

BAYESREG OBJECT

hhvio3y051115b: regression procedure

Response:

Number of observations: 4753
 Response Variable: HHVIOL
 Family: negative binomial

Predictor:

$$\begin{aligned} \eta = & \gamma_{const}const + \gamma_{is2003}is2003 + \gamma_{is2004}is2004 + \gamma_{LOG_MA_A}LOG_MA_A + \\ & \gamma_{FGT_2}FGT_2 + \gamma_{MALELITR}MALELITR + \\ & f_{LOG_LOAD}(LOG_LOAD) + f_{rankFHHHRT}(rankFHHHRT) + \\ & f_{rankPOPDNS}(rankPOPDNS) + f_{rankLPOP9802}(rankLPOP9802) + \\ & f_{rankTOILET}(rankTOILET) + f_{WATALL}(WATALL) + \\ & f_{rankF614SL}(rankF614SL) + f_{KHUMCODE}(KHUMCODE) + \\ & f_{DIST_COD}(DIST_COD) \end{aligned}$$

Priors:

Fixed effects:
 diffuse priors

$f_{LOG_LOAD}(LOG_LOAD)$:
 P-spline with second order random walk penalty
 Number of knots: 20
 Knot choice: equidistant
 Degree of Splines: 3
 Inverse gamma prior for variance component with hyperparameters a=0.001
 and b=0.001

$f_{rankFHHHRT}(rankFHHHRT)$:
 P-spline with second order random walk penalty
 Number of knots: 20
 Knot choice: equidistant

Degree of Splines: 3
Inverse gamma prior for variance component with hyperparameters $a=0.001$
and $b=0.001$

$f_{rankPOPDNS}(rankPOPDNS)$:
P-spline with second order random walk penalty
Number of knots: 20
Knot choice: equidistant
Degree of Splines: 3
Inverse gamma prior for variance component with hyperparameters $a=0.001$
and $b=0.001$

$f_{rankLPOP9802}(rankLPOP9802)$:
P-spline with second order random walk penalty
Number of knots: 20
Knot choice: equidistant
Degree of Splines: 3
Inverse gamma prior for variance component with hyperparameters $a=0.001$
and $b=0.001$

$f_{rankTOILET}(rankTOILET)$:
P-spline with second order random walk penalty
Number of knots: 20
Knot choice: equidistant
Degree of Splines: 3
Inverse gamma prior for variance component with hyperparameters $a=0.001$
and $b=0.001$

$f_{WATALL}(WATALL)$:
P-spline with second order random walk penalty
Number of knots: 20
Knot choice: equidistant
Degree of Splines: 3
Inverse gamma prior for variance component with hyperparameters $a=0.001$
and $b=0.001$

$f_{rankF614SL}(rankF614SL)$:

P-spline with second order random walk penalty

Number of knots: 20

Knot choice: equidistant

Degree of Splines: 3

Inverse gamma prior for variance component with hyperparameters a=0.001 and b=0.001

$f_{KHUMCODE}(KHUMCODE)$

Markov random field

Inverse gamma prior for variance component with hyperparameters a=0.001 and b=0.001

$f_{DIST_COD}(DIST_COD)$

i.i.d. Gaussian random effects

Inverse gamma prior for variance component with hyperparameters a=0.001 and b=0.001

MCMC Options:

Levels for credible intervals:

Level 1: 95

Level 2: 80

Number of Iterations: 102000

Burn in: 2000

Thinning Parameter: 10

Estimation results for the deviance:

Unstandardized deviance

Mean: 33780.07

Std. Dev: 74.192542

2.5% Quantile: 33635.546

10% Quantile: 33685.274

50% Quantile: 33779.589

90% Quantile: 33874.458

97.5% Quantile: 33926.933

Saturated deviance

Mean:	5104.7156
Std. Dev:	96.618919
2.5% Quantile:	4918.6438
10% Quantile:	4983.5893
50% Quantile:	5104.4148
90% Quantile:	5229.955
97.5% Quantile:	5297.7294

Estimation results for the DIC:

DIC based on the unstandardized deviance

deviance($\bar{\mu}$)	32415.966
pD	1364.1041
DIC	35144.174

DIC based on the saturated deviance

deviance($\bar{\mu}$)	3743.3798
pD	1361.3358
DIC	6466.0513

Estimation results for the scale parameter:

Mean	8.0507
Std. dev.:	0.292084
2.5% Quantile:	7.50144
10% Quantile:	7.68503
50% Quantile:	8.04305
90% Quantile:	8.43284
97.5% Quantile:	8.64552

Fixed Effects:

Variable	Mean	STD	2.5%-Quant.	Median	97.5%-Quant.
const	0.168269	0.102449	-0.0347949	0.167279	0.36762
is2003	-0.0920649	0.0158595	-0.123319	-0.0919757	-0.0609669
is2004	-0.142022	0.0168213	-0.174595	-0.142027	-0.108963
LOG_MA_A	0.0167709	0.00746815	0.00189428	0.0167819	0.031107
FGT_2	0.727564	0.447132	-0.159726	0.731276	1.60873
MALELITR	-0.588004	0.225783	-1.02546	-0.588342	-0.133414

Plots:

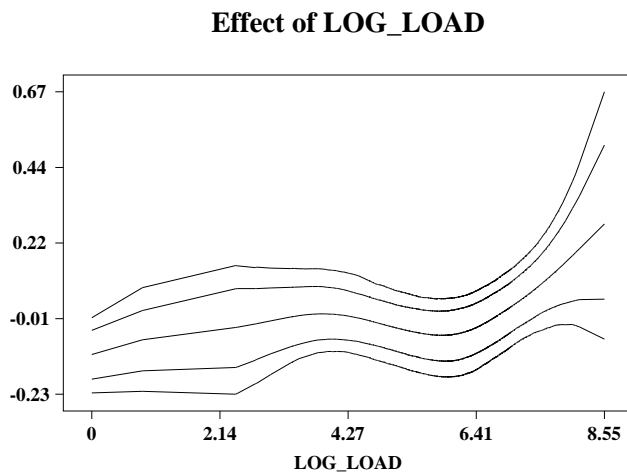


Figure 1: Non-linear Effect of 'LOG_LOAD'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.

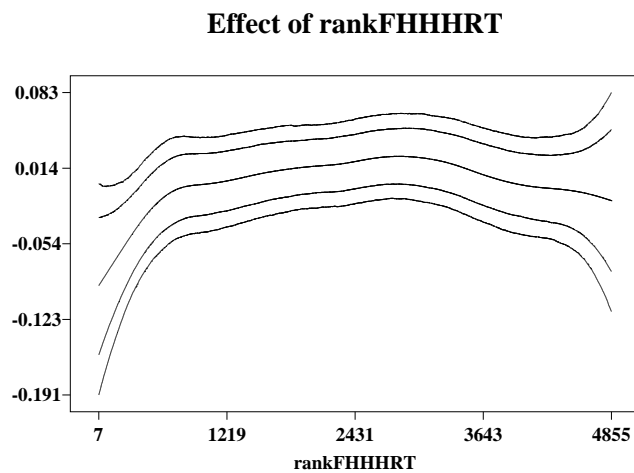


Figure 2: Non-linear Effect of 'rankFHHHRT'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.

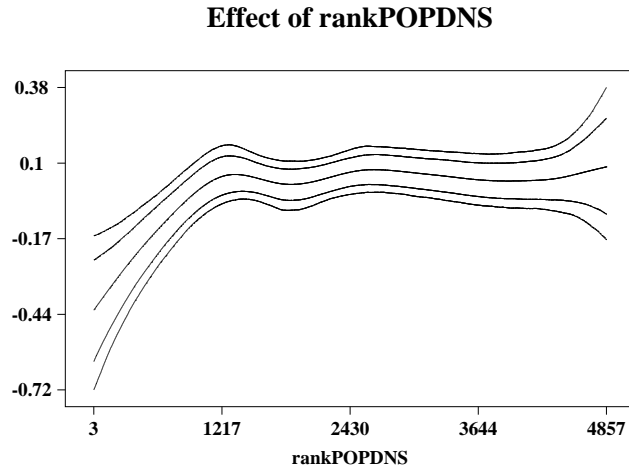


Figure 3: Non-linear Effect of 'rankPOPDNS'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.

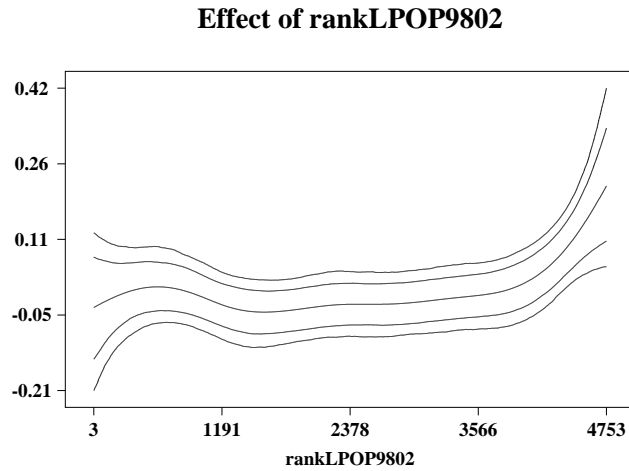


Figure 4: Non-linear Effect of 'rankLPOP9802'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.

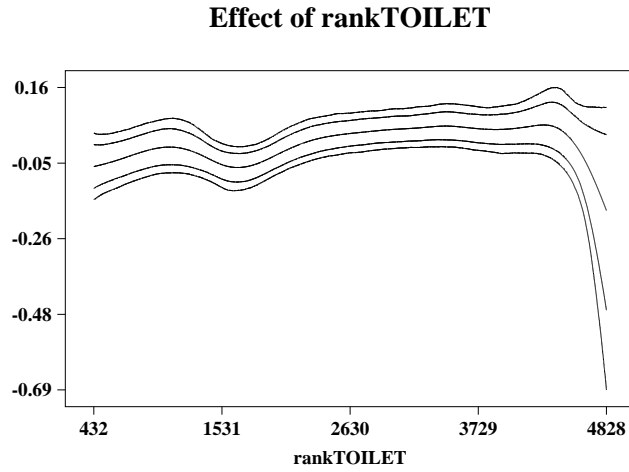


Figure 5: Non-linear Effect of 'rankTOILET'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.

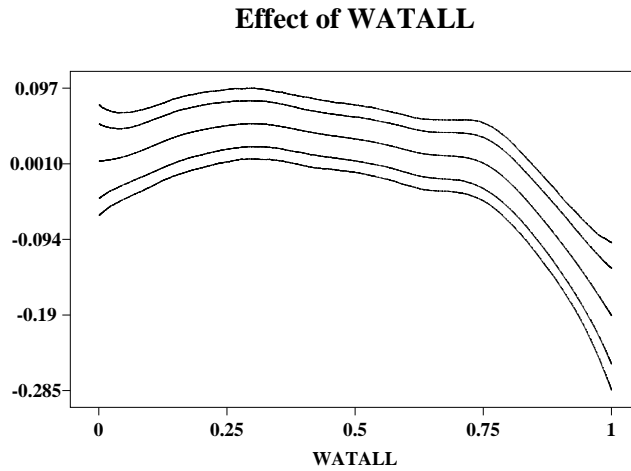


Figure 6: Non-linear Effect of 'WATALL'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.

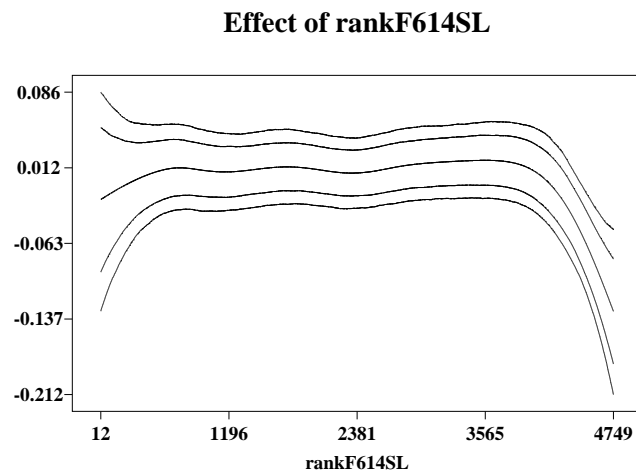


Figure 7: Non-linear Effect of 'rankF614SL'. Shown are the posterior means together with 95% and 80% pointwise credible intervals.