Comparison of alternative kriging models

	Matern 5/2	Matern 3/2	Gaussian	exponent.	power exp.
Q2 constant trend	0.8443	0.8405	0.8467	0.6895	0.8697
Q2 1st order poly. trend	0.8999	0.8903	0.8792	0.8394	0.8594
RMSE constant trend	0.0093	0.0093	0.0093	0.0093	0.0093
RMSE 1st order poly. trend	0.0055	0.0055	0.0055	0.0055	0.0055
MAE constant trend	0.0075	0.0075	0.0075	0.0075	0.0075
MAE 1st order poly. trend	0.0041	0.0041	0.0041	0.0041	0.0041
RMA constant trend	1.8227	1.8227	1.8227	1.8227	1.8227
RMA 1st order poly. trend	1.3765	1.3765	1.3765	1.3765	1.3765

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

Kriging meta−model estimation (standardized)

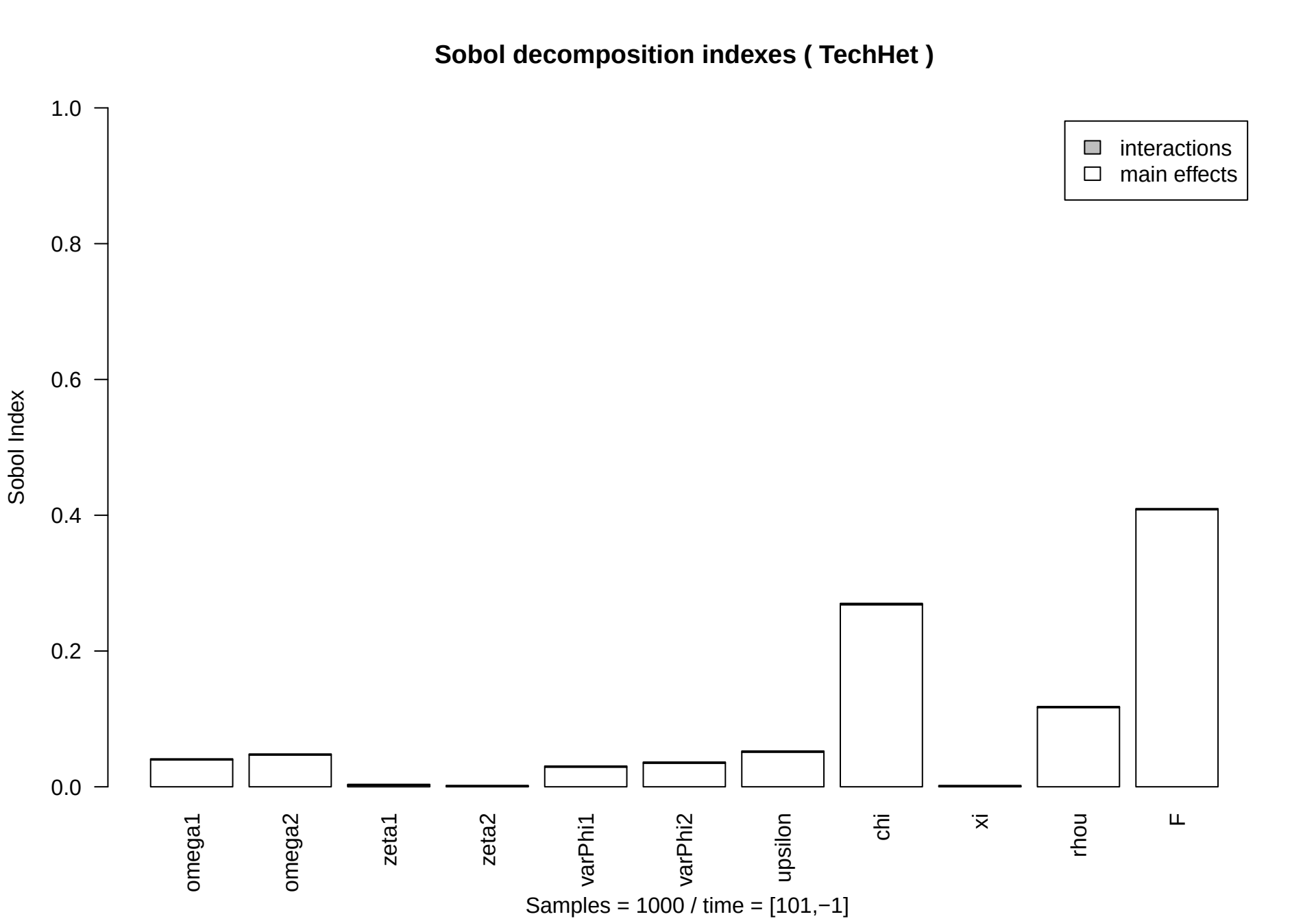
trend(intercept)	0.823	Trend specification	1st order poly.
trend(inclination)	0.007	Correlation function	Matern 5/2
theta(omega1)	1.671	Cross−sample Q2	0.900
theta(omega2)	1.149	External RMSE	0.005
theta(zeta1)	1.173	External MAE	0.004
theta(zeta2)	0.513	External RMA	1.377
theta(varPhi1)	0.951	DoE samples	65
theta(varPhi2)	1.985	External samples	20
theta(upsilon)	0.857		
theta(chi)	1.901		
theta(xi)	1.354		
theta(gammau)	0.378		
theta(n)	0.314		

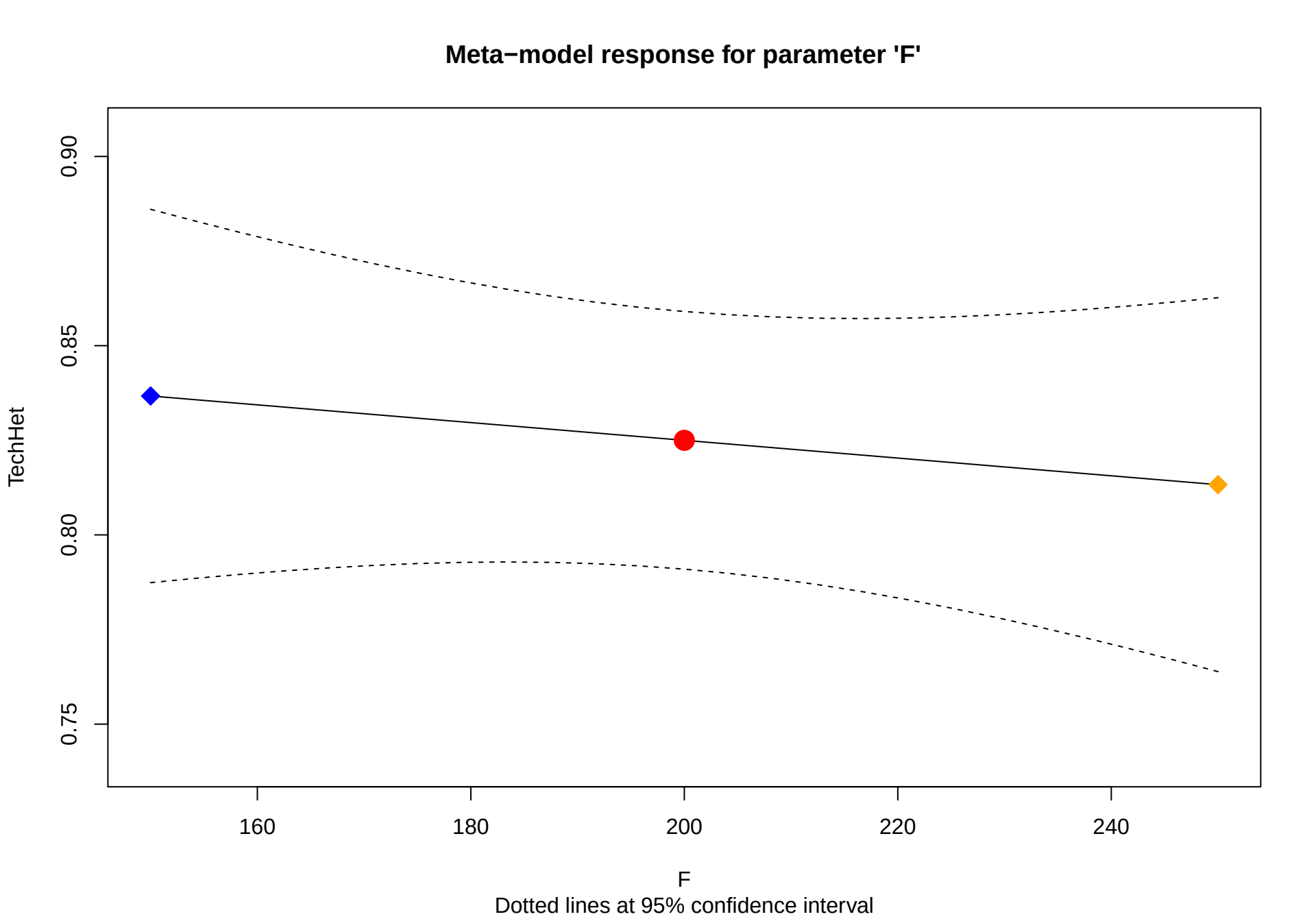
Variables rescaled to [0,1] / Average 95% CI = +/− 0.05
Predicted output at defaults: TechHet = 0.82, 95% CI = [0.79,0.86], time = [101,−1]

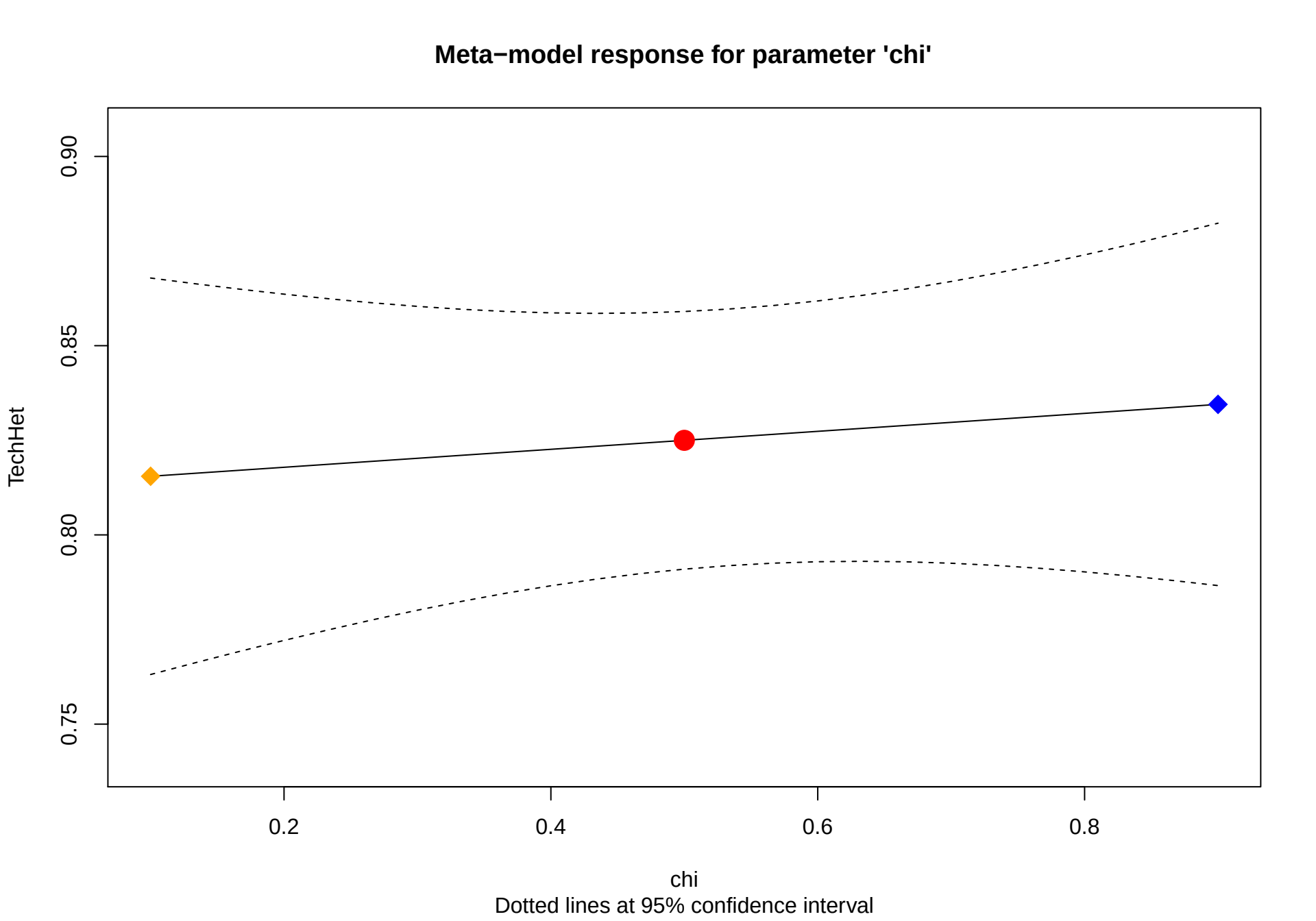
Sobol decomposition indexes (TechHet)

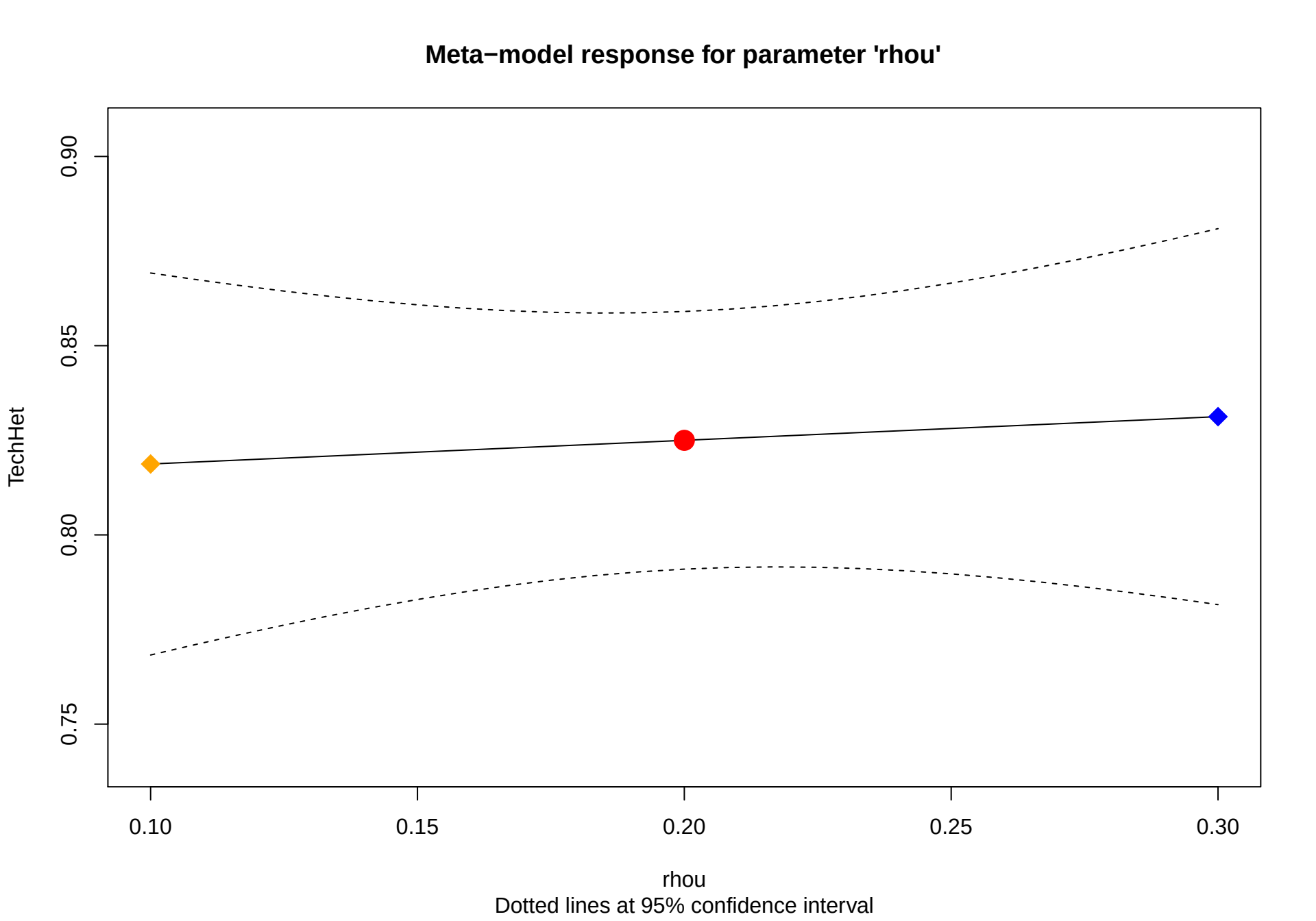
	Direct effects	Interactions
omega1	0.040	0.001
omega2	0.047	0.002
zeta1	0.002	0.001
zeta2	0.001	0.001
varPhi1	0.029	0.002
varPhi2	0.035	0.002
upsilon	0.051	0.002
chi	0.268	0.002
xi	0.000	0.001
gammau	0.117	0.001
n	0.408	0.001

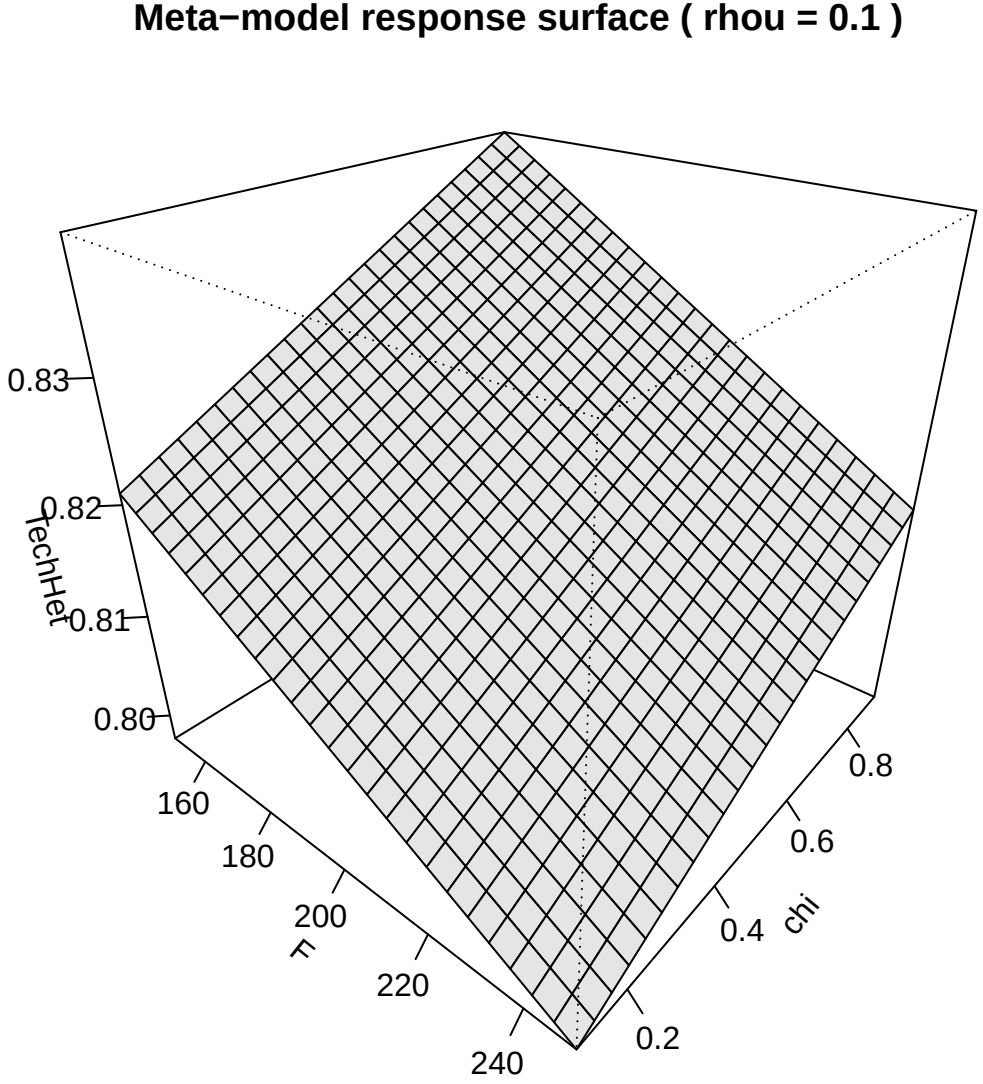
Samples = 1000 / time = [101,−1]

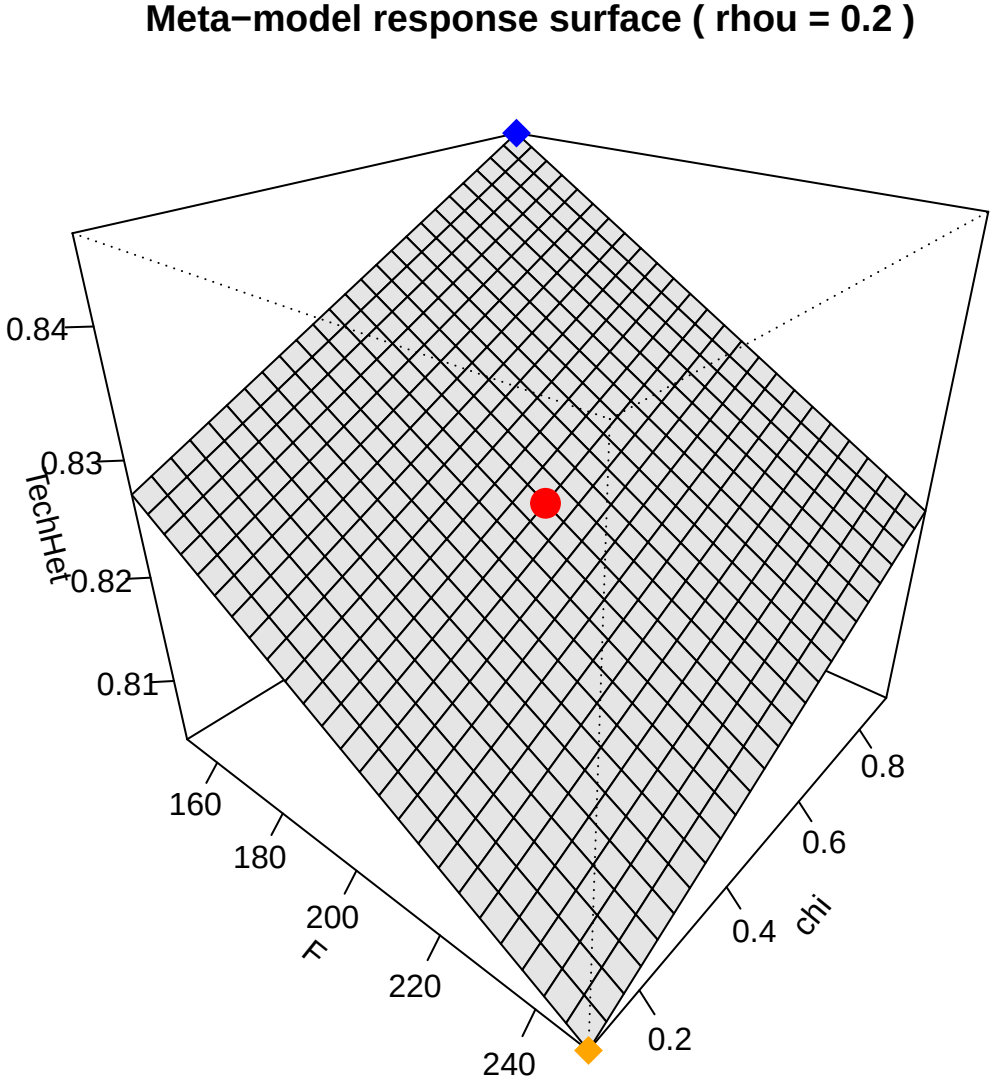

Sobol decomposition indexes (TechHet)
interactions
main effects
Sobol Index
1.0
0.8
0.6
0.4
0.2
0.0
omega1
omega2
zeta1
zeta2
varPhi1
varPhi2
upsilon
chi
xi
rhou
F
Samples = 1000 / time = [101,−1]


Meta−model response for parameter 'F'
TechHet
0.90
0.85
0.80
0.75
160
180
200
220
240
F
Dotted lines at 95% confidence interval

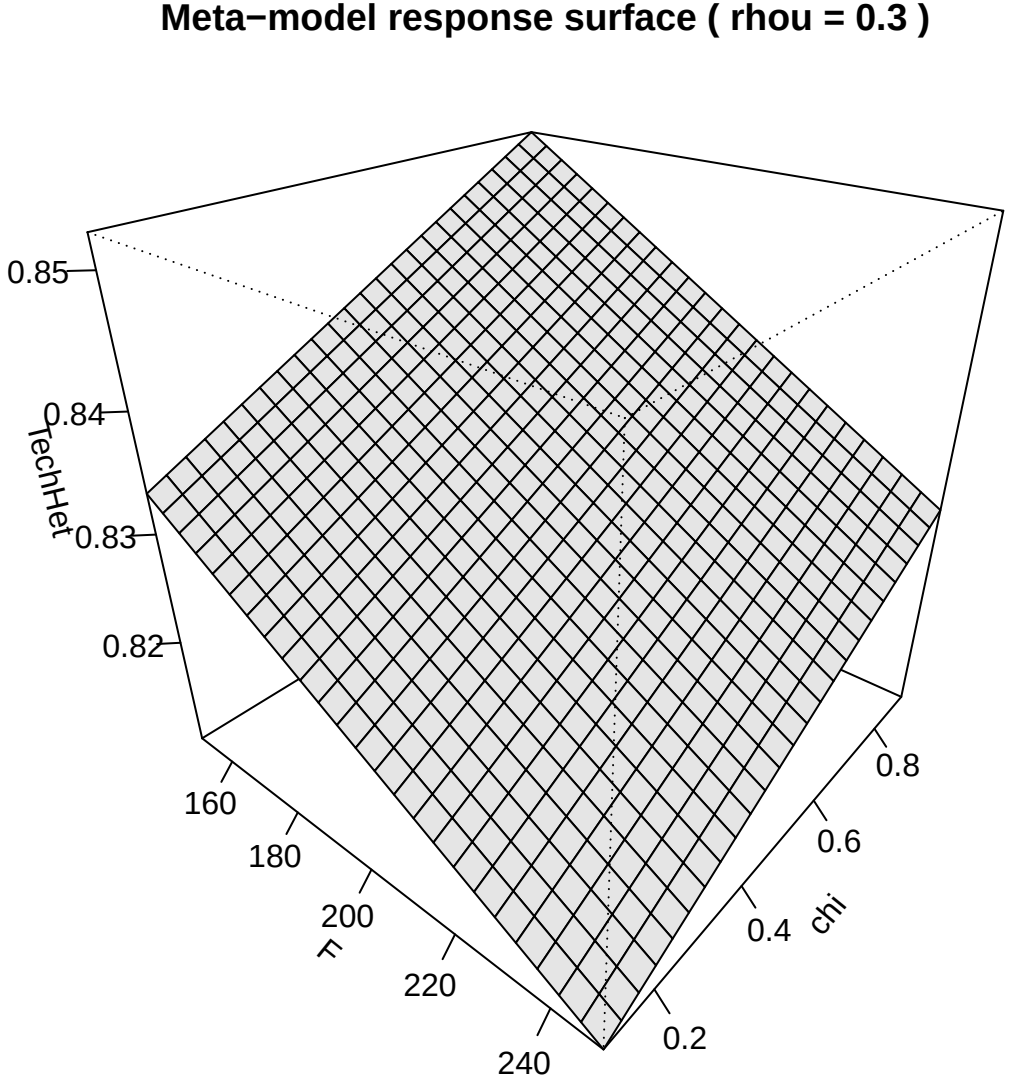

Meta−model response for parameter 'chi'
TechHet
0.90
0.85
0.80
0.75
0.2
0.4
0.6
0.8
chi
Dotted lines at 95% confidence interval

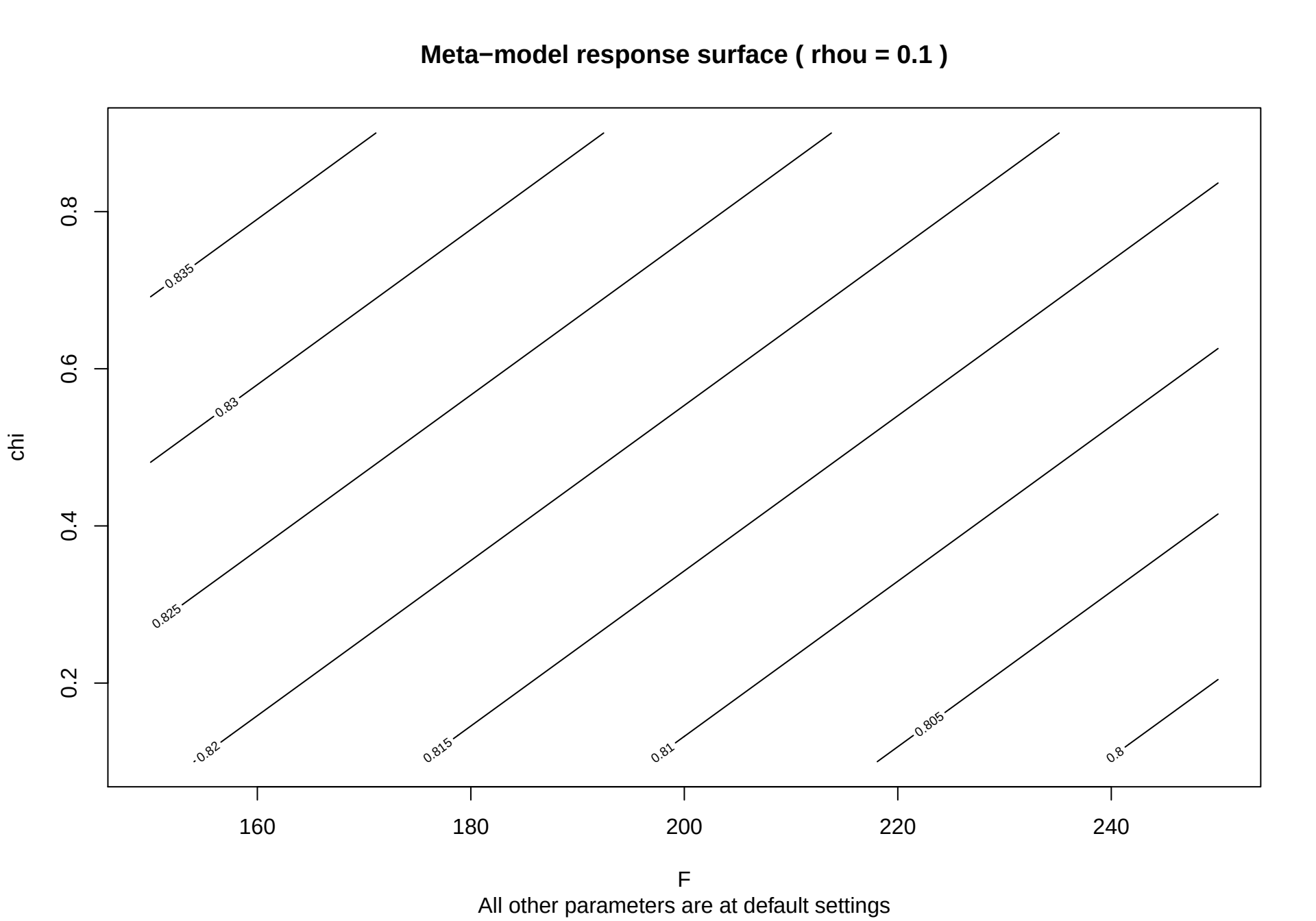

Meta−model response for parameter 'rhou'
TechHet
0.90
0.85
0.80
0.75
0.10
0.15
0.20
0.25
0.30
rhou
Dotted lines at 95% confidence interval

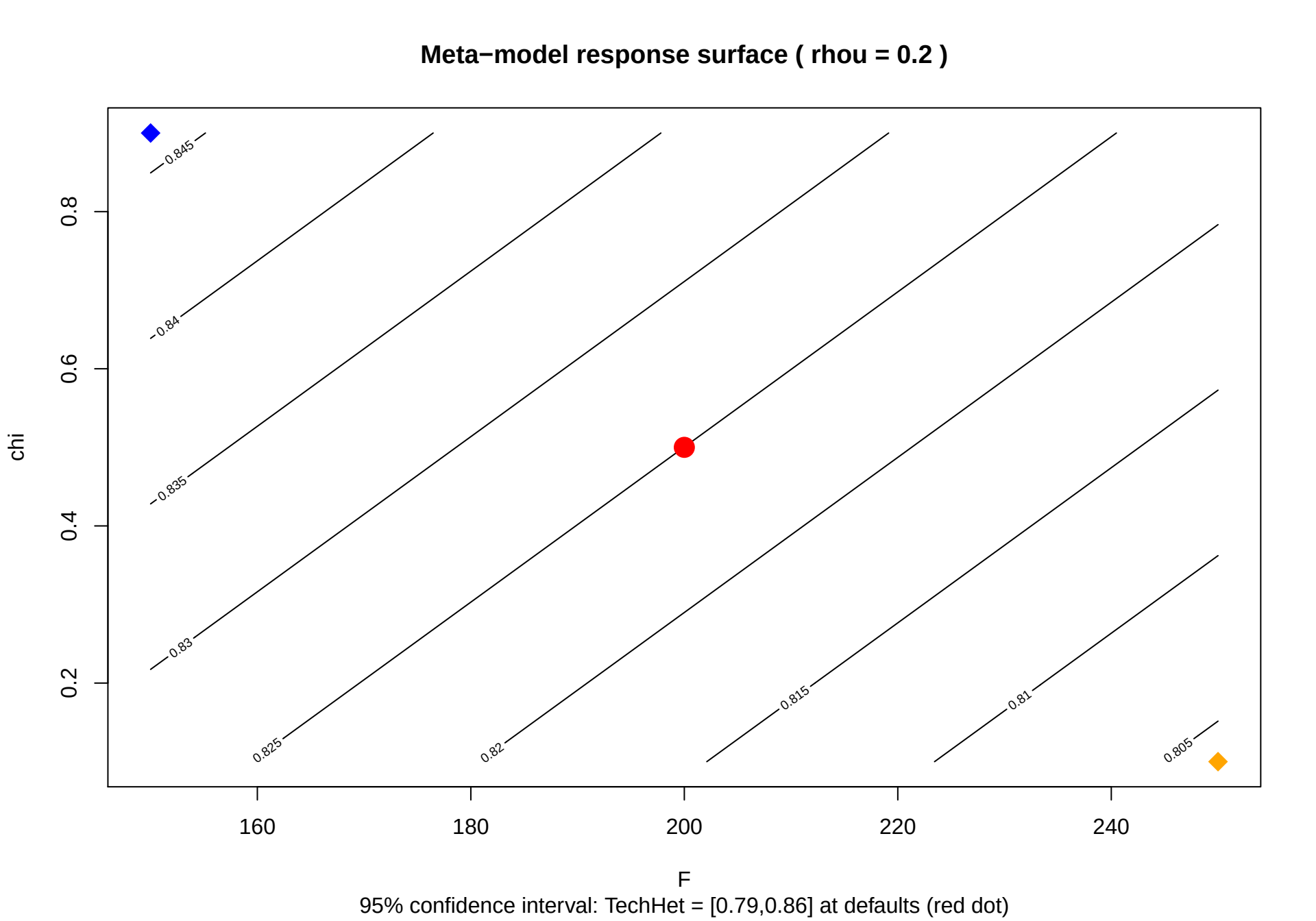

Meta−model response surface (rhou = 0.1)
0.83
0.82
0.81
0.80
TechHet
160
180
200
220
240
h
0.2
0.4
0.6
0.8
chi
All other parameters are at default settings

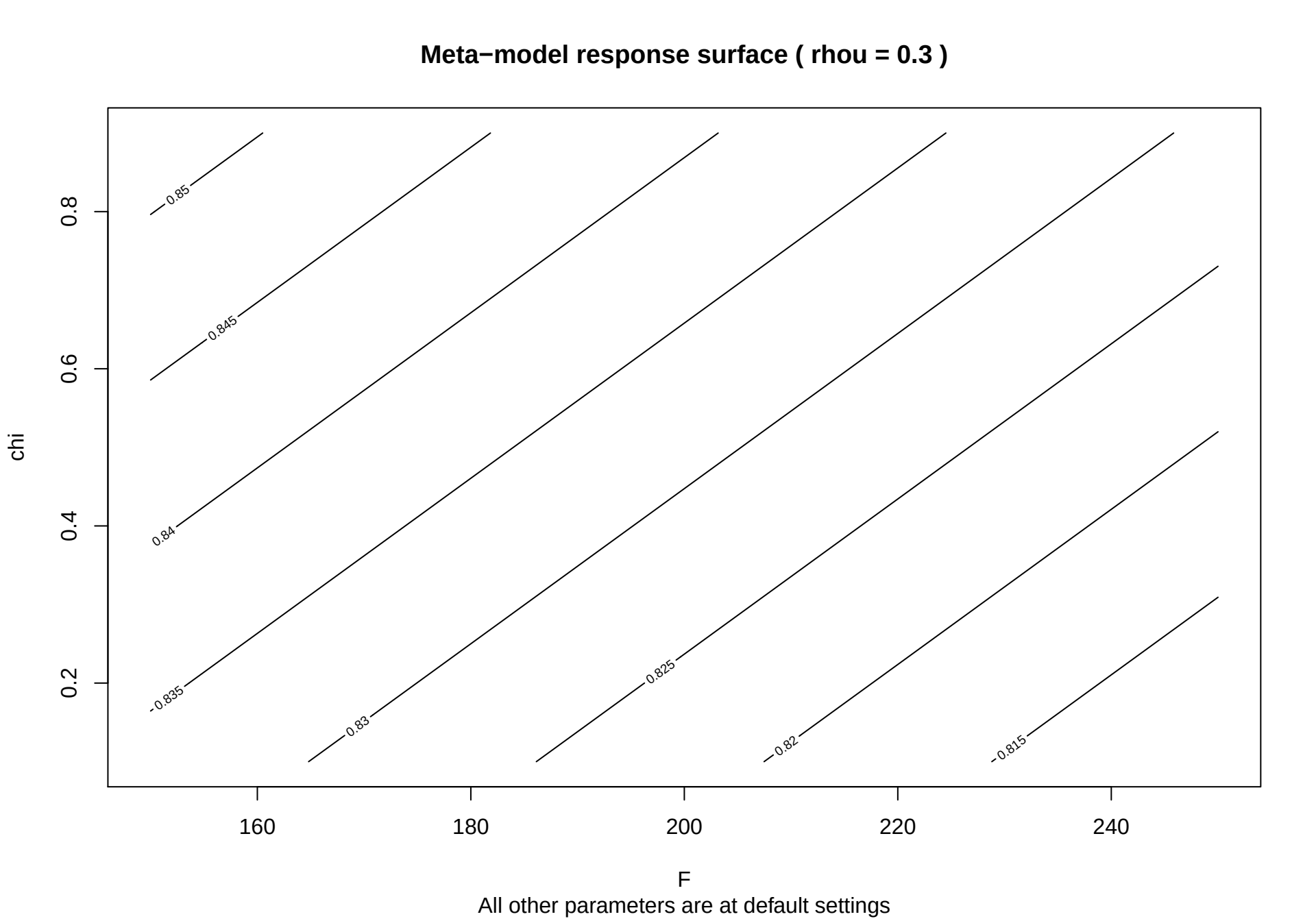


95% confidence interval: TechHet = [0.79,0.86] at defaults (red dot)


Meta−model response surface (rhou = 0.3)
TechHet
0.85
0.84
0.83
0.82
T
160
180
200
220
240
chi
0.2
0.4
0.6
0.8
All other parameters are at default settings


Meta−model response surface (rhou = 0.1)
chi
0.2
0.4
0.6
0.8
0.835
0.83
0.825
0.82
0.815
0.81
0.805
0.8
160
180
200
220
240
F
All other parameters are at default settings


Meta−model response surface (rhou = 0.2)
chi
F
0.2
0.4
0.6
0.8
160
180
200
220
240
0.845
0.84
0.835
0.83
0.825
0.82
0.815
0.81
0.805
95% confidence interval: TechHet = [0.79,0.86] at defaults (red dot)


Meta−model response surface (rhou = 0.3)
chi
F
All other parameters are at default settings
0.2
0.4
0.6
0.8
160
180
200
220
240
0.85
0.845
0.84
0.835
0.83
0.825
0.82
0.815