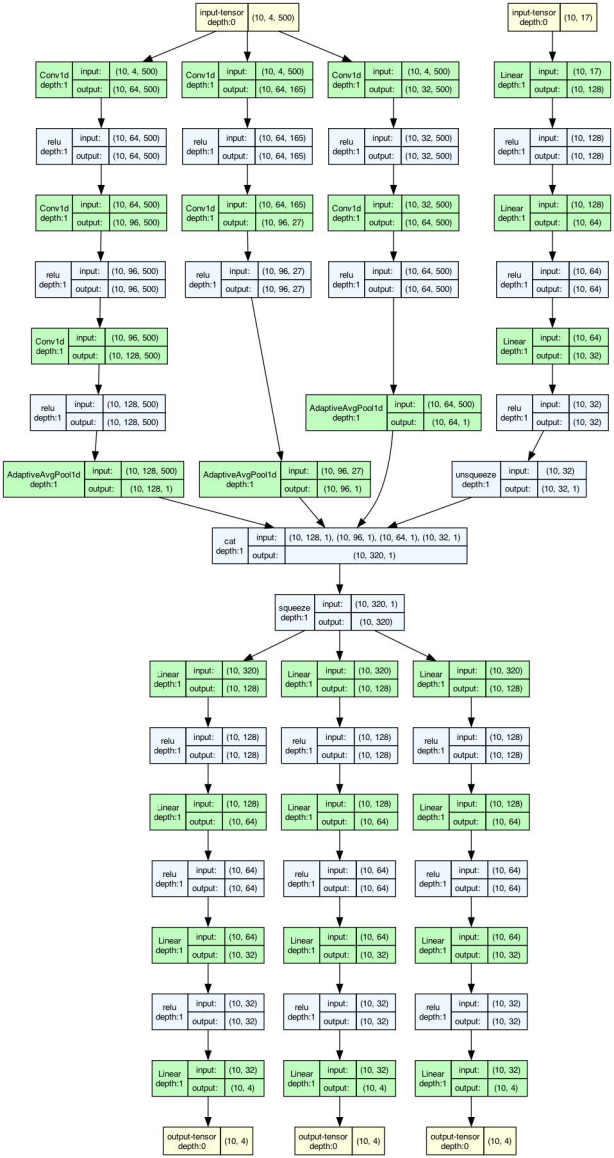

Train
Validation
loss_upper
Epochs
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5


Train
Validation
loss_value
1.0
0.8
0.6
0.4
0.2
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs


Train
Validation
mae_value
Epochs
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0.40
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5


Train
Validation
mape_value
4.0
3.5
3.0
2.5
2.0
1.5
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs


Train
Validation
mse_value
1.0
0.8
0.6
0.4
0.0
2.5
5.0
7.5
10.0
12.5
15.0
17.5
Epochs


input-tensor depth:0 (10, 4, 500)
input-tensor depth:0 (10, 17)
Conv1d depth:1 input: (10, 4, 500) output: (10, 64, 500)
Conv1d depth:1 input: (10, 4, 500) output: (10, 64, 165)
Conv1d depth:1 input: (10, 4, 500) output: (10, 32, 500)
Linear depth:1 input: (10, 17) output: (10, 128)
relu depth:1 input: (10, 64, 500) output: (10, 64, 500)
relu depth:1 input: (10, 64, 165) output: (10, 64, 165)
relu depth:1 input: (10, 32, 500) output: (10, 32, 500)
relu depth:1 input: (10, 128) output: (10, 128)
Conv1d depth:1 input: (10, 64, 500) output: (10, 96, 500)
Conv1d depth:1 input: (10, 64, 165) output: (10, 96, 27)
Conv1d depth:1 input: (10, 32, 500) output: (10, 64, 500)
Linear depth:1 input: (10, 128) output: (10, 64)
relu depth:1 input: (10, 96, 500) output: (10, 96, 500)
relu depth:1 input: (10, 96, 27) output: (10, 96, 27)
relu depth:1 input: (10, 64, 500) output: (10, 64, 500)
relu depth:1 input: (10, 64) output: (10, 64)
Conv1d depth:1 input: (10, 96, 500) output: (10, 128, 500)
Linear depth:1 input: (10, 64) output: (10, 32)
relu depth:1 input: (10, 128, 500) output: (10, 128, 500)
AdaptiveAvgPool1d depth:1 input: (10, 64, 500) output: (10, 64, 1)
relu depth:1 input: (10, 32) output: (10, 32)
AdaptiveAvgPool1d depth:1 input: (10, 128, 500) output: (10, 128, 1)
AdaptiveAvgPool1d depth:1 input: (10, 96, 27) output: (10, 96, 1)
unsqueeze depth:1 input: (10, 32) output: (10, 32, 1)
cat depth:1 input: (10, 128, 1), (10, 96, 1), (10, 64, 1), (10, 32, 1) output: (10, 320, 1)
squeeze depth:1 input: (10, 320, 1) output: (10, 320)
Linear depth:1 input: (10, 320) output: (10, 128)
Linear depth:1 input: (10, 320) output: (10, 128)
Linear depth:1 input: (10, 320) output: (10, 128)
relu depth:1 input: (10, 128) output: (10, 128)
relu depth:1 input: (10, 128) output: (10, 128)
relu depth:1 input: (10, 128) output: (10, 128)
Linear depth:1 input: (10, 128) output: (10, 64)
Linear depth:1 input: (10, 128) output: (10, 64)
Linear depth:1 input: (10, 128) output: (10, 64)
relu depth:1 input: (10, 64) output: (10, 64)
relu depth:1 input: (10, 64) output: (10, 64)
relu depth:1 input: (10, 64) output: (10, 64)
Linear depth:1 input: (10, 64) output: (10, 32)
Linear depth:1 input: (10, 64) output: (10, 32)
Linear depth:1 input: (10, 64) output: (10, 32)
relu depth:1 input: (10, 32) output: (10, 32)
relu depth:1 input: (10, 32) output: (10, 32)
relu depth:1 input: (10, 32) output: (10, 32)
Linear depth:1 input: (10, 32) output: (10, 4)
Linear depth:1 input: (10, 32) output: (10, 4)
Linear depth:1 input: (10, 32) output: (10, 4)
output-tensor depth:0 (10, 4)
output-tensor depth:0 (10, 4)
output-tensor depth:0 (10, 4)