Model selection based on AICc :

K AICc Delta\_AICc AICcWt Cum.Wt LL

rd\_costNl\_xy 12 -46465.16 0.00 1 1 23244.58

rd\_Nl\_xy 9 -45960.09 505.07 0 1 22989.05

costNl\_xy 9 -44572.98 1892.17 0 1 22295.49

Nl\_xy 6 -44097.48 2367.68 0 1 22054.74

rd\_costl\_xy 9 1706.80 48171.96 0 1 -844.40

costl\_xy 6 2531.89 48997.04 0 1 -1259.94

rd\_l\_xy 7 7980.11 54445.27 0 1 -3983.06

l\_xy 4 8650.75 55115.90 0 1 -4321.37

rd\_costNl 11 21142.39 67607.54 0 1 -10560.19

rd\_Nl 8 21319.47 67784.63 0 1 -10651.73

costNl 8 39798.02 86263.18 0 1 -19891.01

Nl 5 39900.26 86365.42 0 1 -19945.13

rd\_costl 8 40413.40 86878.55 0 1 -20198.70

rd\_l 6 45340.79 91805.95 0 1 -22664.39

costl 5 52983.54 99448.69 0 1 -26486.77

l 3 56369.41 102834.57 0 1 -28181.70

Top model formula:

rd\_costNl\_xy = lme(fixed = A ~ barr \* mort,

random = ~ cost + N | land,

correlation = corExp(form = ~ x + y | land/road),

data=qibr4,

method="ML",

control=lmeControl(opt = "optim"))

Summary of full model:

Random effects:

Formula: ~cost + N | land

Structure: General positive-definite, Log-Cholesky parametrization

StdDev Corr

(Intercept) 0.84841903 (Intr) cost

cost 0.01369588 -0.288

N 0.38973753 -0.698 0.424

Residual 0.11931884

Fixed effects: A ~ barr \* mort

Value Std.Error DF t-value p-value

(Intercept) 5.543333 0.19237893 33000 28.81466 0.0000

barr -0.333087 0.00759811 33000 -43.83819 0.0000

mort -0.042929 0.00754403 33000 -5.69051 0.0000

barr:mort 0.001623 0.00754471 33000 0.21510 0.8297

Summary of road and landscape only:

> summary(rd\_l)$tTable

Value Std.Error DF t-value p-value

(Intercept) 4.6265149 0.167328206 33000 27.64934 2.250515e-166

barr -0.2274953 0.002642986 33000 -86.07510 0.000000e+00

mort -0.1752821 0.002642907 33000 -66.32169 0.000000e+00

barr:mort 0.0940491 0.002642917 33000 35.58534 3.357400e-272

Summary of road, landscape, and xy

> summary(rd\_l\_xy)$tTable

Value Std.Error DF t-value p-value

(Intercept) 4.602730942 0.29474541 33000 15.6159546 8.908354e-55

barr -0.448342365 0.01725373 33000 -25.9852470 2.217731e-147

mort -0.049294654 0.01724501 33000 -2.8584888 4.259307e-03

barr:mort 0.007718882 0.01724631 33000 0.4475672 6.544685e-01