

## Comparison of alternative kriging models

	<b>Matern 5/2</b>	<b>Matern 3/2</b>	<b>Gaussian</b>	<b>exponent.</b>	<b>power exp.</b>
<b>Q2 constant trend</b>	0.8273	0.8181	0.8178	0.6045	0.7886
<b>Q2 1st order poly. trend</b>	0.7681	0.7621	0.7606	0.6310	0.7659
<b>RMSE constant trend</b>	0.1411	0.1434	0.1389	0.1726	0.1530
<b>RMSE 1st order poly. trend</b>	0.1056	0.1056	0.1056	0.1056	0.1056
<b>MAE constant trend</b>	0.1068	0.1102	0.1028	0.1446	0.1249
<b>MAE 1st order poly. trend</b>	0.0830	0.0830	0.0830	0.0830	0.0830
<b>RMA constant trend</b>	2.1323	2.1220	2.1553	2.1970	2.1504
<b>RMA 1st order poly. trend</b>	1.6552	1.6552	1.6552	1.6552	1.6552

Q2: cross validation Q2 ( higher is better )

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

### Kriging meta-model estimation (standardized)

<b>trend(intercept)</b>	0.096	Trend specification	1st order poly.
<b>trend(inclination)</b>	0.027	Correlation function	Matern 5/2
<b>theta(n)</b>	0.129	Cross-sample Q2	0.768
<b>theta(omega1)</b>	2.000	External RMSE	0.106
<b>theta(omega2)</b>	1.212	External MAE	0.083
<b>theta(zeta1)</b>	1.452	External RMA	1.655
<b>theta(zeta2)</b>	1.996	DoE samples	65
<b>theta(varPhi1)</b>	0.503	External samples	10
<b>theta(varPhi2)</b>	0.593		
<b>theta(upsilon)</b>	1.666		
<b>theta(chi)</b>	0.471		
<b>theta(xi)</b>	1.932		
<b>theta(gammau)</b>	0.363		

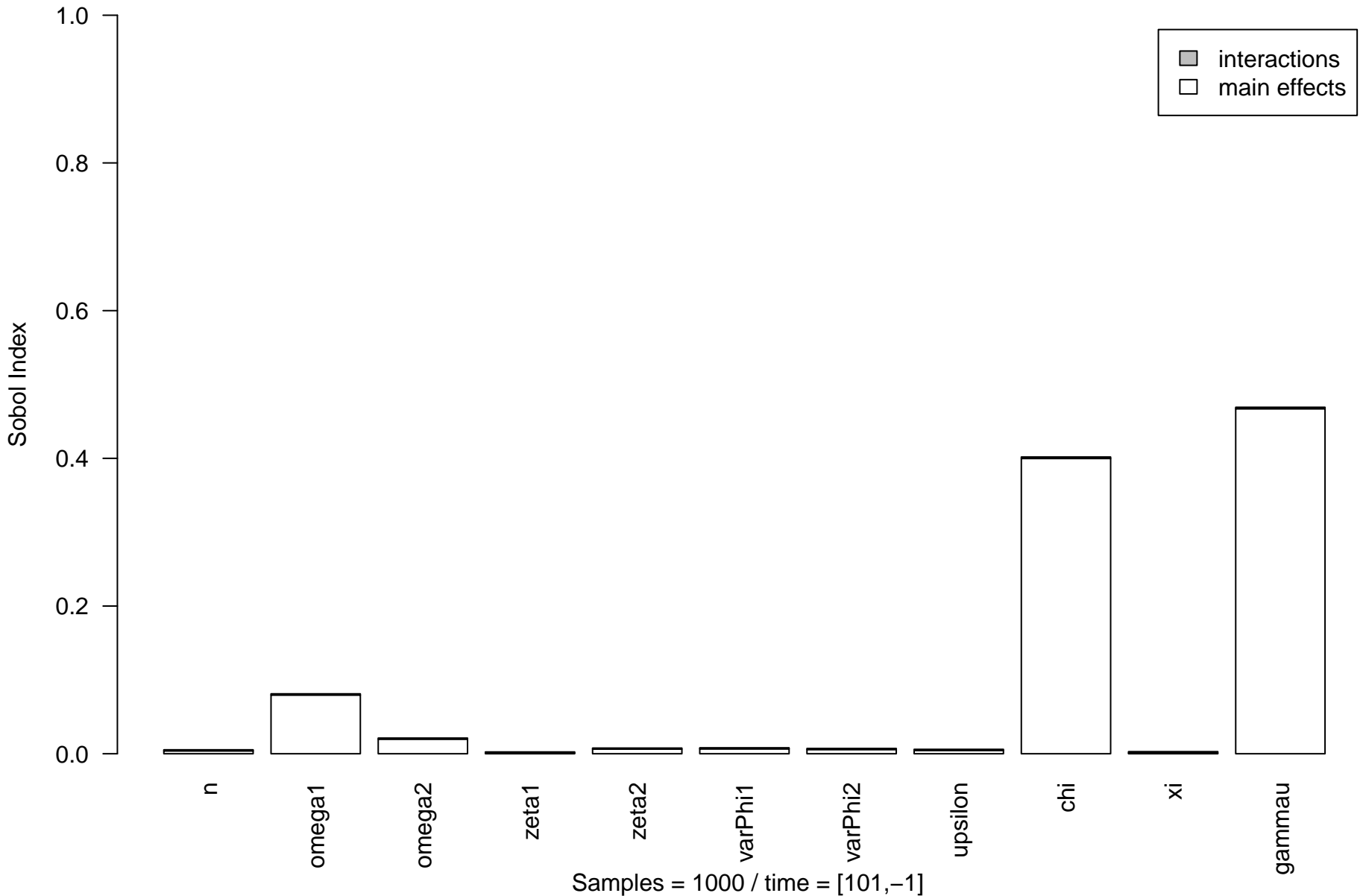
Variables rescaled to [0,1] / Average 95% CI = +/- 0.13

Predicted output at defaults: regCoef = -0.26, 95% CI = [-0.36,-0.16], time = [101,-1]

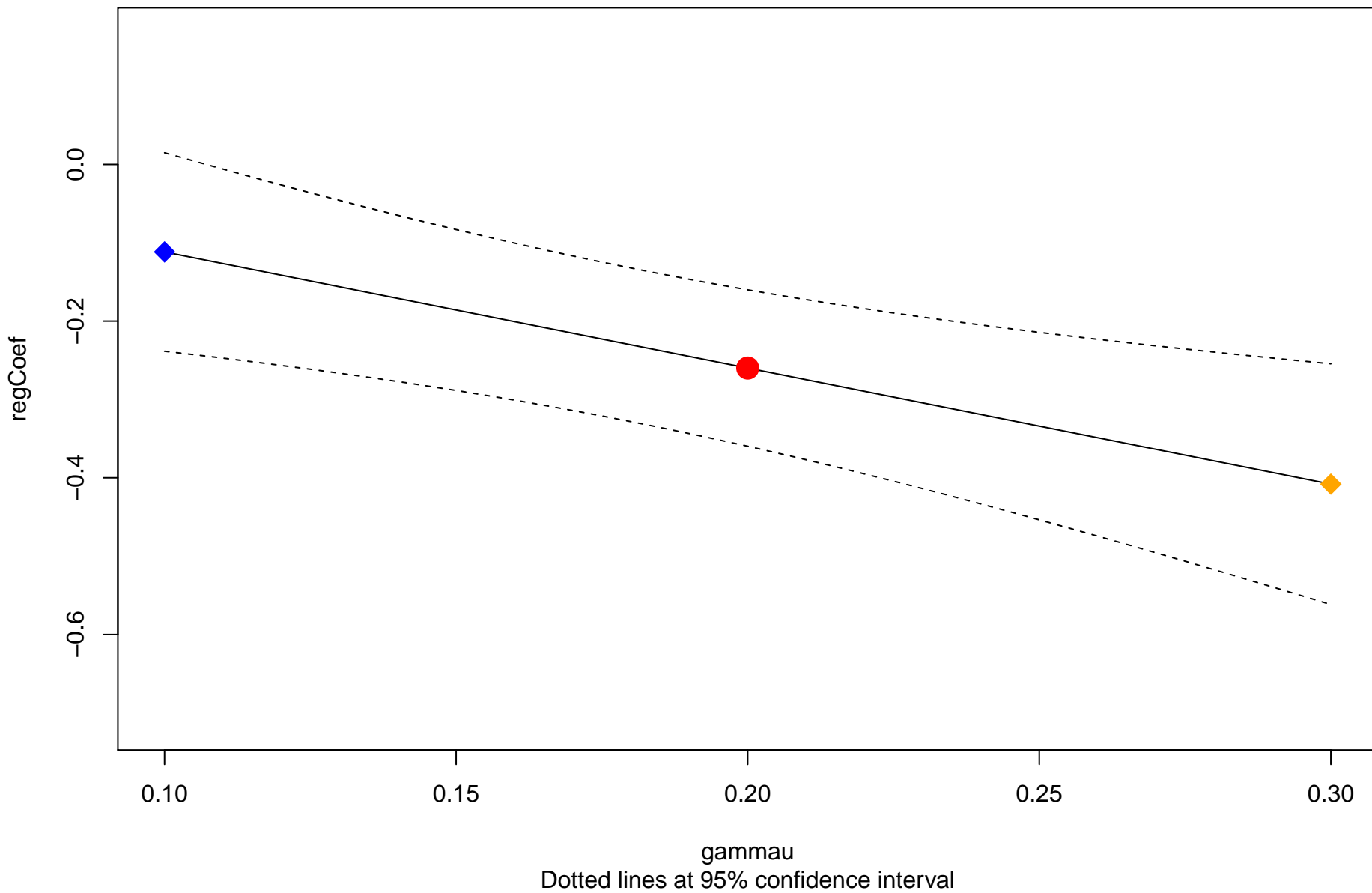
## Sobol decomposition indexes ( regCoef )

	<b>Direct effects</b>	<b>Interactions</b>
<b>n</b>	0.004	0.001
<b>omega1</b>	0.080	0.002
<b>omega2</b>	0.020	0.001
<b>zeta1</b>	0.001	0.001
<b>zeta2</b>	0.006	0.001
<b>varPhi1</b>	0.007	0.001
<b>varPhi2</b>	0.006	0.001
<b>upsilon</b>	0.005	0.001
<b>chi</b>	0.400	0.002
<b>xi</b>	0.001	0.002
<b>gammau</b>	0.467	0.002

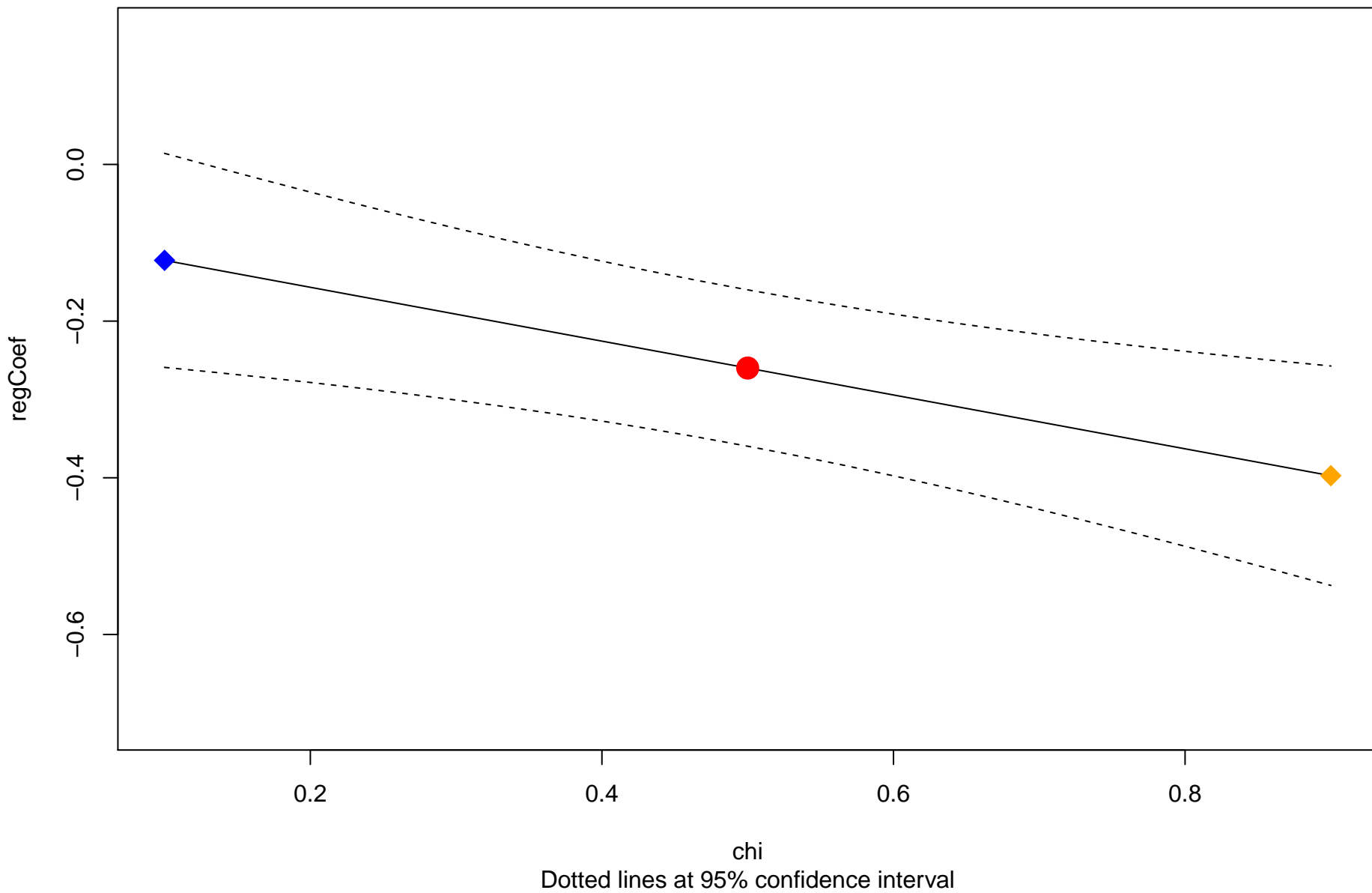
# Sobol decomposition indexes ( regCoef )



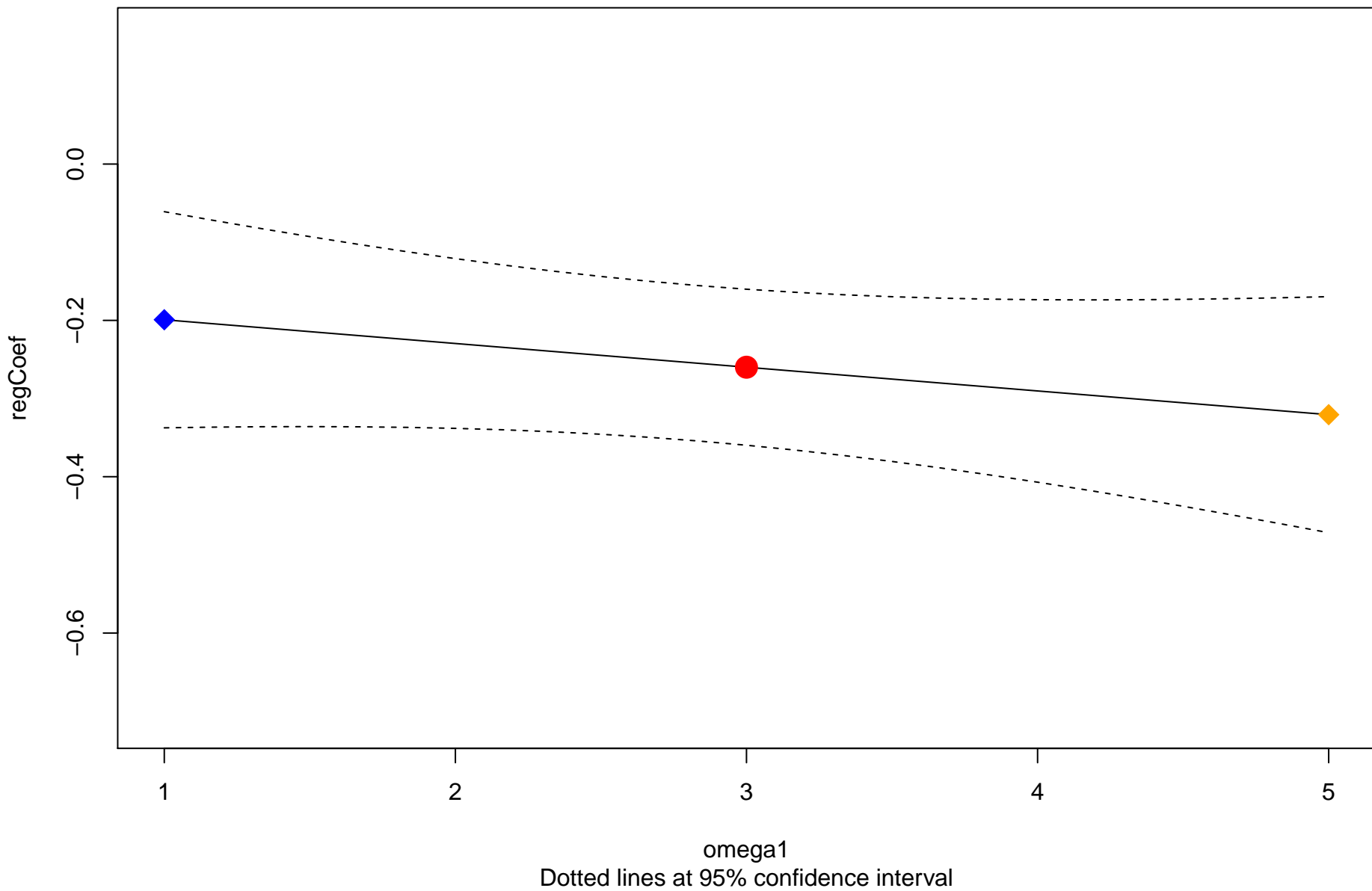
Meta-model response for parameter 'gammau'



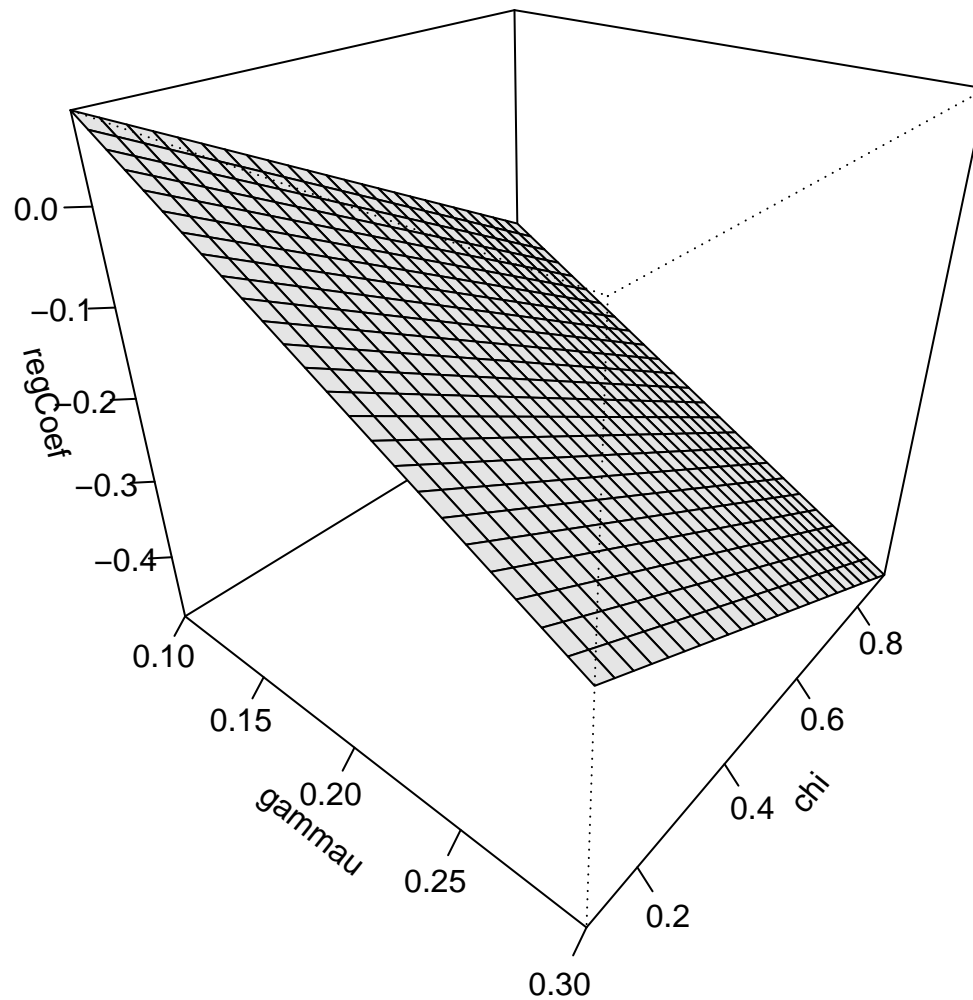
Meta-model response for parameter 'chi'



Meta-model response for parameter 'omega1'



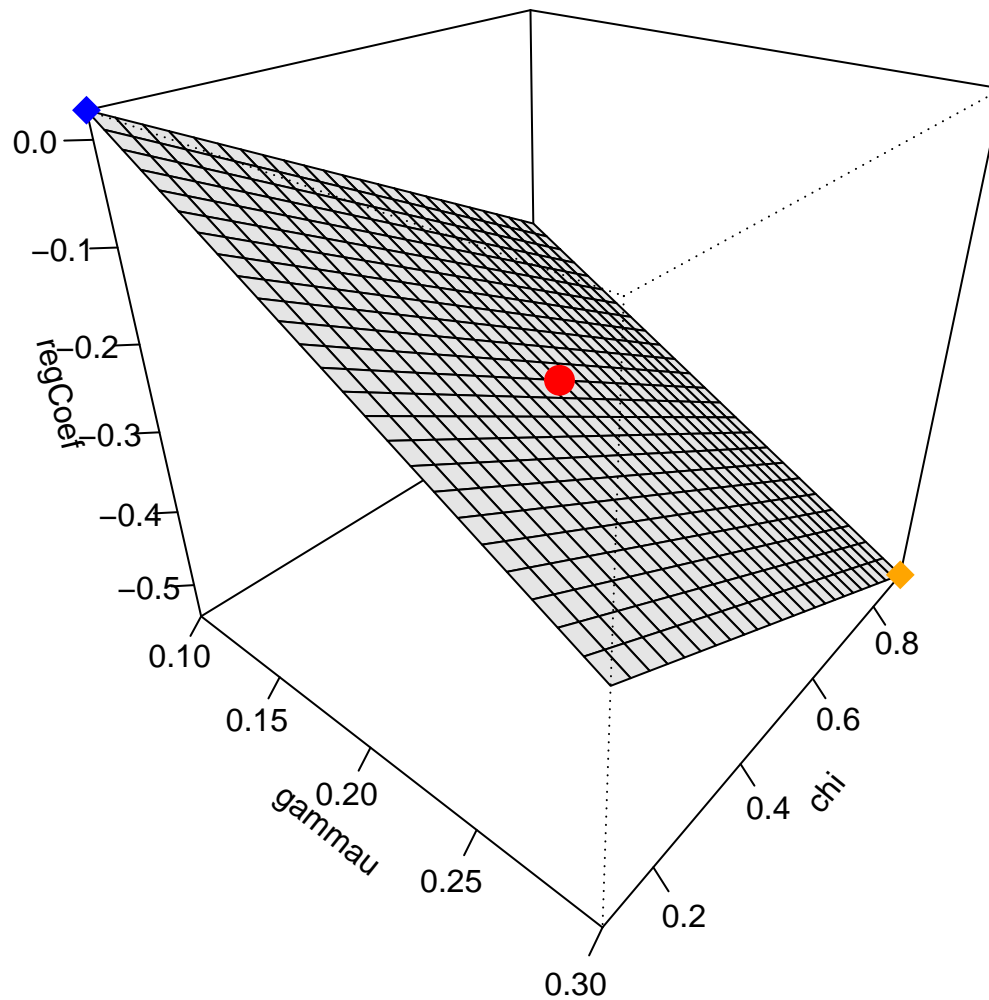
### Meta-model response surface ( $\omega_1 = 1$ )



All other parameters are at default settings

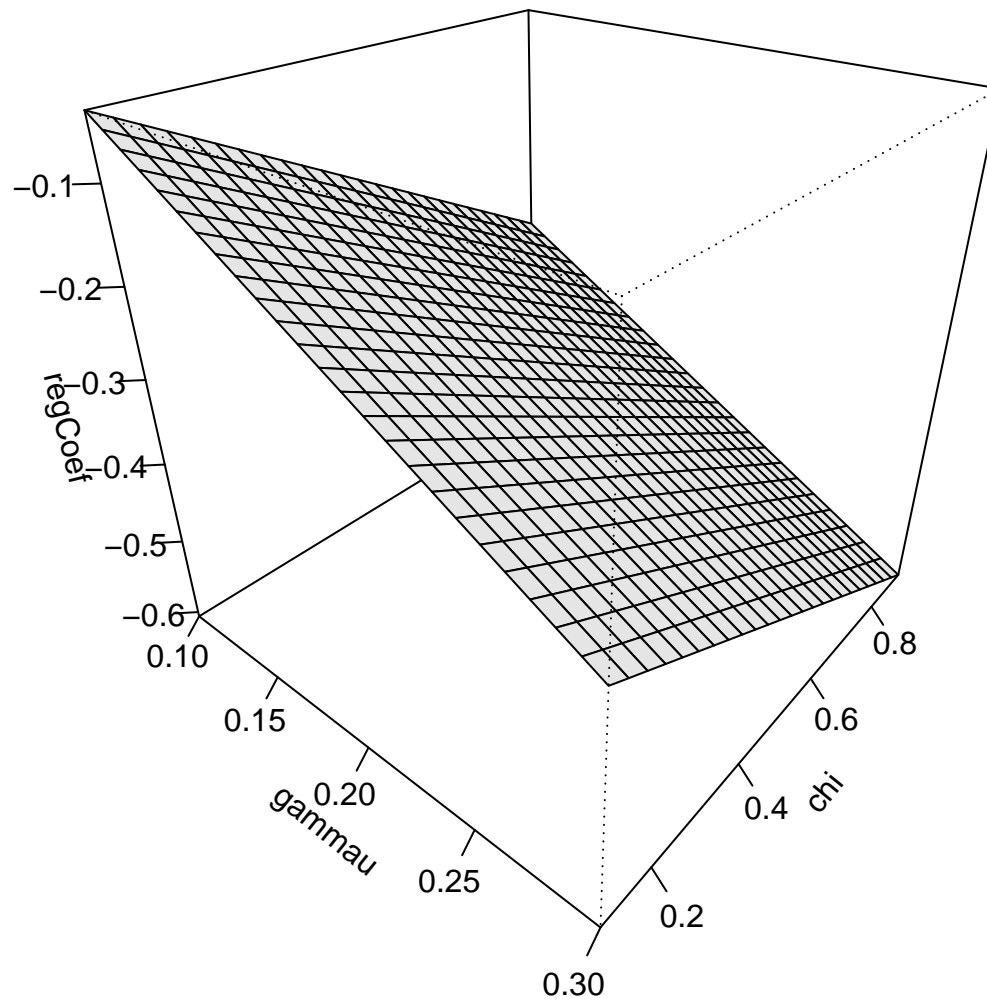


### Meta-model response surface ( $\omega_1 = 3$ )



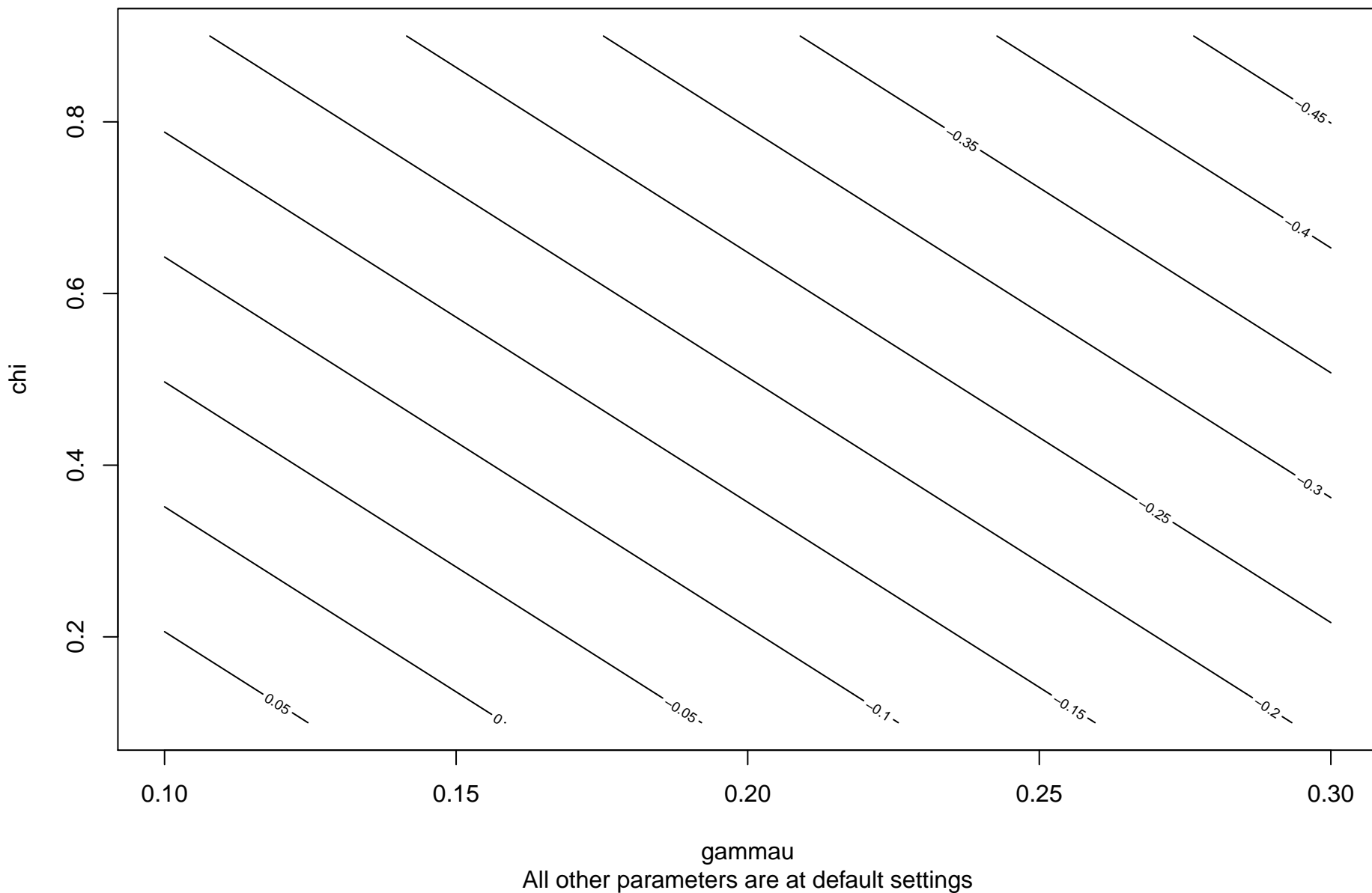
95% confidence interval:  $\text{regCoef} = [-0.36, -0.16]$  at defaults (red dot)

## Meta-model response surface ( $\omega_1 = 5$ )

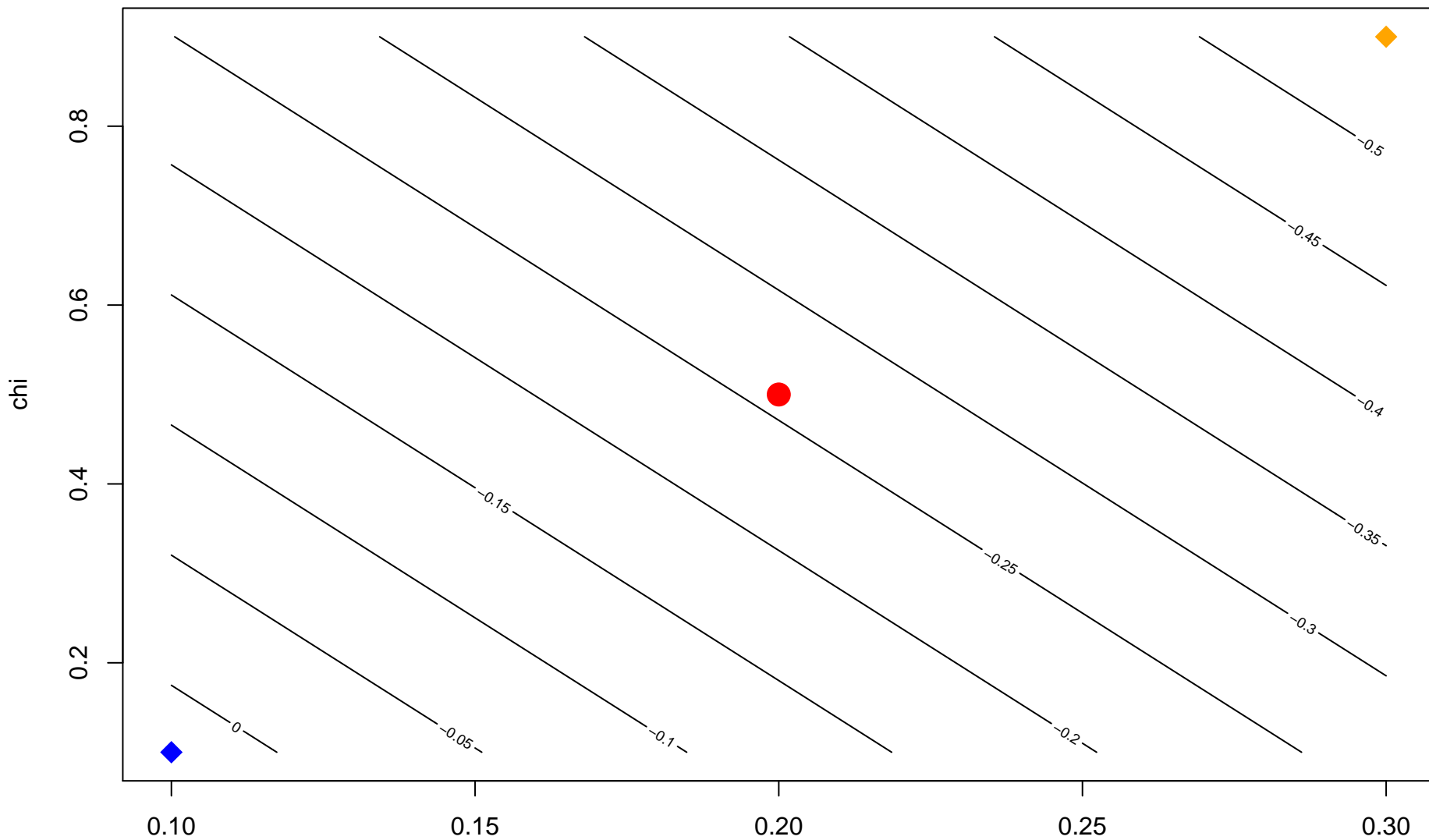


All other parameters are at default settings

Meta-model response surface (  $\omega_1 = 1$  )



# Meta-model response surface ( $\omega_1 = 3$ )



95% confidence interval: regCoef =  $[-0.36, -0.16]$  at defaults (red dot)

Meta-model response surface (  $\omega_1 = 5$  )

