Comparison of alternative kriging models

	Matern 5/2	Matern 3/2	Gaussian	exponent.	power exp.
Q2 constant trend	0.8663	0.8410	0.8689	0.6190	0.8570
Q2 1st order poly. trend	0.7253	0.7179	0.8522	0.6461	0.7263
RMSE constant trend	0.0658	0.0658	0.0658	0.0658	0.0658
RMSE 1st order poly. trend	0.0584	0.0584	0.0584	0.0584	0.0584
MAE constant trend	0.0547	0.0547	0.0547	0.0547	0.0547
MAE 1st order poly. trend	0.0441	0.0441	0.0441	0.0441	0.0441
RMA constant trend	2.5657	2.5657	2.5657	2.5657	2.5657
RMA 1st order poly. trend	2.6484	2.6484	2.6484	2.6484	2.6484

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

Kriging meta−model estimation (standardized)

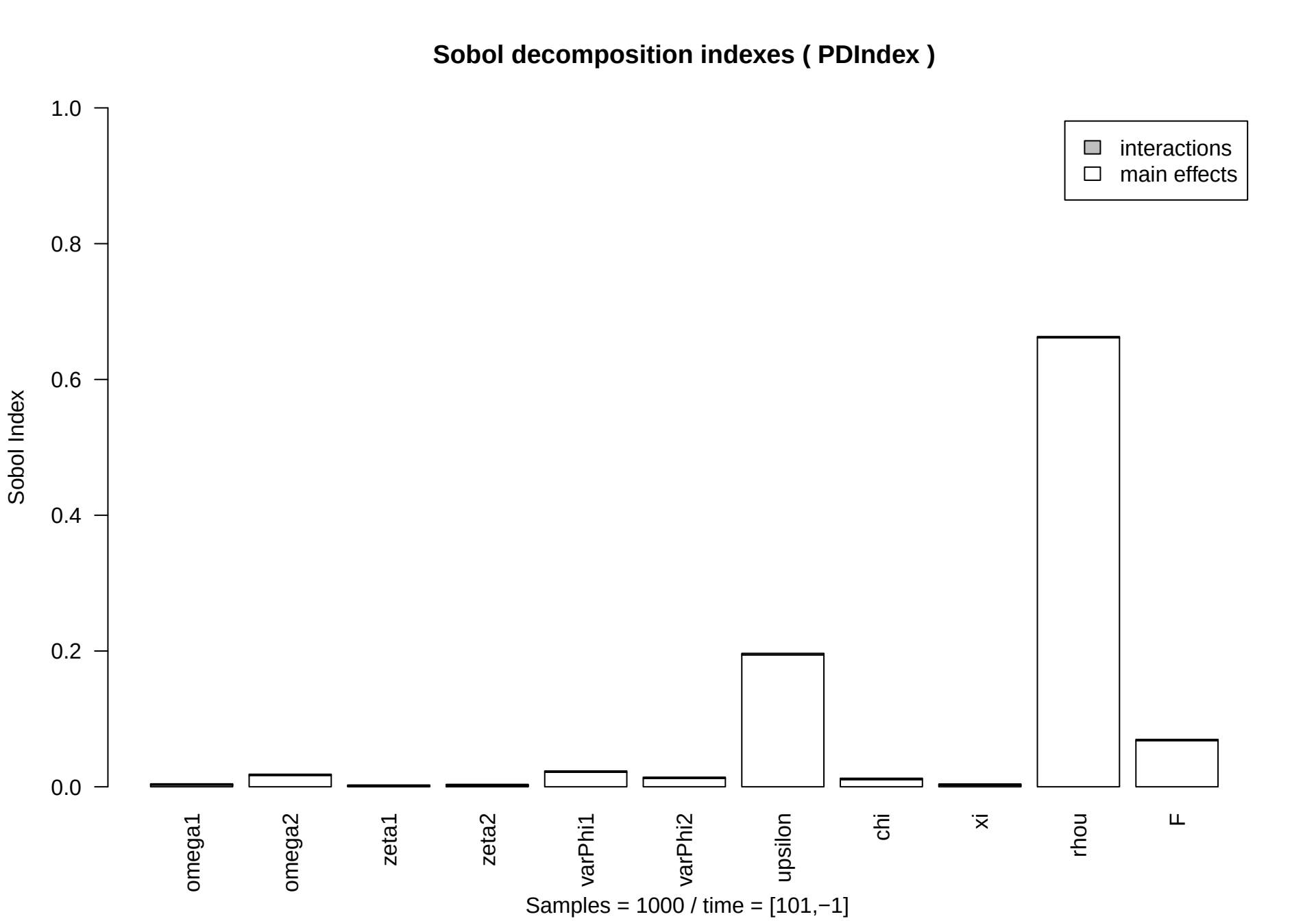
trend(intercept)	−0.443	Trend specification	1st order poly.
trend(inclination)	0.014	Correlation function	Gaussian
theta(omega1)	0.306	Cross−sample Q2	0.852
theta(omega2)	0.382	External RMSE	0.058
theta(zeta1)	0.152	External MAE	0.044
theta(zeta2)	1.937	External RMA	2.648
theta(varPhi1)	0.978	DoE samples	65
theta(varPhi2)	1.573	External samples	20
theta(upsilon)	0.329		
theta(chi)	0.633		
theta(xi)	0.807		
theta(gammau)	0.305		
theta(n)	1.324		

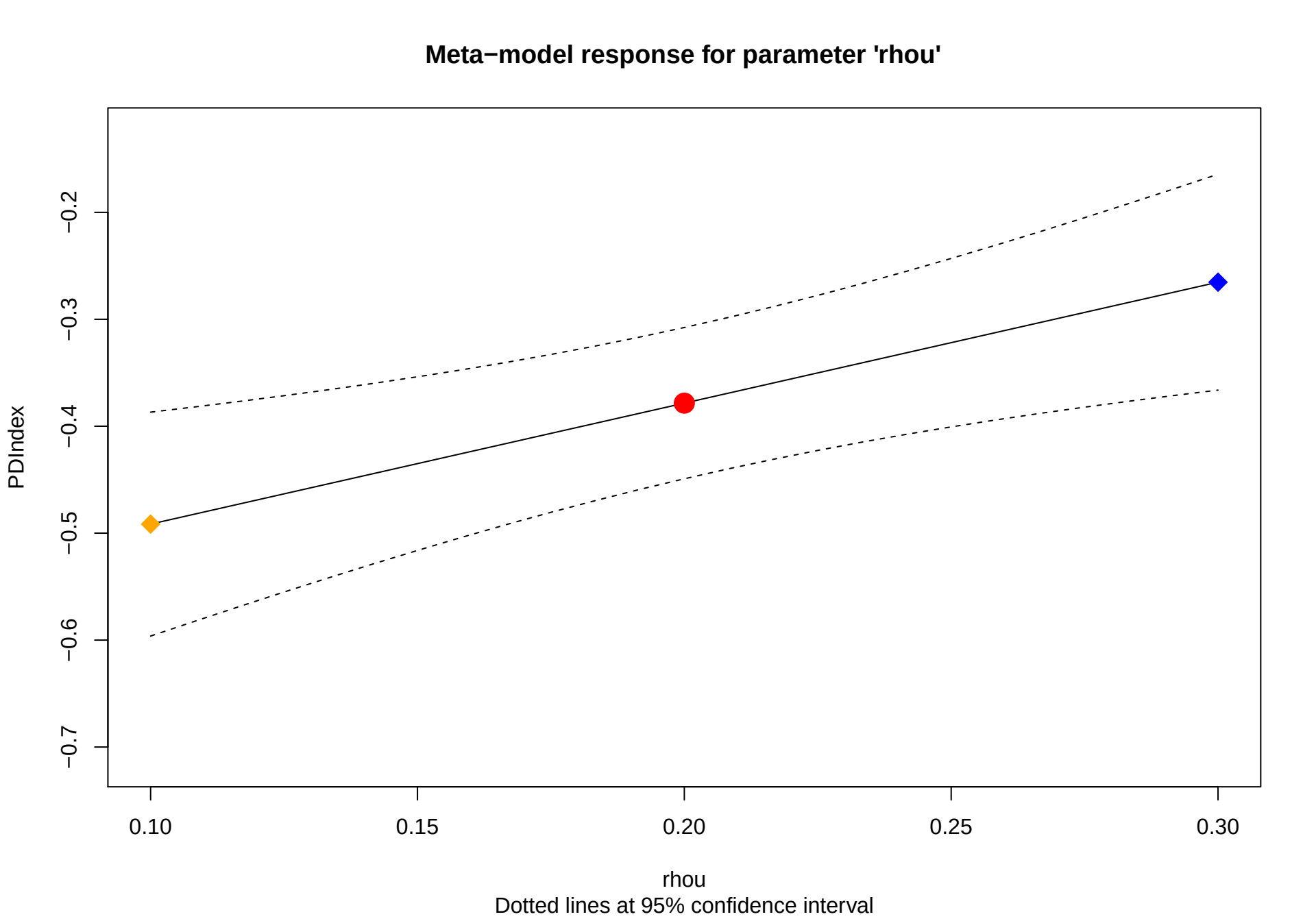
Variables rescaled to [0,1] / Average 95% CI = +/− 0.09
Predicted output at defaults: PDIndex = −0.38, 95% CI = [−0.45,−0.31], time = [101,−1]

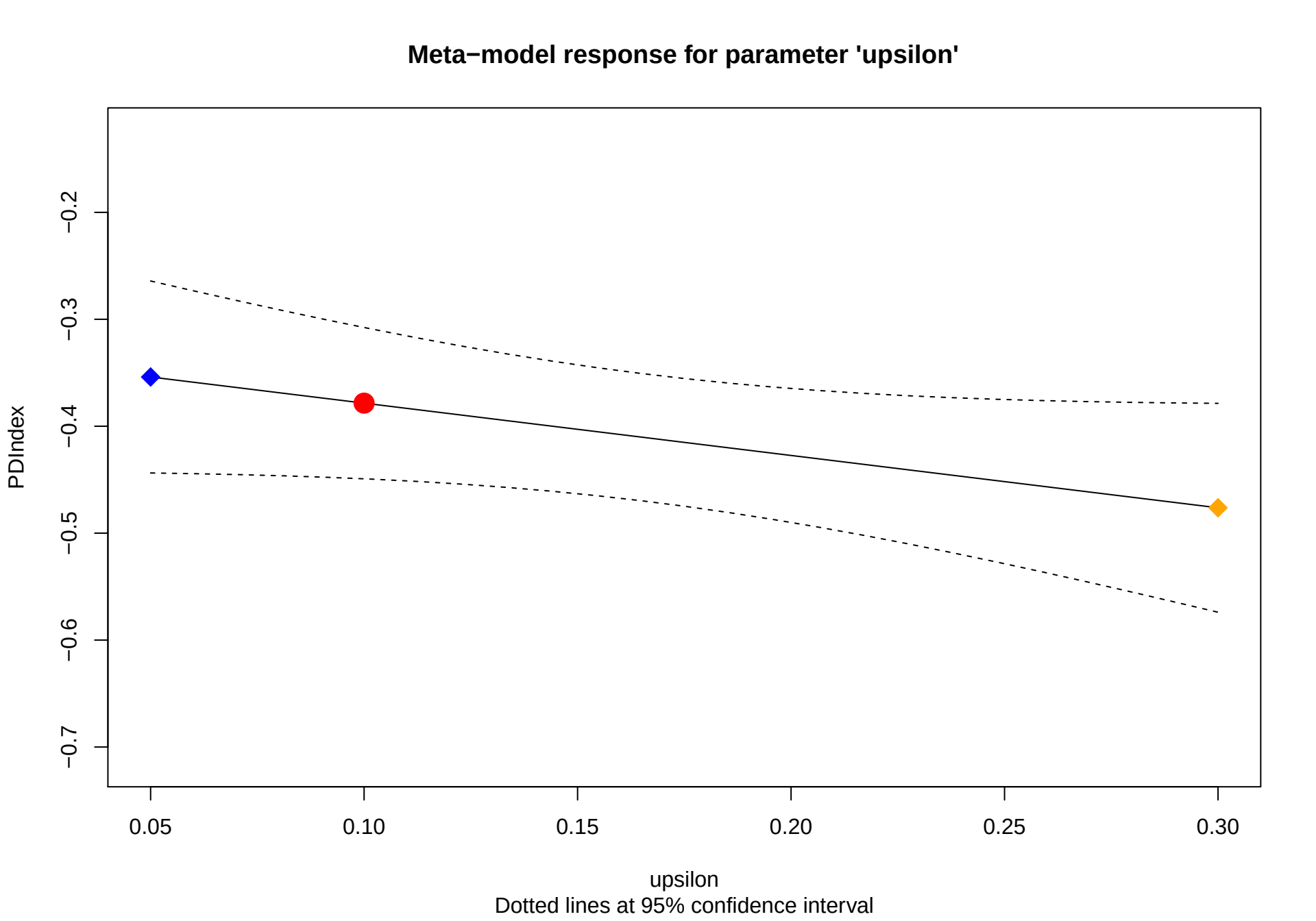
Sobol decomposition indexes (PDIndex)

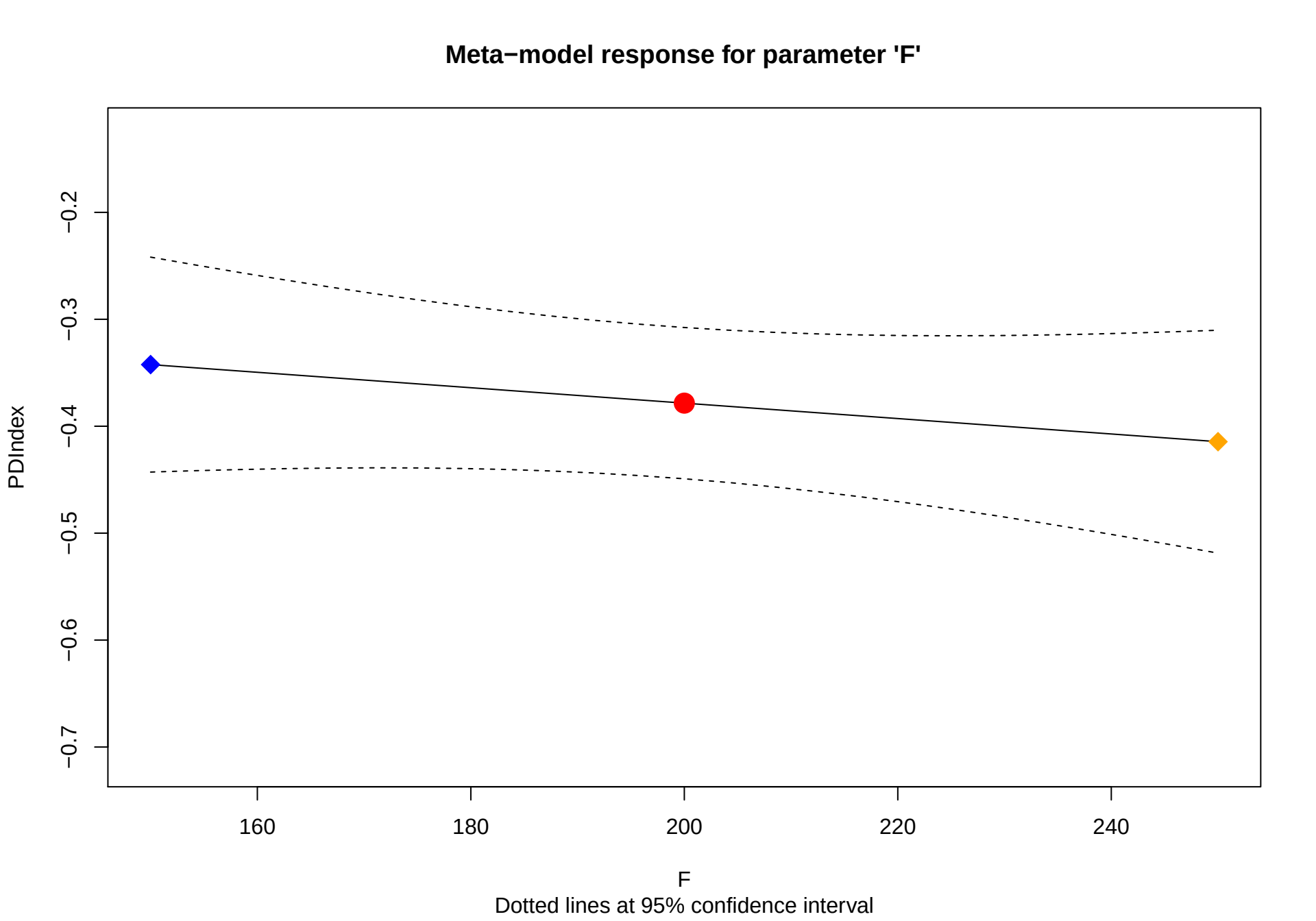
	Direct effects	Interactions
omega1	0.003	0.002
omega2	0.017	0.002
zeta1	0.001	0.002
zeta2	0.002	0.002
varPhi1	0.021	0.002
varPhi2	0.012	0.002
upsilon	0.194	0.002
chi	0.011	0.002
xi	0.002	0.002
gammau	0.661	0.002
n	0.068	0.002

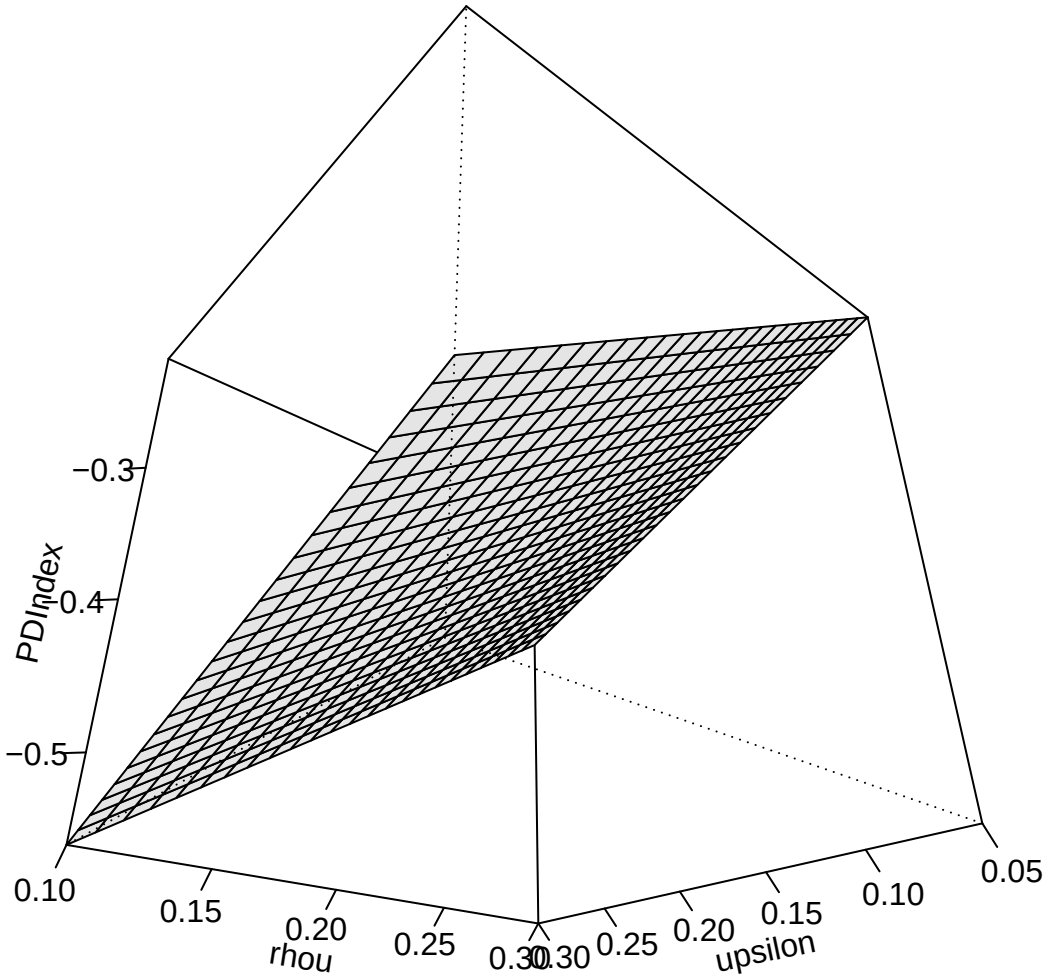
Samples = 1000 / time = [101,−1]


Sobol decomposition indexes (PDIndex)
interactions
main effects
Sobol Index
1.0
0.8
0.6
0.4
0.2
0.0
omega1
omega2
zeta1
zeta2
varPhi1
varPhi2
upsilon
chi
xi
rhou
F
Samples = 1000 / time = [101,−1]

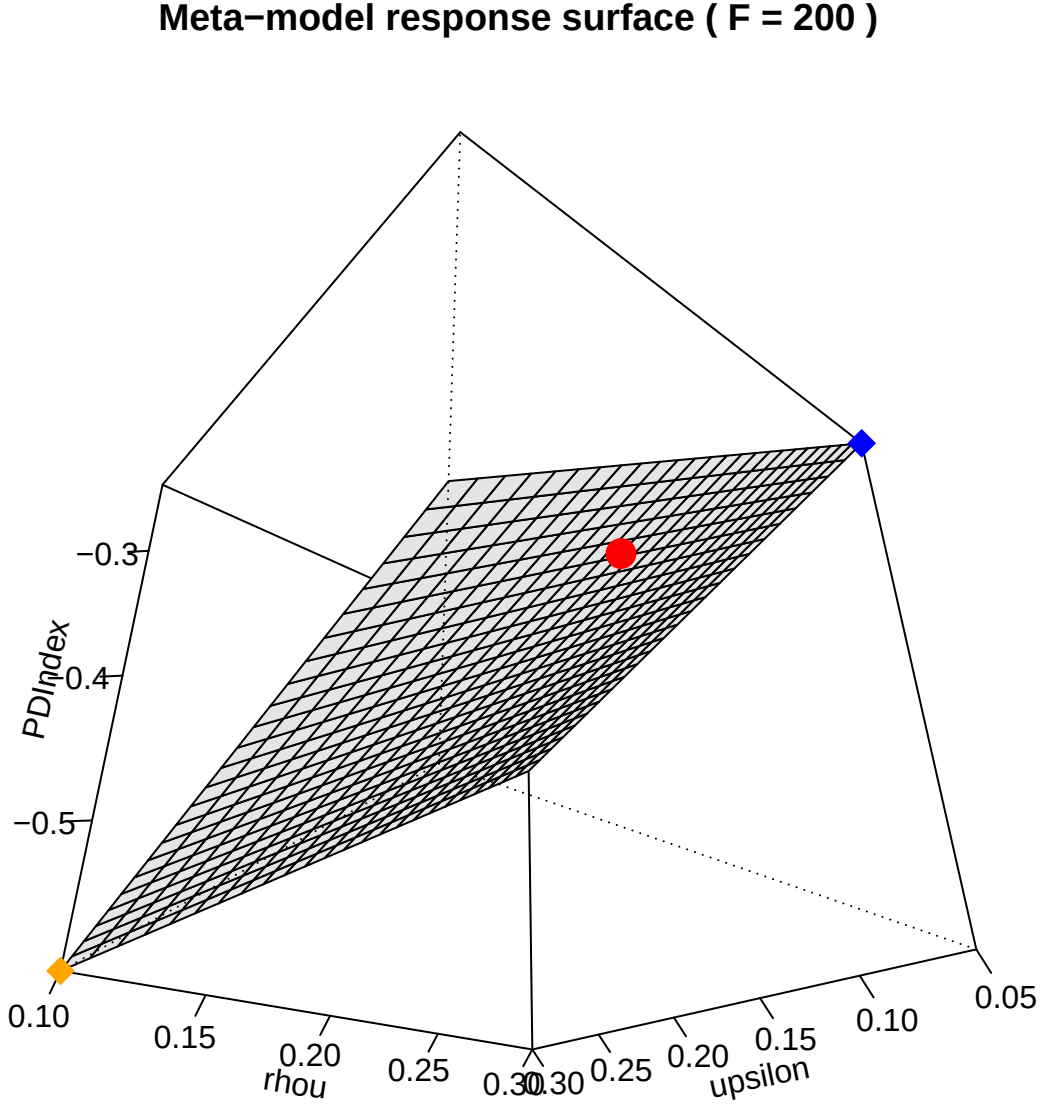

Meta−model response for parameter 'rhou'
PDIndex
−0.2
−0.3
−0.4
−0.5
−0.6
−0.7
0.10
0.15
0.20
0.25
0.30
rhou
Dotted lines at 95% confidence interval


Meta−model response for parameter 'upsilon'
PDIndex
−0.2
−0.3
−0.4
−0.5
−0.6
−0.7
0.05
0.10
0.15
0.20
0.25
0.30
upsilon
Dotted lines at 95% confidence interval

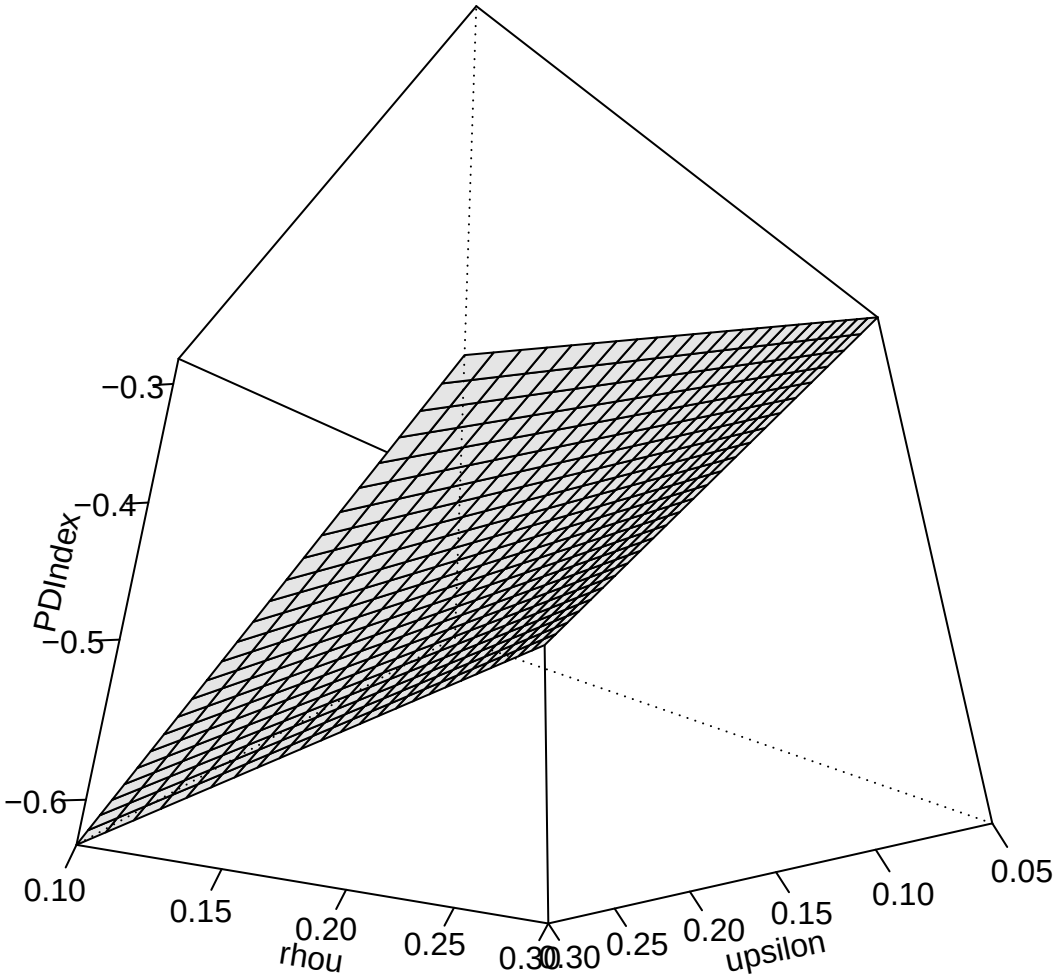

Meta−model response for parameter 'F'
PDIndex
−0.2
−0.3
−0.4
−0.5
−0.6
−0.7
160
180
200
220
240
F
Dotted lines at 95% confidence interval

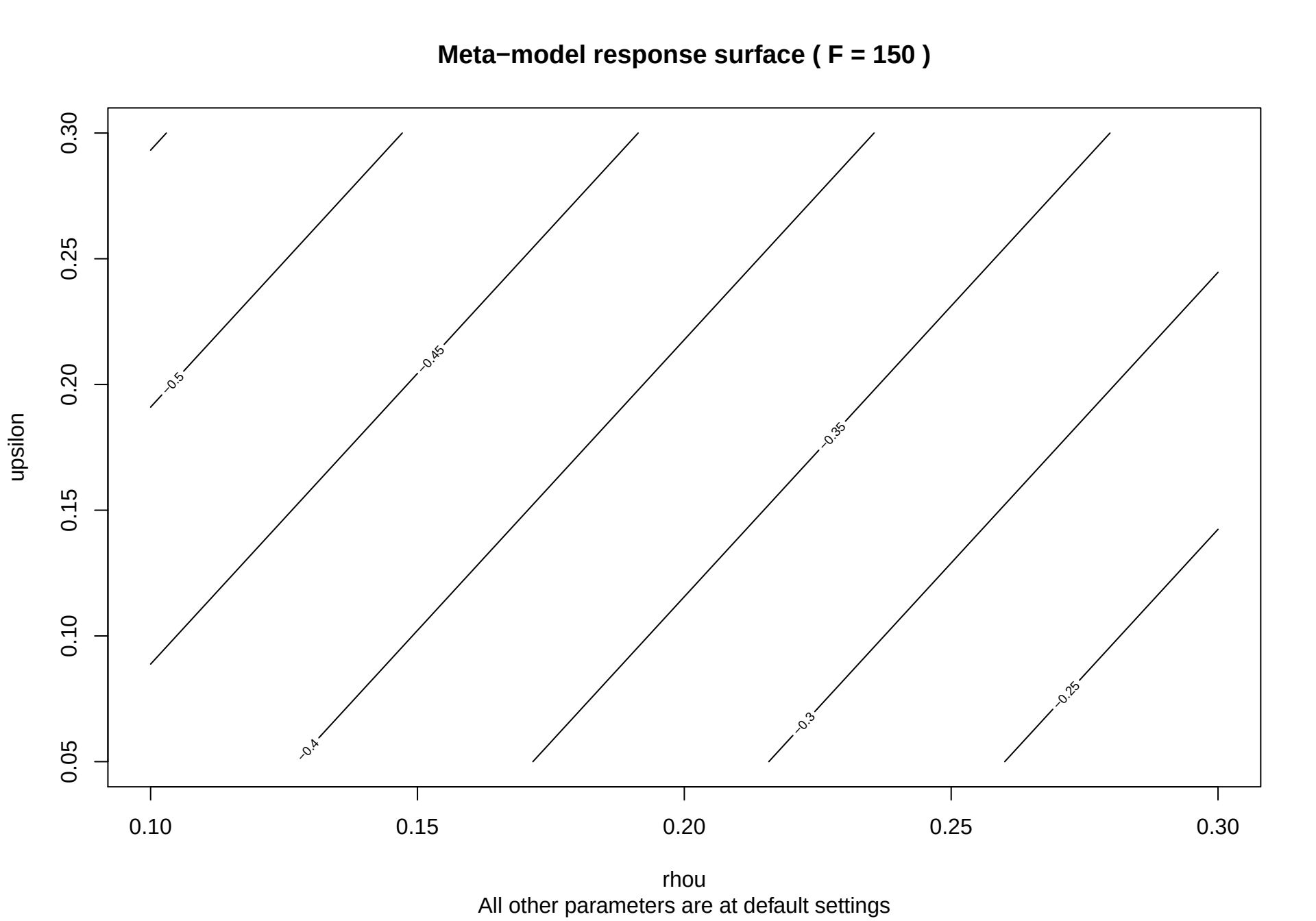


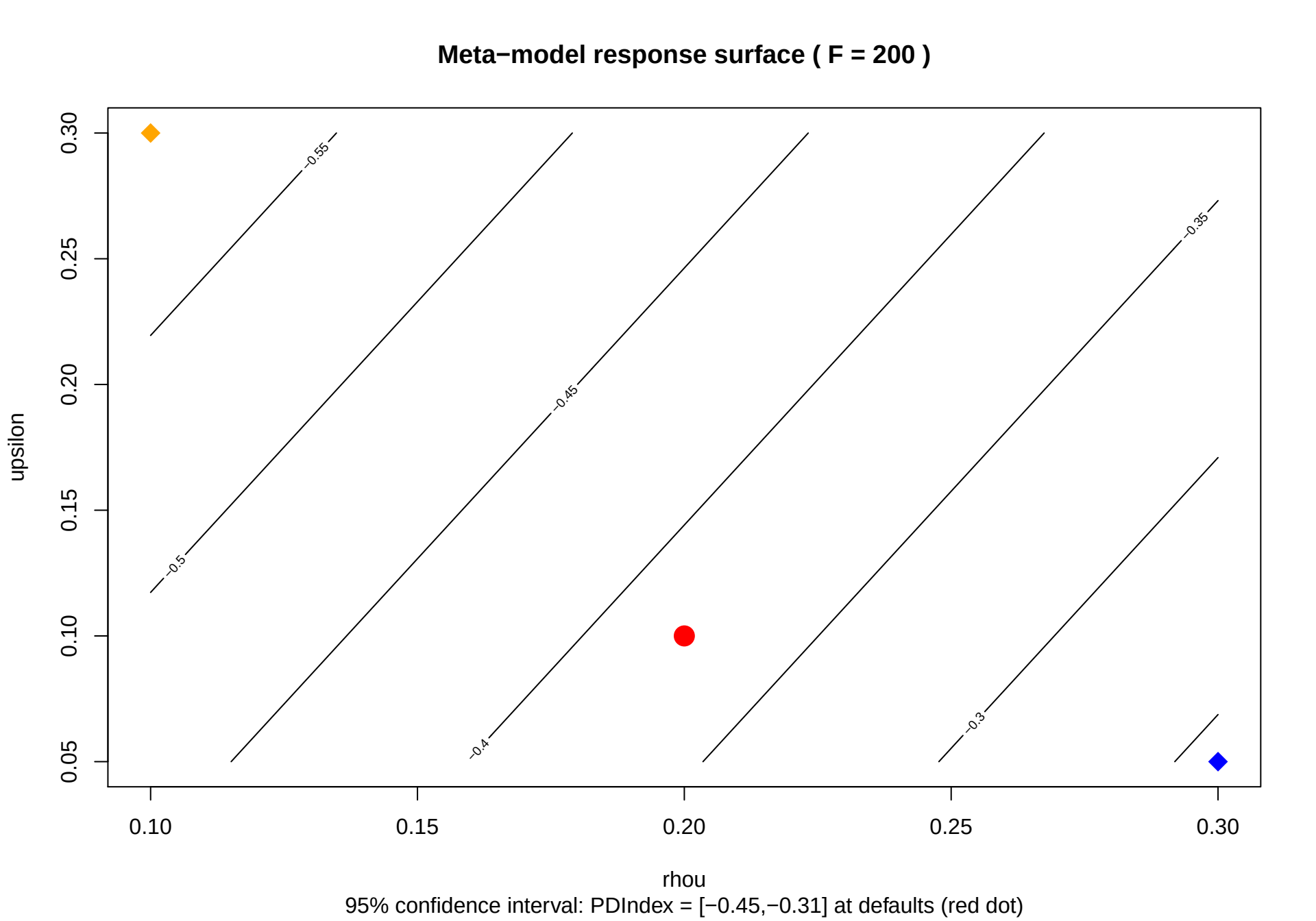
All other parameters are at default settings

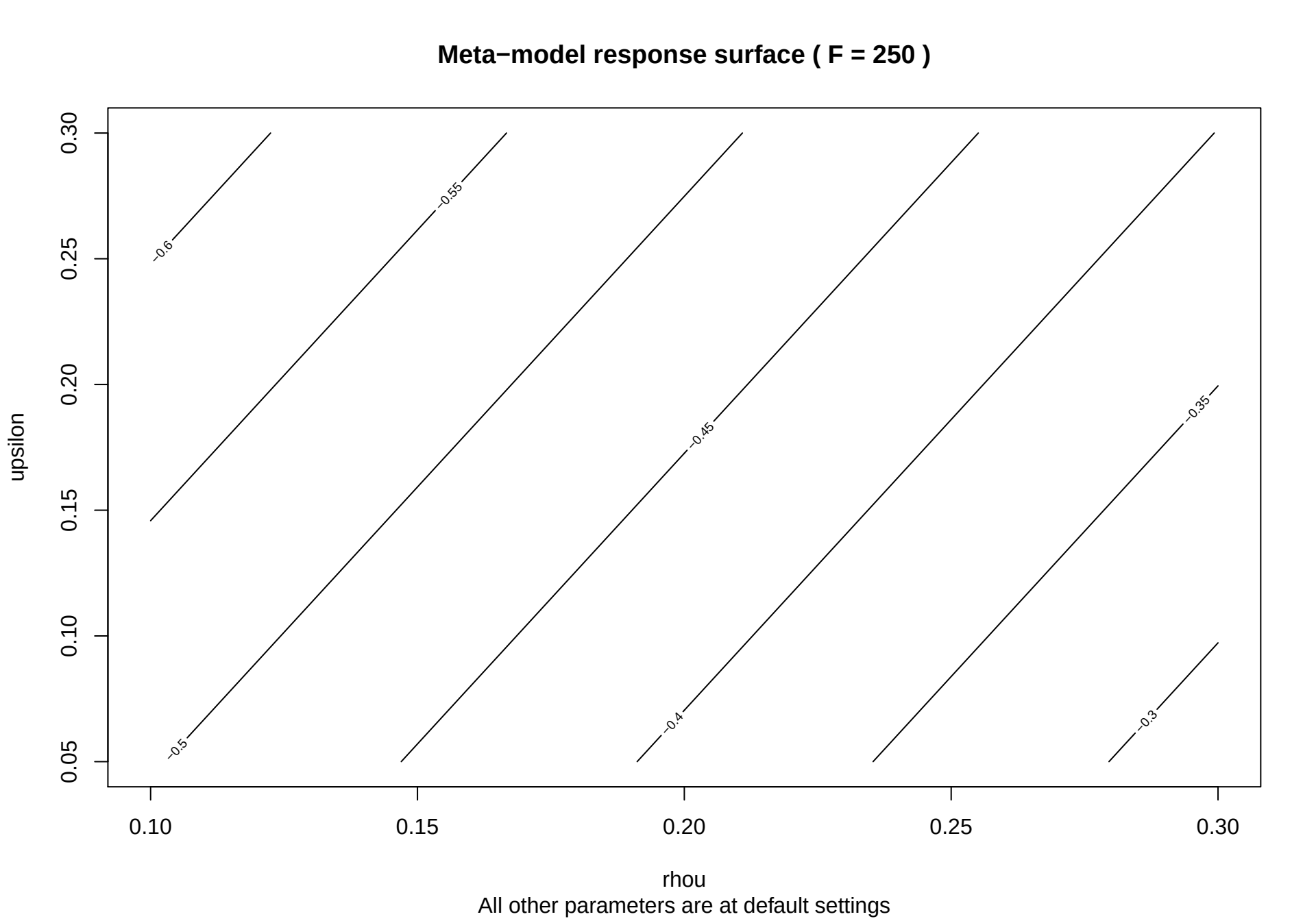


95% confidence interval: PDIndex = [−0.45,−0.31] at defaults (red dot)


Meta−model response surface (F = 250)
−0.3
−0.4
−0.5
−0.6
PDIndex
0.10
0.15
0.20
0.25
0.30
rhou
0.30
0.25
0.20
0.15
0.10
0.05
upsilon
All other parameters are at default settings


Meta−model response surface (F = 150)
upsilon
0.05
0.10
0.15
0.20
0.25
0.30
rhou
0.10
0.15
0.20
0.25
0.30
All other parameters are at default settings
0.5
0.45
0.4
0.35
0.3
0.25


Meta−model response surface (F = 200)
upsilon
rhou
0.05
0.10
0.15
0.20
0.25
0.30
0.10
0.15
0.20
0.25
0.30
−0.55
−0.5
−0.45
−0.4
−0.35
−0.3
95% confidence interval: PDIndex = [−0.45,−0.31] at defaults (red dot)


Meta−model response surface (F = 250)
upsilon
0.05
0.10
0.15
0.20
0.25
0.30
rhou
0.10
0.15
0.20
0.25
0.30
All other parameters are at default settings
0.6
0.55
0.5
0.45
0.4
0.35
0.3