Comparison of alternative kriging models

	Matern 5/2	Matern 3/2	Gaussian	exponent.	power exp.
Q2 constant trend	0.4945	0.4748	0.5181	0.3240	0.3723
Q2 1st order poly. trend	0.5202	0.3160	0.5656	0.2864	0.3174
RMSE constant trend	0.0072	0.0072	0.0072	0.0072	0.0072
RMSE 1st order poly. trend	0.0031	0.0031	0.0031	0.0031	0.0031
MAE constant trend	0.0063	0.0063	0.0063	0.0063	0.0063
MAE 1st order poly. trend	0.0023	0.0023	0.0023	0.0023	0.0023
RMA constant trend	2.1327	2.1327	2.1327	2.1327	2.1327
RMA 1st order poly. trend	1.1863	1.1863	1.1863	1.1863	1.1863

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

Kriging meta−model estimation (standardized)

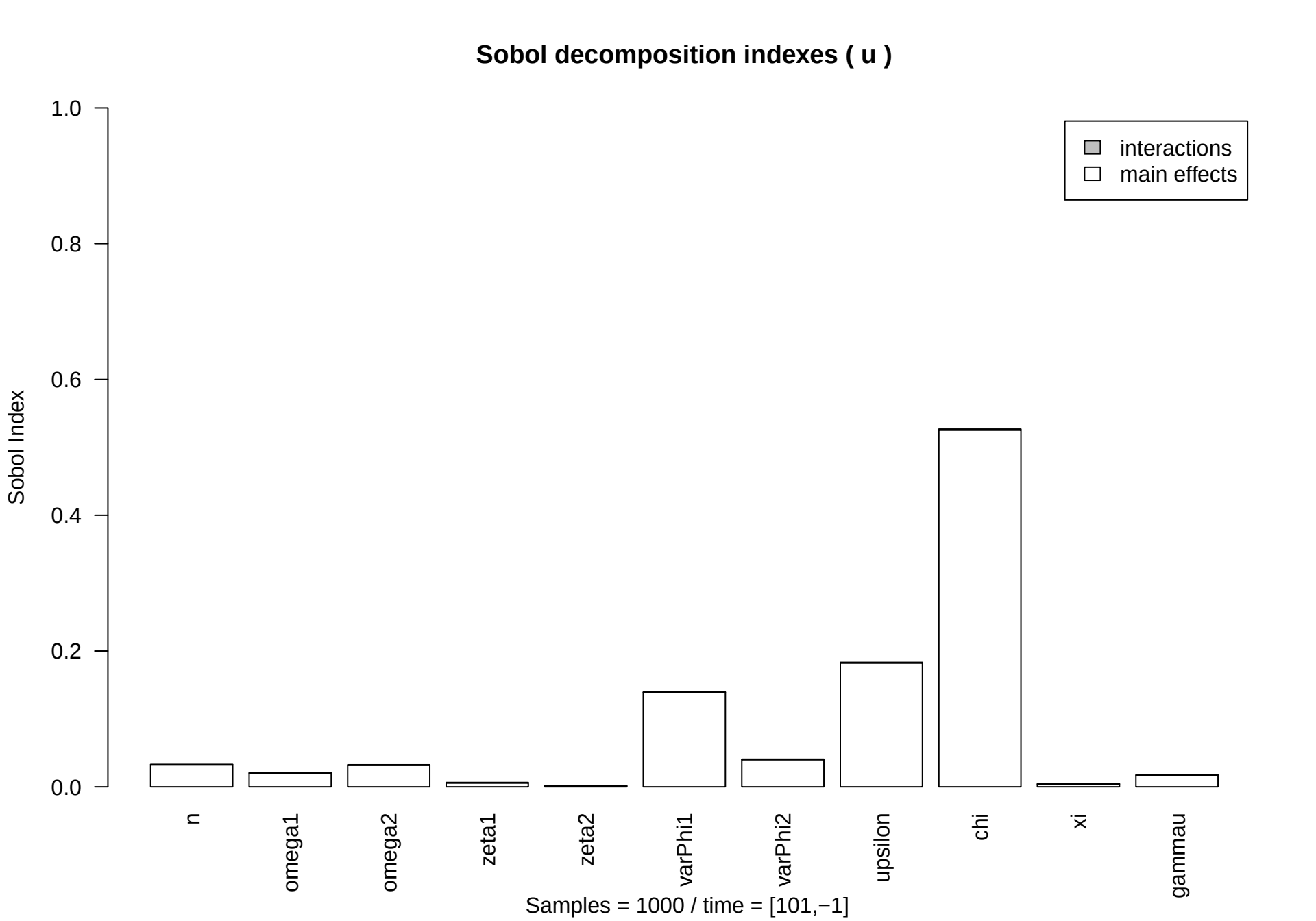
trend(intercept)	0.795	Trend specification	1st order poly.
trend(inclination)	−0.003	Correlation function	Gaussian
theta(n)	0.112	Cross−sample Q2	0.566
theta(omega1)	1.843	External RMSE	0.003
theta(omega2)	1.204	External MAE	0.002
theta(zeta1)	0.445	External RMA	1.186
theta(zeta2)	0.624	DoE samples	65
theta(varPhi1)	0.704	External samples	10
theta(varPhi2)	0.817		
theta(upsilon)	0.930		
theta(chi)	1.706		
theta(xi)	0.358		
theta(gammau)	0.263		

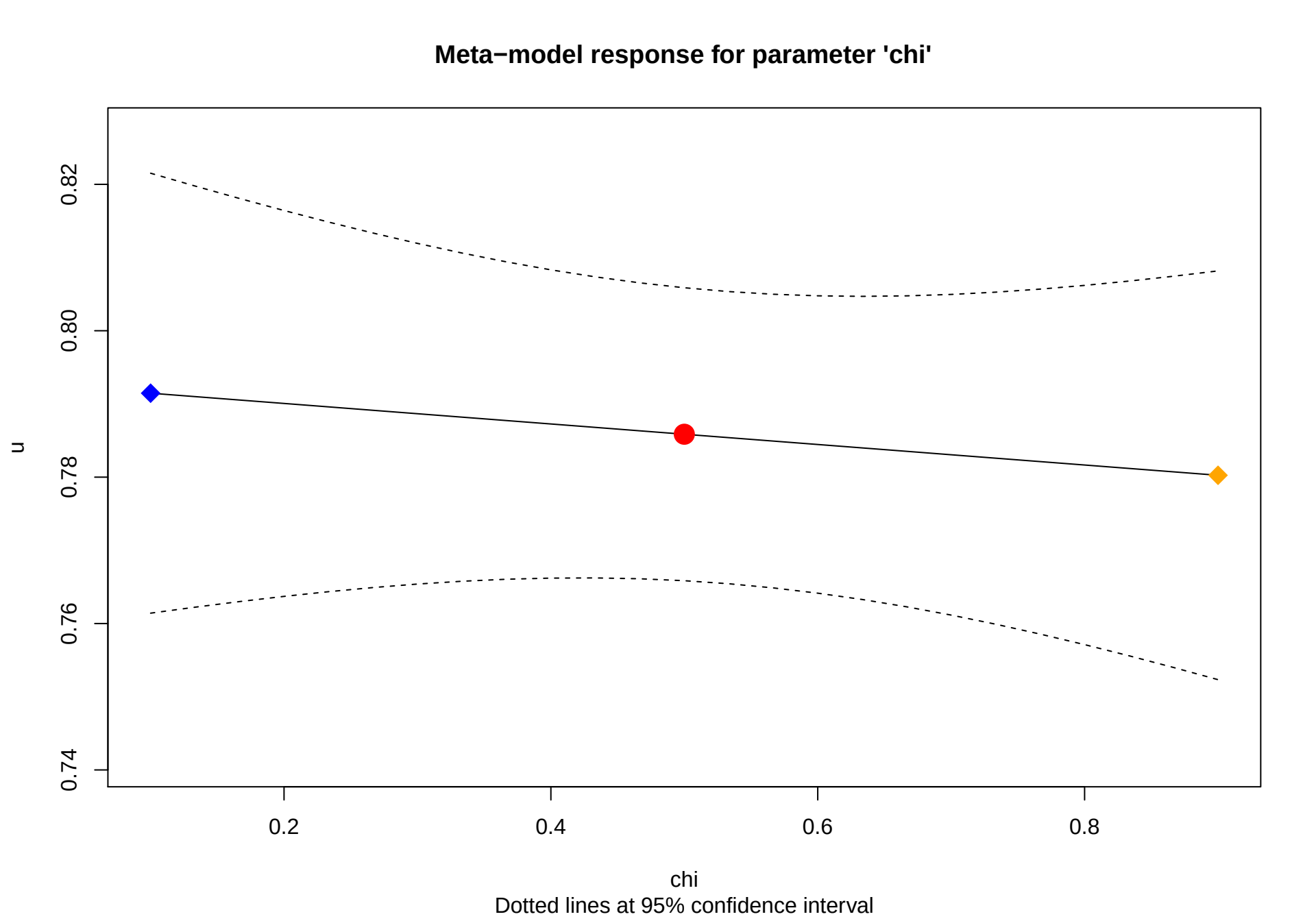
Variables rescaled to [0,1] / Average 95% CI = +/− 0.02
Predicted output at defaults: u = 0.79, 95% CI = [0.77,0.81], time = [101,−1]

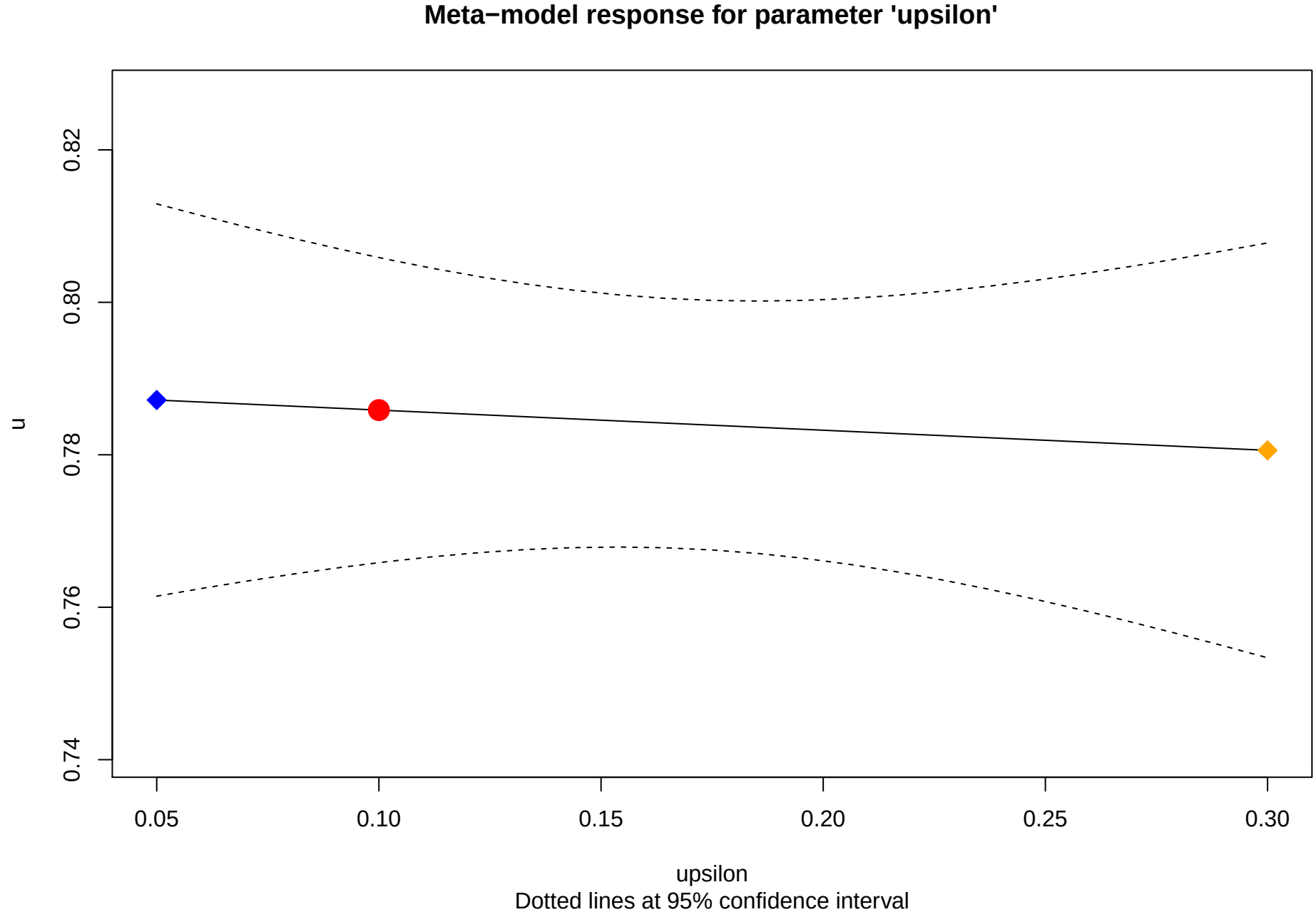
Sobol decomposition indexes (u)

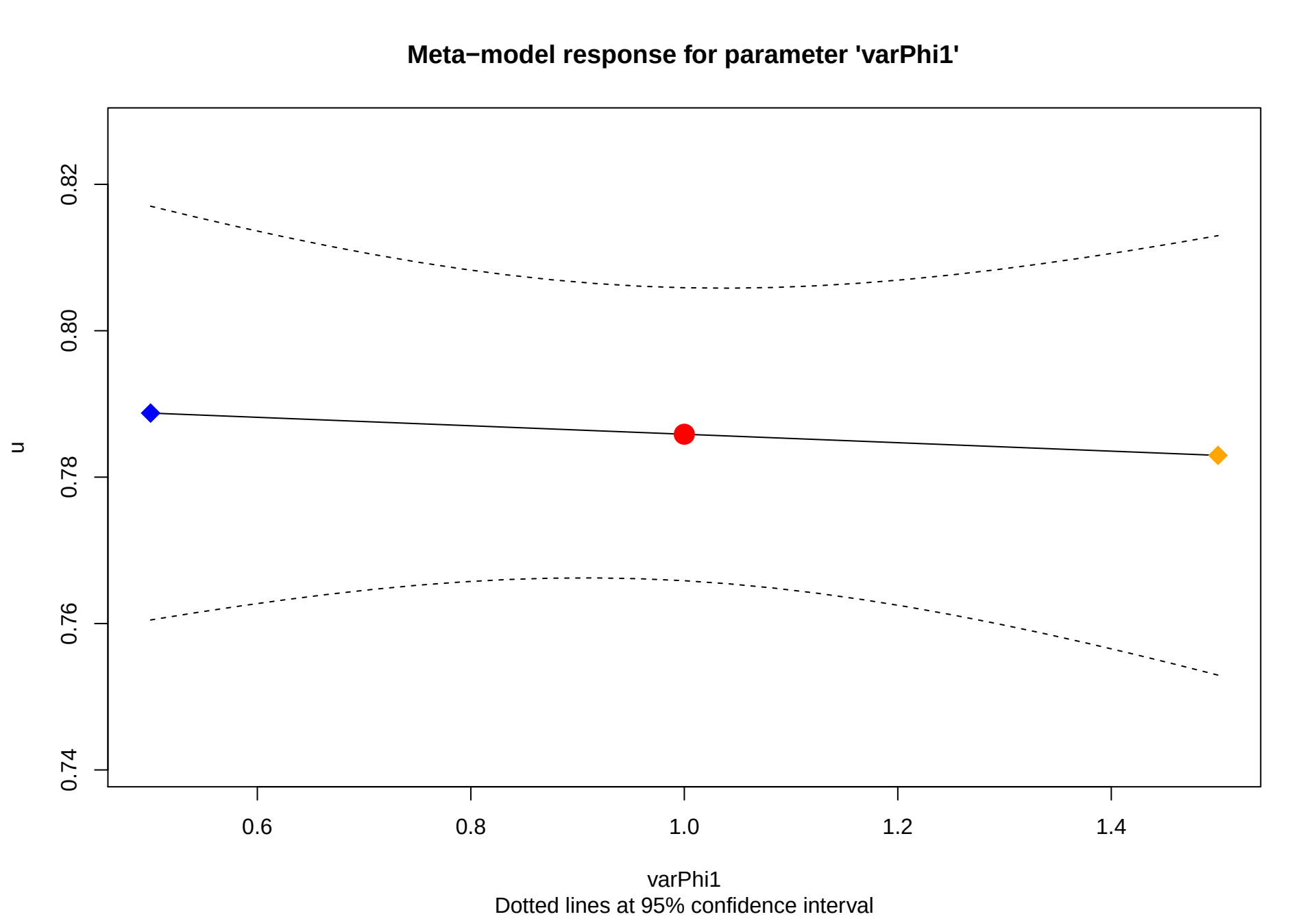
	Direct effects	Interactions
n	0.032	0.001
omega1	0.020	0.001
omega2	0.032	0.001
zeta1	0.006	0.001
zeta2	0.001	0.001
varPhi1	0.139	0.001
varPhi2	0.040	0.001
upsilon	0.182	0.001
chi	0.526	0.001
xi	0.003	0.001
gammau	0.016	0.001

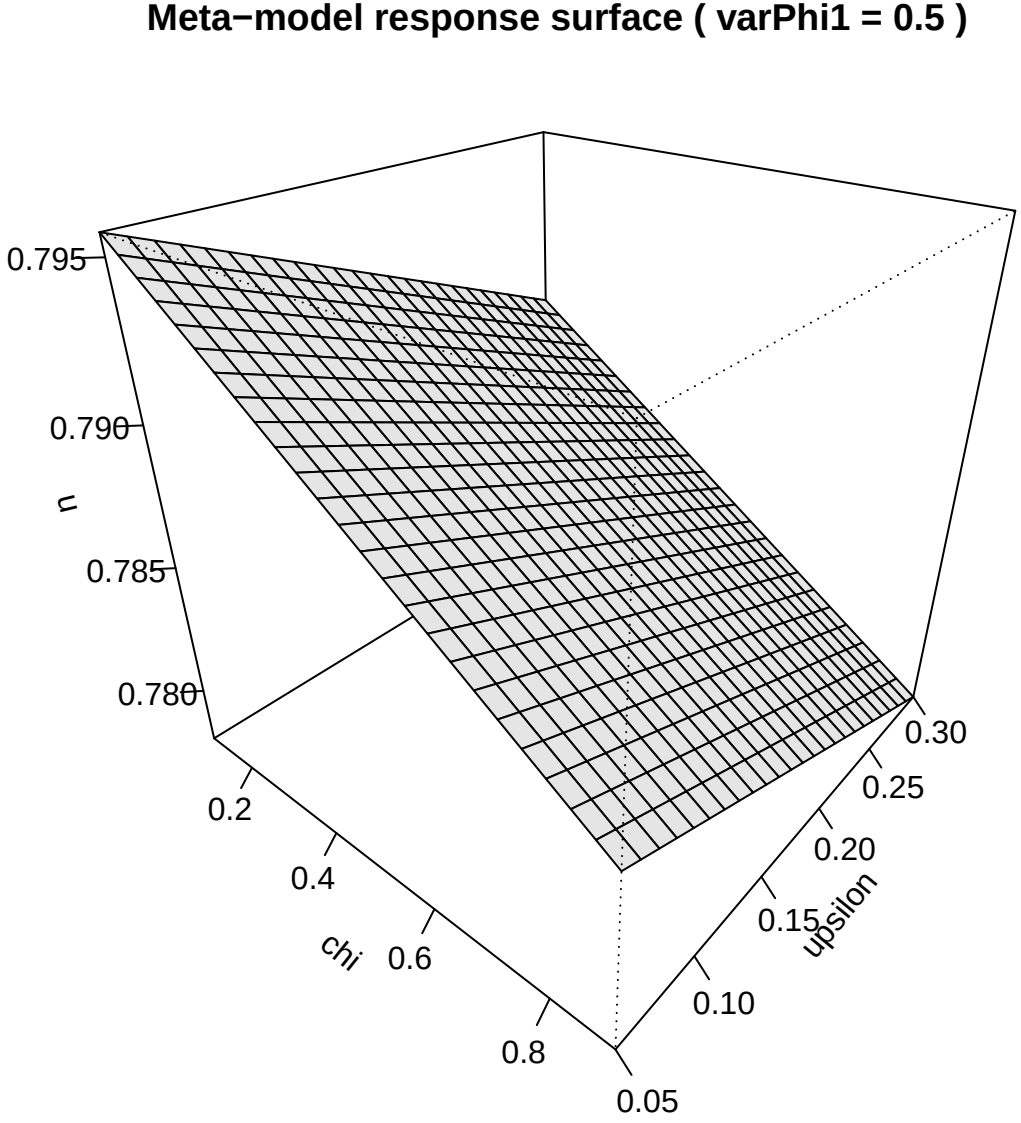
Samples = 1000 / time = [101,−1]

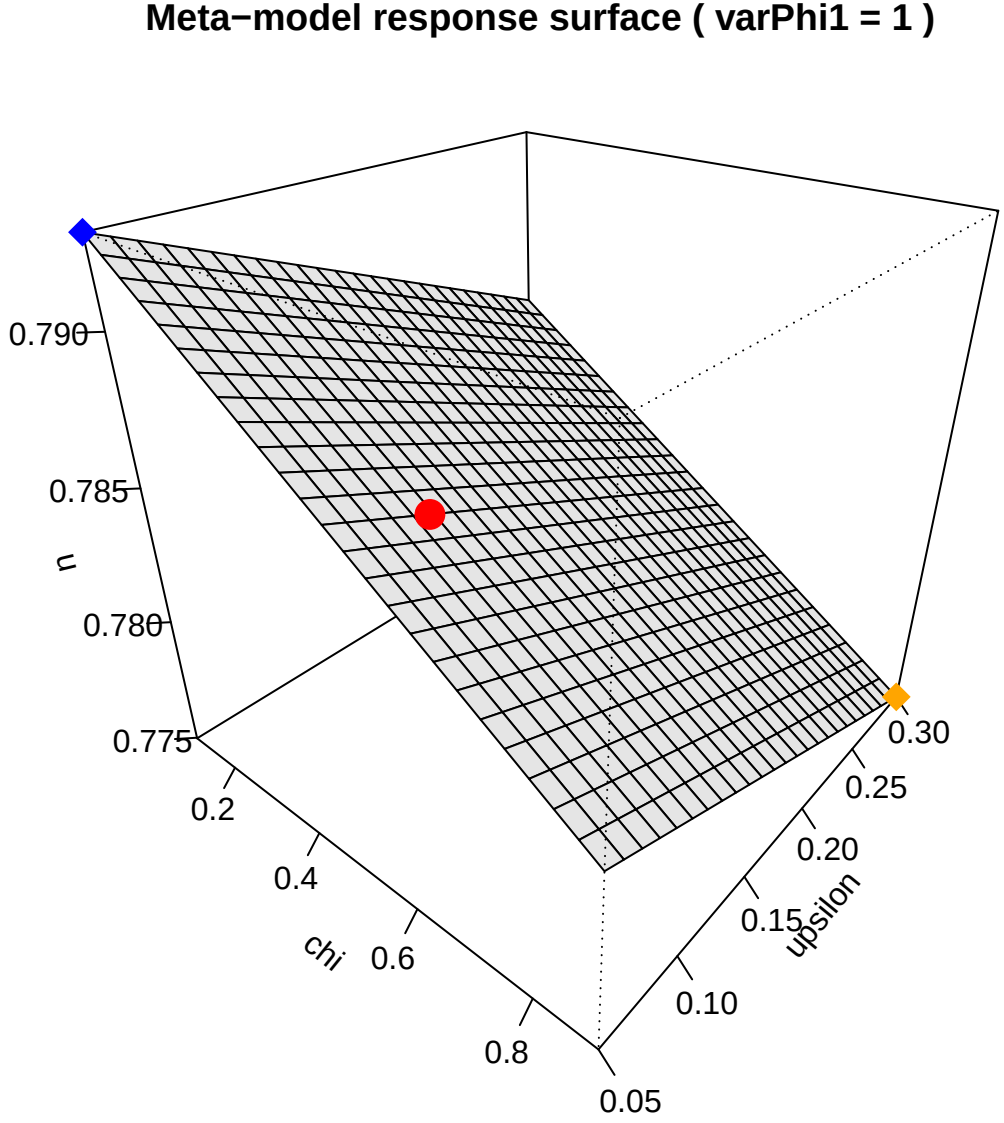

Sobol decomposition indexes (u)
interactions
main effects
Sobol Index
1.0
0.8
0.6
0.4
0.2
0.0
n
omega1
omega2
zeta1
zeta2
varPhi1
varPhi2
upsilon
chi
xi
gammau
Samples = 1000 / time = [101,−1]

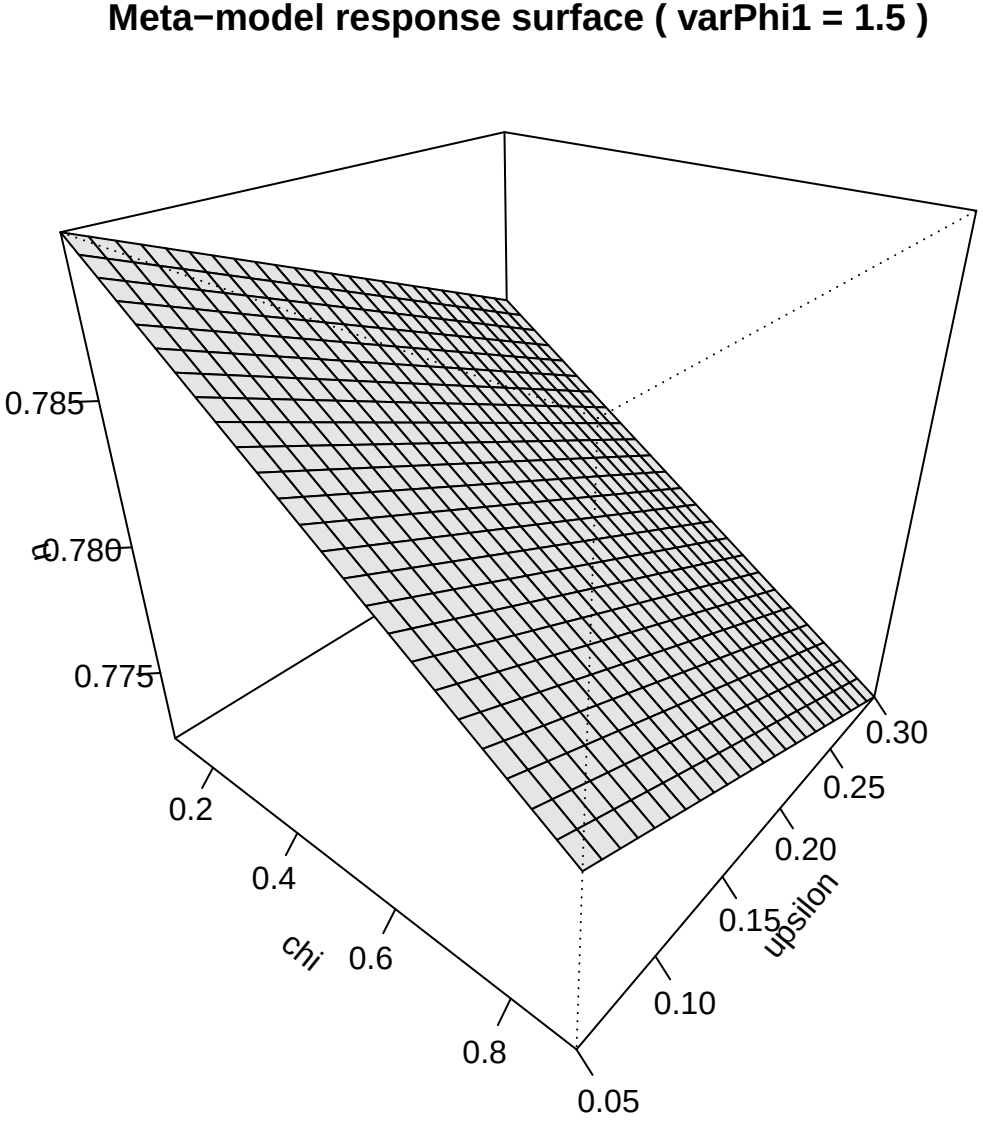

Meta−model response for parameter 'chi'
u
0.74
0.76
0.78
0.80
0.82
0.2
0.4
0.6
0.8
chi
Dotted lines at 95% confidence interval

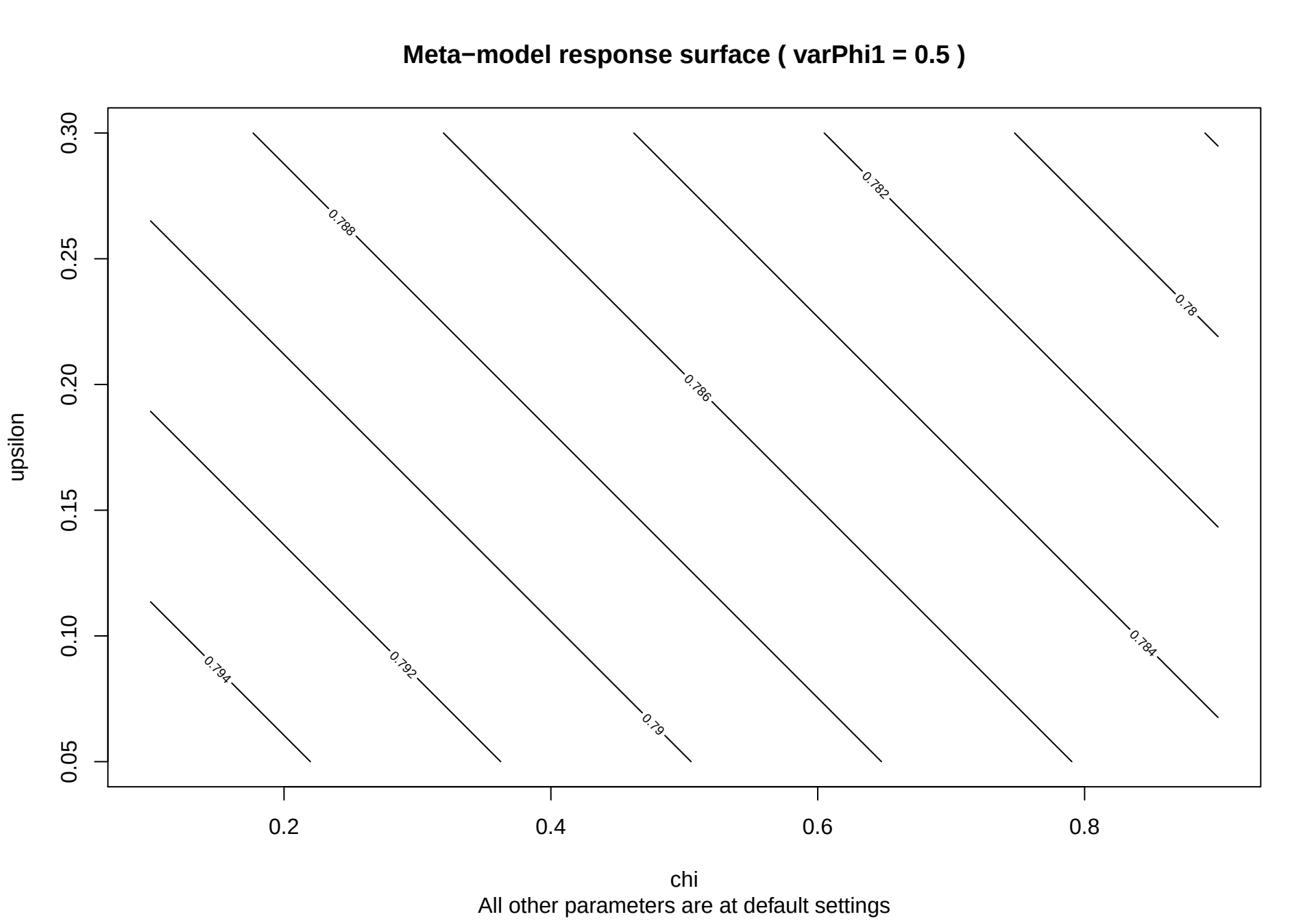

Meta−model response for parameter 'upsilon'
u
0.82
0.80
0.78
0.76
0.74
0.05
0.10
0.15
0.20
0.25
0.30
upsilon
Dotted lines at 95% confidence interval

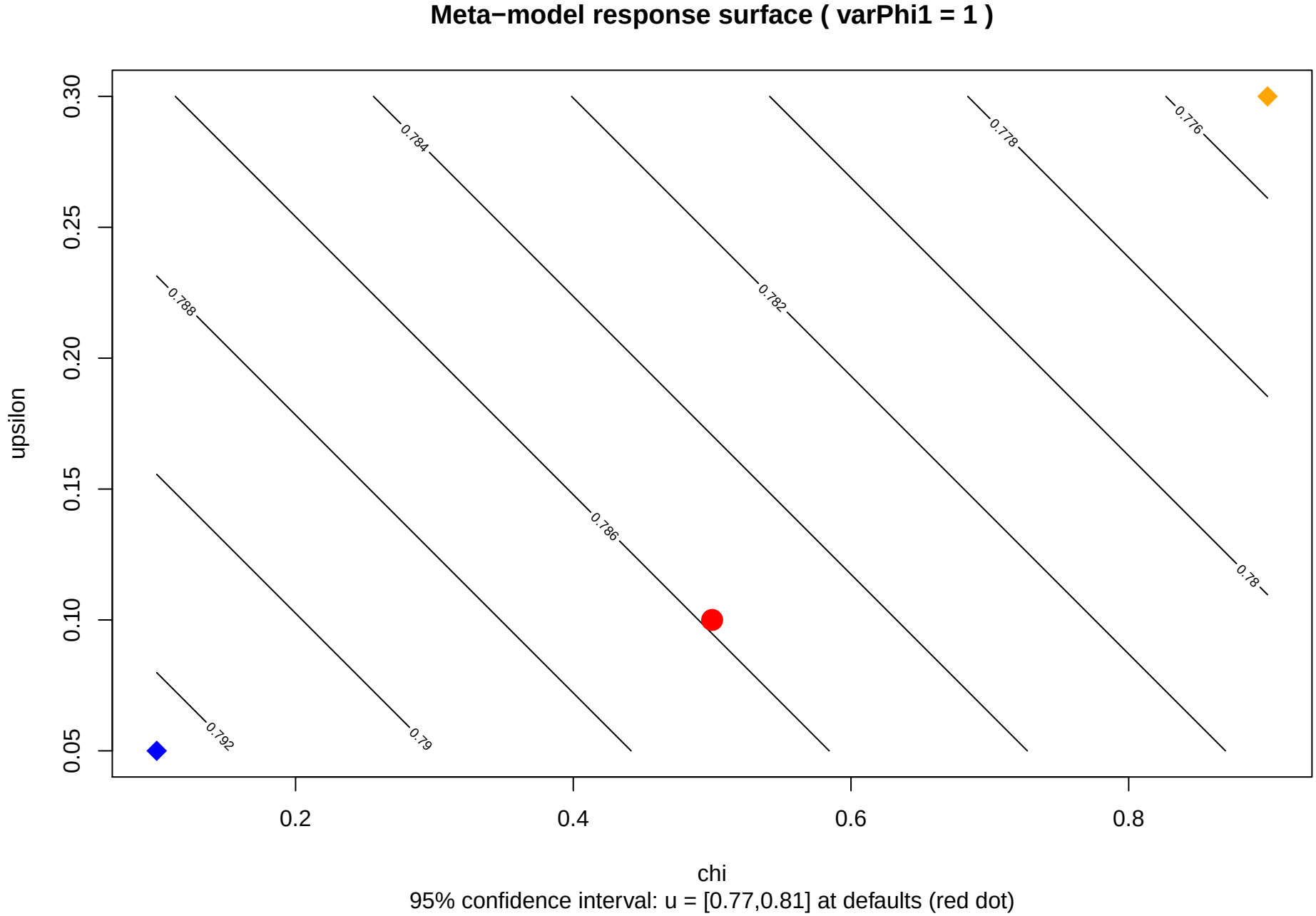

Meta−model response for parameter 'varPhi1'
u
0.74
0.76
0.78
0.80
0.82
0.6
0.8
1.0
1.2
1.4
varPhi1
Dotted lines at 95% confidence interval

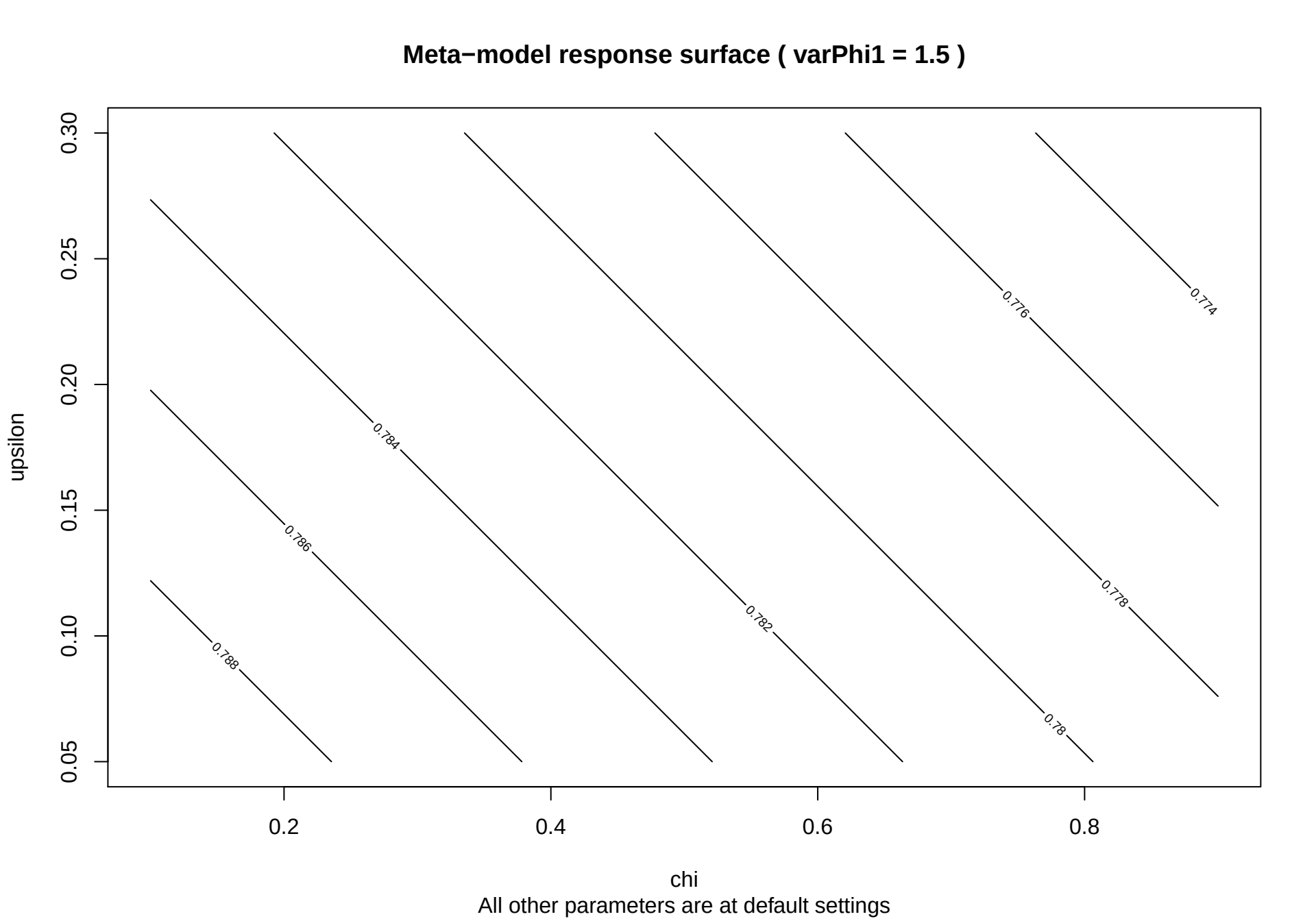

Meta−model response surface (varPhi1 = 0.5)
0.795
0.790
0.785
0.780
n
0.2
0.4
0.6
0.8
chi
0.05
0.10
0.15
0.20
0.25
0.30
upsilon
All other parameters are at default settings


Meta−model response surface (varPhi1 = 1)
0.790
0.785
u
0.780
0.775
0.2
0.4
chi
0.6
0.8
0.05
0.10
0.15
upsilon
0.20
0.25
0.30
95% confidence interval: u = [0.77,0.81] at defaults (red dot)


Meta−model response surface (varPhi1 = 1.5)
0.785
0.780
0.775
0.2
0.4
0.6
0.8
chi
0.05
0.10
0.15
0.20
0.25
0.30
upsilon
All other parameters are at default settings


Meta−model response surface (varPhi1 = 0.5)
upsilon
0.05
0.10
0.15
0.20
0.25
0.30
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings
0.794
0.792
0.79
0.788
0.786
0.784
0.782
0.78


Meta−model response surface (varPhi1 = 1)
upsilon
0.05
0.10
0.15
0.20
0.25
0.30
0.2
0.4
0.6
0.8
chi
0.792
0.79
0.788
0.786
0.784
0.782
0.78
0.778
0.776
95% confidence interval: u = [0.77,0.81] at defaults (red dot)


Meta−model response surface (varPhi1 = 1.5)
upsilon
0.05
0.10
0.15
0.20
0.25
0.30
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings
0.788
0.786
0.784
0.782
0.78
0.778
0.776
0.774