Comparison of alternative kriging models

	Matern 5/2	Matern 3/2	Gaussian	exponent.	power exp.
Q2 constant trend	0.8254	0.8384	0.8730	0.5757	0.8709
Q2 1st order poly. trend	0.8218	0.7957	0.8505	0.6367	0.6881
RMSE constant trend	0.0716	0.0716	0.0716	0.0716	0.0716
RMSE 1st order poly. trend	0.0379	0.0379	0.0379	0.0379	0.0379
MAE constant trend	0.0529	0.0529	0.0529	0.0529	0.0529
MAE 1st order poly. trend	0.0308	0.0308	0.0308	0.0308	0.0308
RMA constant trend	2.4829	2.4829	2.4829	2.4829	2.4829
RMA 1st order poly. trend	1.0341	1.0341	1.0341	1.0341	1.0341

Q2: cross validation Q2 (higher is better)
RMSE/MAE/RMA: external validation RMSE/MAE/RMA (lower is better)

Kriging meta−model estimation (standardized)

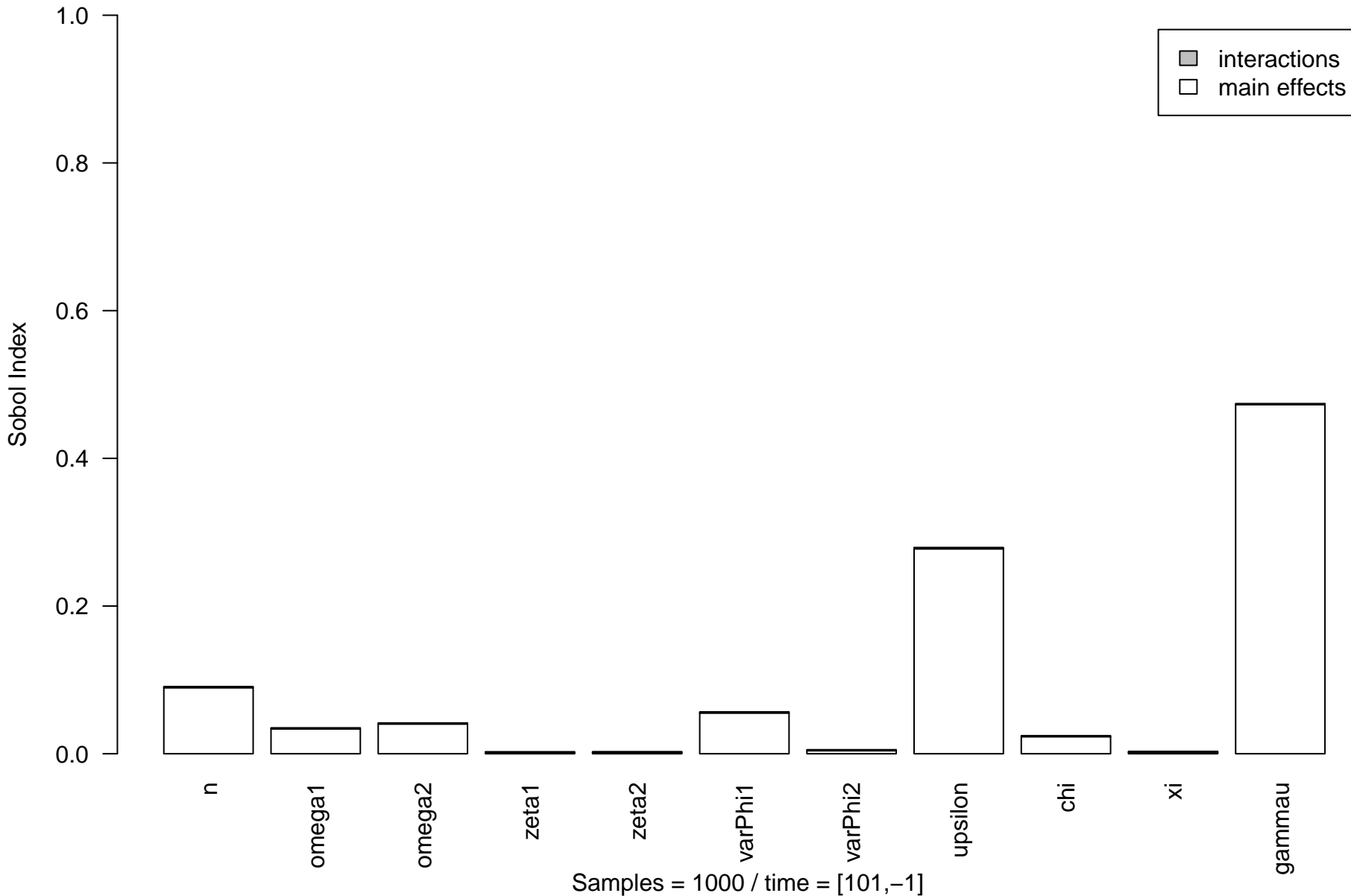|			
trend(intercept)	−0.412	Trend specification	1st order poly.
trend(inclination)	−0.080	Correlation function	Gaussian
theta(n)	1.233	Cross−sample Q2	0.851
theta(omega1)	0.134	External RMSE	0.038
theta(omega2)	0.199	External MAE	0.031
theta(zeta1)	0.471	External RMA	1.034
theta(zeta2)	1.800	DoE samples	65
theta(varPhi1)	1.497	External samples	10
theta(varPhi2)	1.770		
theta(upsilon)	0.154		
theta(chi)	1.681		
theta(xi)	1.649		
theta(gammau)	0.964		

Variables rescaled to [0,1] / Average 95% CI = +/− 0.08
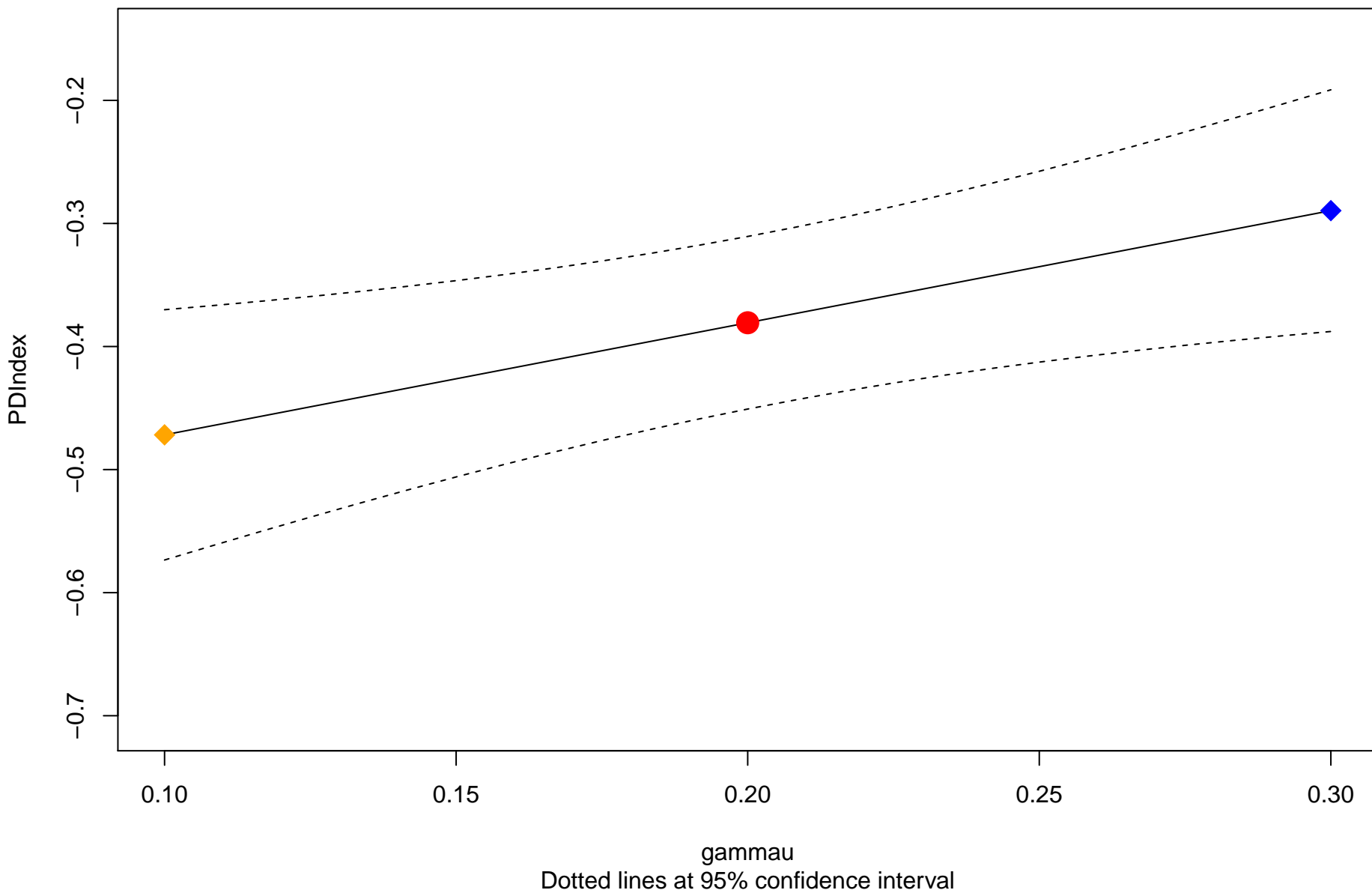Predicted output at defaults: PDIndex = −0.38, 95% CI = [−0.45,−0.31], time = [101,−1]

Sobol decomposition indexes (PDIndex)

	Direct effects	Interactions
n	0.089	0.002
omega1	0.034	0.001
omega2	0.040	0.001
zeta1	0.001	0.001
zeta2	0.002	0.001
varPhi1	0.055	0.001
varPhi2	0.004	0.001
upsilon	0.277	0.002
chi	0.023	0.001
xi	0.002	0.001
gammau	0.473	0.001

Samples = 1000 / time = [101,−1]

Sobol decomposition indexes (PDIndex)

Legend:
- ■ interactions
- □ main effects

Y-axis: Sobol Index (0.0 to 1.0)

X-axis categories: n, omega1, omega2, zeta1, zeta2, varPhi1, varPhi2, upsilon, chi, xi, gammau

Samples = 1000 / time = [101,−1]

Meta−model response for parameter 'gammau'

PDIndex

gammau
Dotted lines at 95% confidence interval

Meta−model response for parameter 'upsilon'
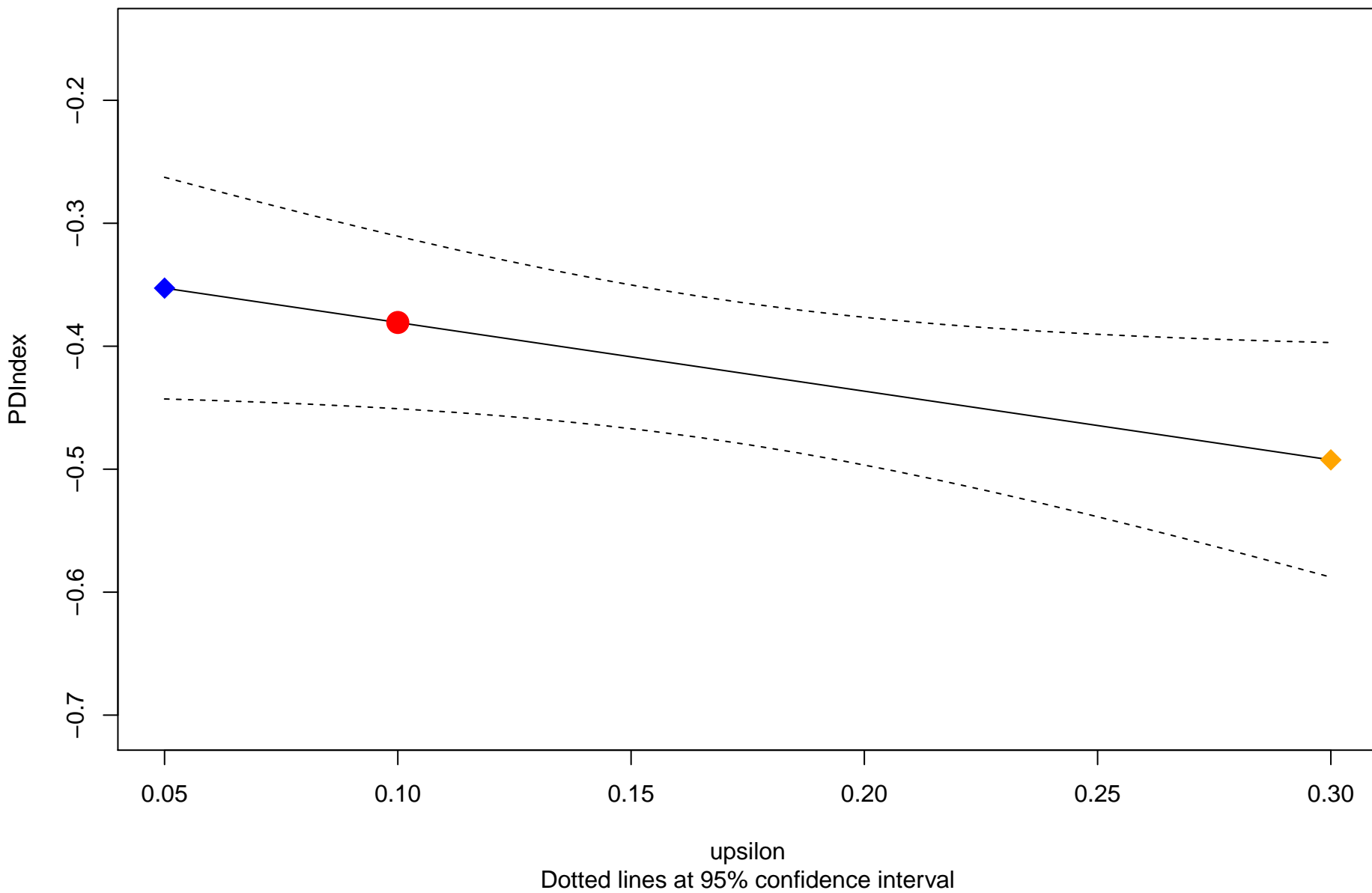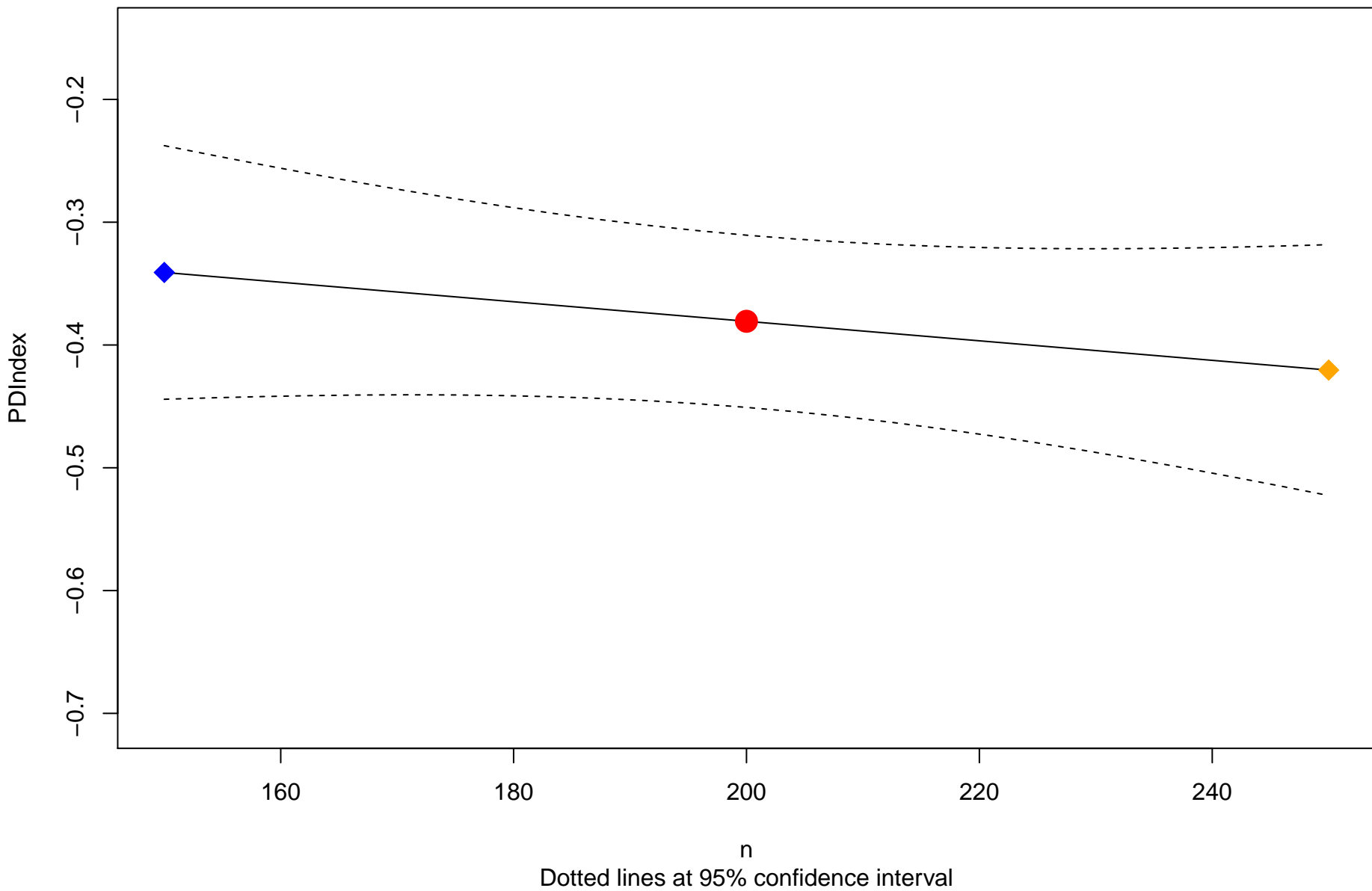
upsilon
Dotted lines at 95% confidence interval

Meta−model response for parameter 'n'

PDIndex

n

Dotted lines at 95% confidence interval

Meta−model response surface (n = 150)

PDIndex

−0.3

−0.4

−0.5

gammau

0.10
0.15
0.20
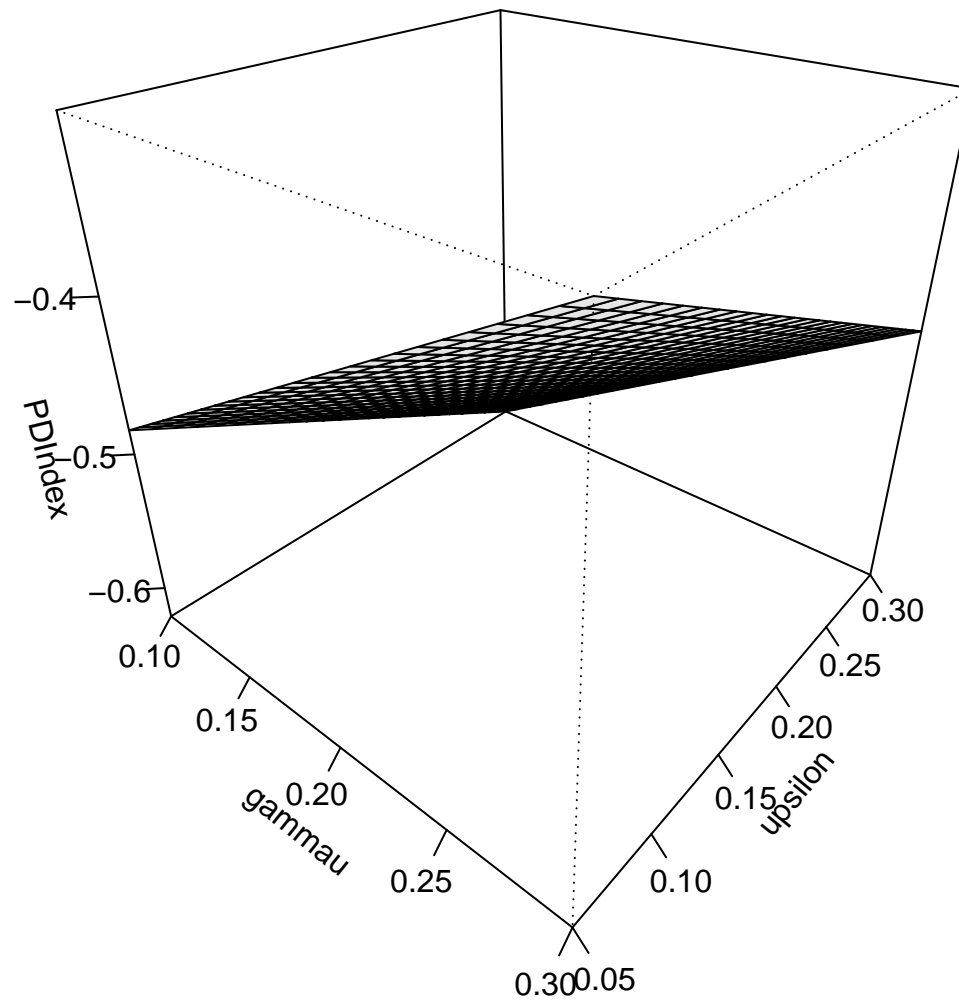0.25
0.30

upsilon

0.30
0.25
0.20
0.15
0.10
0.05
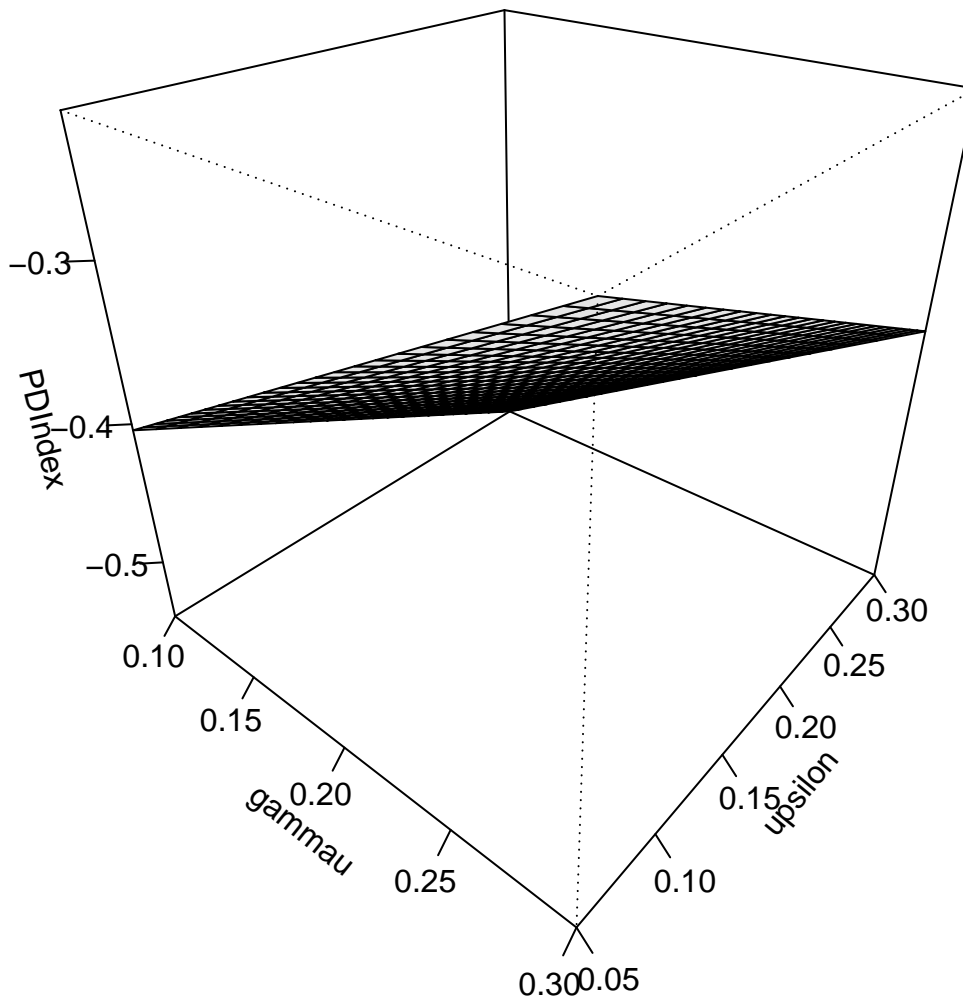
All other parameters are at default settings

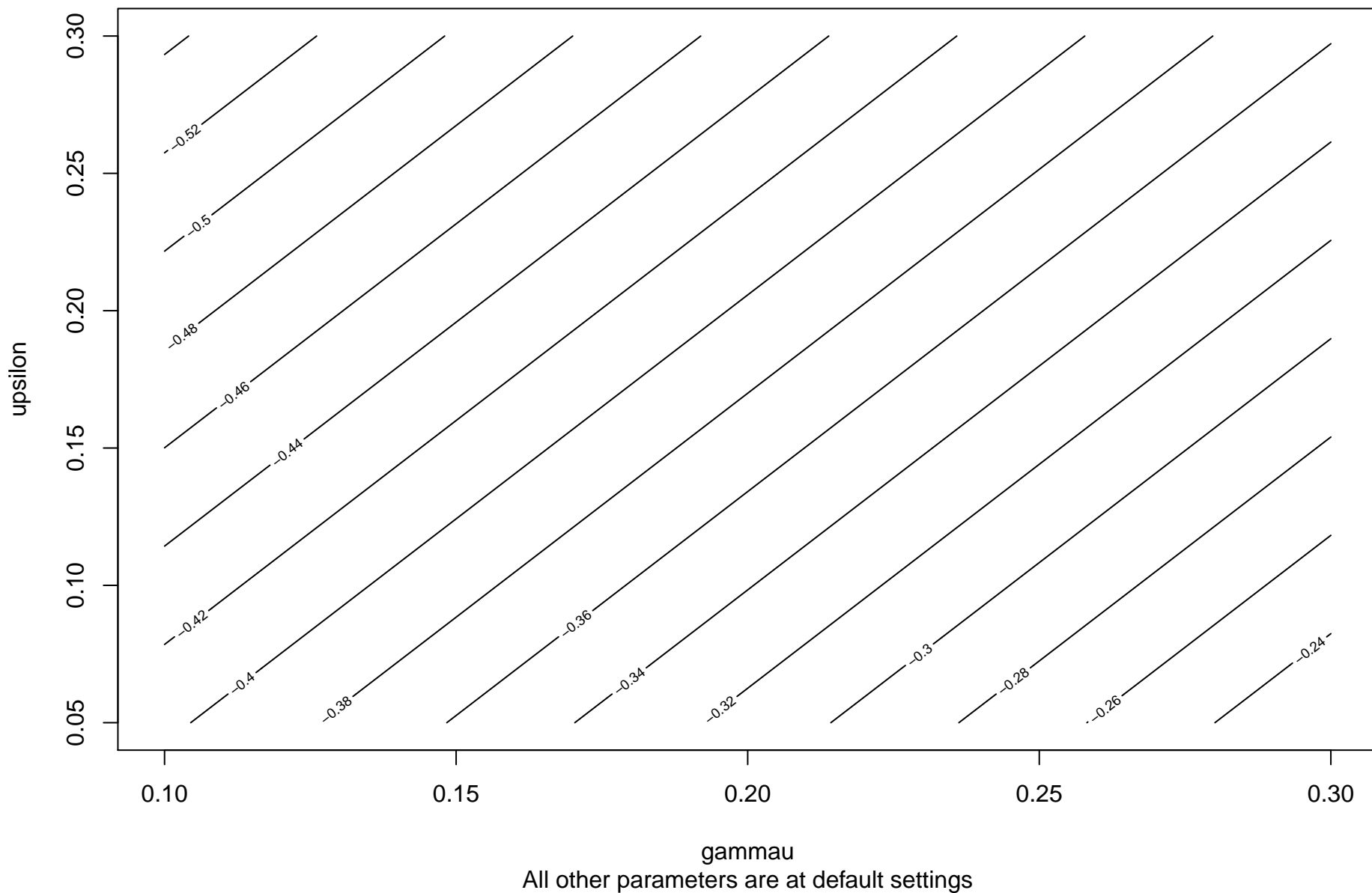**Meta−model response surface (n = 200)**
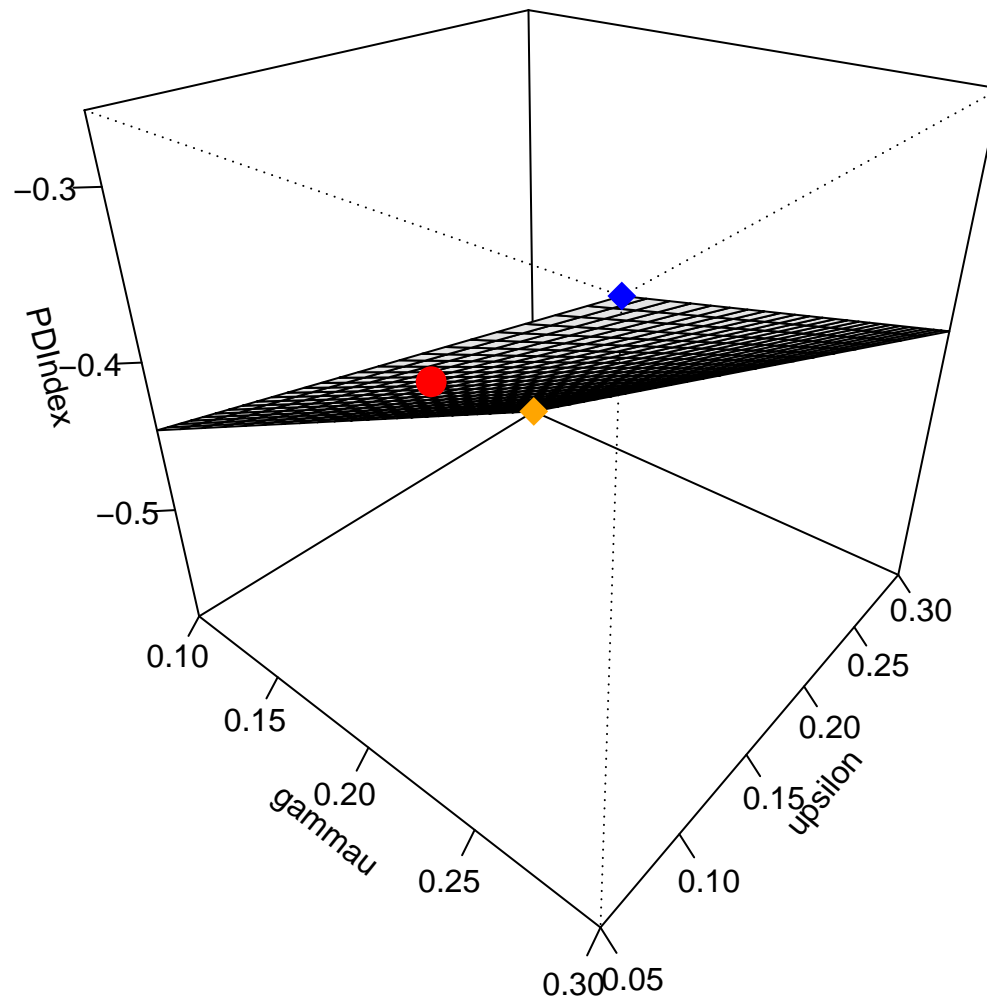
95% confidence interval: PDIndex = [−0.45,−0.31] at defaults (red dot)
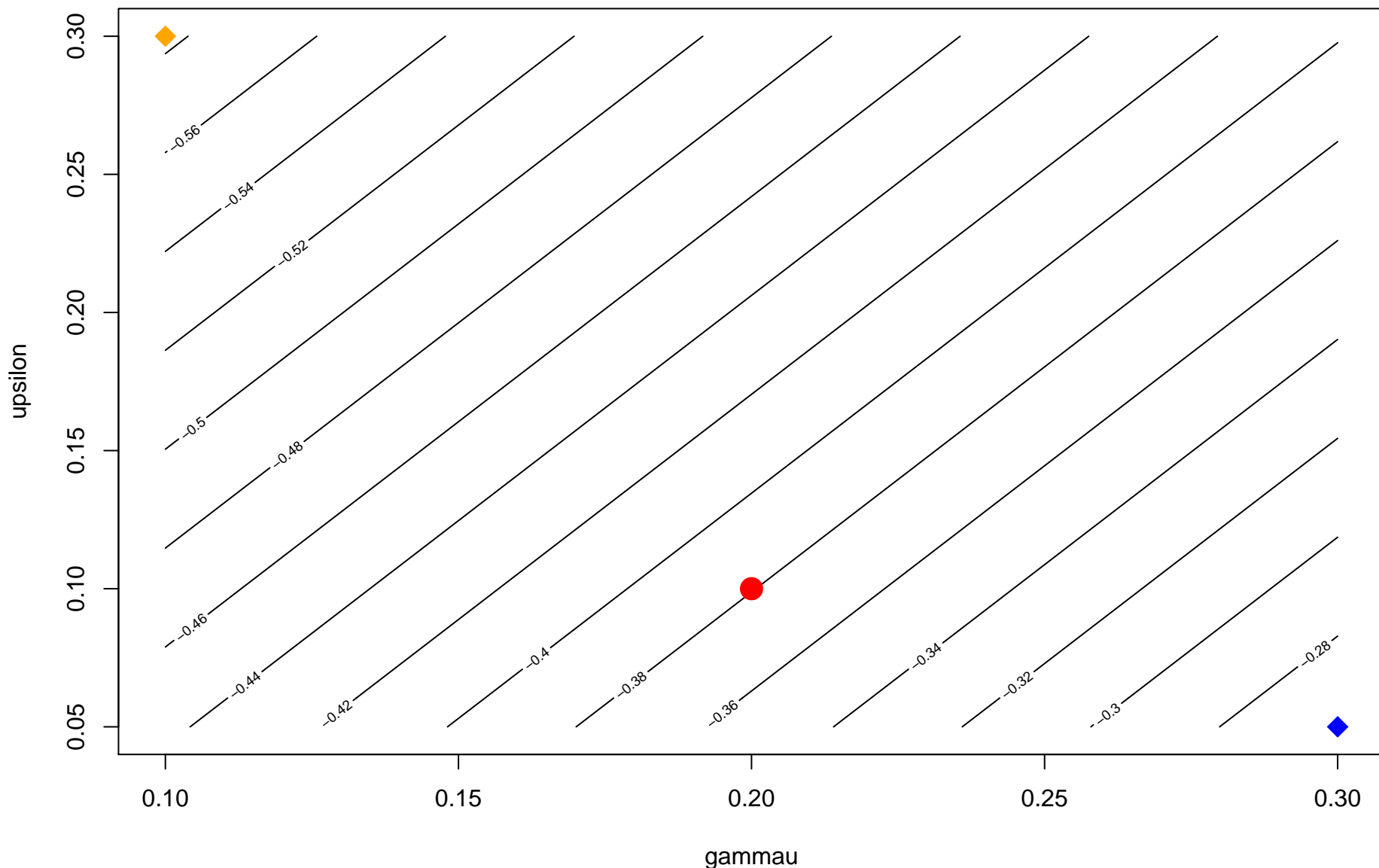
Meta−model response surface (n = 250)

All other parameters are at default settings

Meta−model response surface (n = 150)

upsilon

gammau

All other parameters are at default settings

Meta−model response surface (n = 200)

gammau

95% confidence interval: PDIndex = [−0.45,−0.31] at defaults (red dot)

Meta−model response surface (n = 250)

upsilon

gammau

All other parameters are at default settings