Defense Services Equations

# Setup

First we load the data. The dataset used is a U.S. Defense Contracting dataset derived from FPDS.

## Warning: replacing previous import 'Hmisc::summarize' by 'dplyr::summarize'  
## when loading 'csis360'

## Warning: replacing previous import 'Hmisc::src' by 'dplyr::src' when  
## loading 'csis360'

## Warning: replacing previous import 'dplyr::intersect' by  
## 'lubridate::intersect' when loading 'csis360'

## Warning: replacing previous import 'dplyr::union' by 'lubridate::union'  
## when loading 'csis360'

## Warning: replacing previous import 'dplyr::setdiff' by 'lubridate::setdiff'  
## when loading 'csis360'

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

## Loading required package: MASS

##   
## Attaching package: 'MASS'

## The following object is masked from 'package:dplyr':  
##   
## select

## Loading required package: Matrix

## Loading required package: lme4

##   
## arm (Version 1.10-1, built: 2018-4-12)

## Working directory is F:/Users/gsanders/Documents/Repositories/Services/analysis

##   
## Please cite as:

## Hlavac, Marek (2018). stargazer: Well-Formatted Regression and Summary Statistics Tables.

## R package version 5.2.2. https://CRAN.R-project.org/package=stargazer

## Version: 1.36.23  
## Date: 2017-03-03  
## Author: Philip Leifeld (University of Glasgow)  
##   
## Please cite the JSS article in your publications -- see citation("texreg").

##   
## Attaching package: 'texreg'

## The following object is masked from 'package:arm':  
##   
## coefplot

## -- Attaching packages ---------------------------------------------------------------------------------------------------------- tidyverse 1.2.1 --

## v tibble 2.1.3 v purrr 0.3.2  
## v tidyr 0.8.3 v stringr 1.4.0  
## v readr 1.3.1 v forcats 0.4.0

## -- Conflicts ------------------------------------------------------------------------------------------------------------- tidyverse\_conflicts() --  
## x tidyr::expand() masks Matrix::expand()  
## x tidyr::extract() masks texreg::extract()  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()  
## x MASS::select() masks dplyr::select()

## Loading required package: carData

## Registered S3 methods overwritten by 'car':  
## method from  
## influence.merMod lme4  
## cooks.distance.influence.merMod lme4  
## dfbeta.influence.merMod lme4  
## dfbetas.influence.merMod lme4

##   
## Attaching package: 'car'

## The following object is masked from 'package:purrr':  
##   
## some

## The following object is masked from 'package:arm':  
##   
## logit

## The following object is masked from 'package:dplyr':  
##   
## recode

##   
## Attaching package: 'scales'

## The following object is masked from 'package:purrr':  
##   
## discard

## The following object is masked from 'package:readr':  
##   
## col\_factor

## The following object is masked from 'package:arm':  
##   
## rescale

# Options

Note that because we use the complete dataset for exercised options, there’s no 1 million entry variant.

if(file.exists("..//Output//p\_Opt\_12C.rdata")) load("..//Output//p\_Opt\_12C.rdata")  
  
if(!exists("p\_Opt\_12C")){  
 p\_Opt\_12C <- glm (data=serv\_opt,  
 lp\_OptGrowth ~ cl\_US6\_avg\_sal\_lag1Const +  
 cl\_CFTE+ c\_pPBSC+c\_pOffPSC+  
 c\_pairHist+cl\_pairCA +  
 cl\_Ceil + capped\_cln\_Days+  
 Comp+  
 Veh+  
 Pricing+  
 Crisis+  
 cl\_def6\_HHI\_lag1+cl\_def6\_ratio\_lag1+  
 cl\_def3\_HHI\_lag1+cl\_def3\_ratio\_lag1+  
 c\_pMarket+  
 cl\_OffVol+cl\_office\_naics\_hhi\_k #,  
 # verbose=1  
 )  
 glmer\_examine(p\_Opt\_12C)  
 save(p\_Opt\_12C,file="..//Output//p\_Opt\_12C.rdata")  
}  
  
#Considering   
# write.csv(exp(summary(p\_Opt\_12C)$coefficients[,1])-1,file="../Output/exp\_p\_Opt\_12C.csv")  
# p\_Opt\_12C\_exp<-log\_analysis(p\_Opt\_12C)  
  
glmer\_examine(p\_Opt\_12C)

## GVIF Df GVIF^(1/(2\*Df))  
## cl\_US6\_avg\_sal\_lag1Const 2.154107 1 1.467688  
## cl\_CFTE 1.587357 1 1.259904  
## c\_pPBSC 1.352445 1 1.162947  
## c\_pOffPSC 2.178856 1 1.476095  
## c\_pairHist 1.581016 1 1.257385  
## cl\_pairCA 3.985758 1 1.996436  
## cl\_Ceil 1.527450 1 1.235901  
## capped\_cl\_Days 1.196469 1 1.093832  
## Comp1or5 1.701497 3 1.092627  
## Veh 4.182603 4 1.195861  
## PricingUCA 1.423730 6 1.029878  
## Crisis 1.812547 3 1.104201  
## cl\_def6\_HHI\_lag1 1.544603 1 1.242821  
## cl\_def6\_ratio\_lag1 1.559790 1 1.248915  
## cl\_def3\_HHI\_lag1 1.968130 1 1.402901  
## cl\_def3\_ratio\_lag1 2.102308 1 1.449934  
## c\_pMarket 2.199375 1 1.483029  
## cl\_OffVol 1.316536 1 1.147404  
## cl\_hh\_index\_k 1.573128 1 1.254244

# Deprecated  
if(file.exists("..//Output//b\_SomeOpt25Cv3.rda")) load("..//Output//b\_SomeOpt25Cv3.rda")  
#   
if(!exists("b\_SomeOpt25Cv3")){  
 #Create the model  
  
 b\_SomeOpt25Cv3 <- glmer(data=serv\_opt, b\_SomeOpt ~ cln\_US6sal +  
 cln\_PSCrate+ cp\_OffPerf7+cp\_OffPSC7+  
 cn\_PairHist7+cln\_PairCA+  
 cln\_Base + clr\_Ceil2Base + cln\_Days+  
 Comp+  
 Veh+  
 Pricing+  
 Crisis+  
 cln\_Def6HHI+clr\_Def6toUS+  
 cln\_Def3HHI+  
 clr\_Def3toUS+  
 cp\_PairObl7+  
 cln\_OffObl7+  
 cln\_OffFocus+  
 cp\_OffPerf7:cp\_PairObl7 +  
 cp\_OffPerf7:cln\_PairCA +  
 cn\_PairHist7:Pricing +  
 cp\_PairObl7:cln\_OffObl7 +  
 clr\_Ceil2Base:cln\_Base +  
 pOffPSC:cln\_OffObl7 +  
 (1 | NAICS3/NAICS6/ServArea)+  
 (1 | Agency/Office) +  
 (1 | Place)+  
 (1 | StartFY),  
 family=binomial(link="logit"),  
 verbose=TRUE)  
 save(b\_SomeOpt25Cv3, file="..\\Output\\b\_SomeOpt25Cv3.rda")  
}  
  
glmer\_examine(b\_SomeOpt25Cv3)

## [[1]]  
## GVIF Df GVIF^(1/(2\*Df))  
## cln\_US6sal 1.047479 1 1.023464  
## cln\_PSCrate 1.024780 1 1.012314  
## cp\_OffPerf7 1.136534 1 1.066084  
## cp\_OffPSC7 1.228139 1 1.108214  
## cn\_PairHist7 1.402637 1 1.184330  
## cln\_PairCA 1.829788 1 1.352697  
## cln\_Base 1.930475 1 1.389415  
## clr\_Ceil2Base 1.098552 1 1.048118  
## cln\_Days 1.054625 1 1.026949  
## Comp 1.134899 3 1.021315  
## Veh 1.430044 4 1.045728  
## Pricing 2.222059 6 1.068800  
## Crisis 1.018403 3 1.003044  
## cln\_Def6HHI 1.208464 1 1.099302  
## clr\_Def6toUS 1.158370 1 1.076276  
## cln\_Def3HHI 1.208161 1 1.099164  
## clr\_Def3toUS 1.188483 1 1.090176  
## cp\_PairObl7 1.813427 1 1.346636  
## cln\_OffObl7 3.171537 1 1.780881  
## cln\_OffFocus 1.098722 1 1.048199  
## cp\_OffPerf7:cp\_PairObl7 1.642782 1 1.281711  
## cp\_PairObl7:cln\_OffObl7 1.674192 1 1.293906  
## cn\_PairHist7:Pricing 2.234718 6 1.069306  
## cp\_OffPerf7:cln\_PairCA 1.311745 1 1.145314  
## cln\_Base:clr\_Ceil2Base 1.826092 1 1.351330  
## cp\_OffPSC7:cln\_OffObl7 2.972175 1 1.724000  
##   
## [[2]]  
## # Intraclass Correlation Coefficient  
##   
## Adjusted ICC: 0.285  
## Conditional ICC: 0.257  
##   
## [[3]]  
## [1] "Model failed to converge with max|grad| = 0.00987252 (tol = 0.001, component 1)"  
##   
## [[4]]  
## ServArea:(NAICS6:NAICS3).(Intercept) Office:Agency.(Intercept)   
## 0.37036191 0.73454189   
## NAICS6:NAICS3.(Intercept) Place.(Intercept)   
## 0.21098304 0.52045517   
## NAICS3.(Intercept) Agency.(Intercept)   
## 0.17013830 0.03999664   
## StartFY.(Intercept)   
## 0.53665792

if(file.exists("..//Output//b\_AllOpt26A.rda")) load("..//Output//b\_AllOpt26A.rda")  
  
if(!exists("b\_AllOpt26A")){  
 #Create the model  
   
  
 b\_AllOpt26A <- glmer(data=serv\_exeropt,  
 b\_AllOpt ~ cln\_US6sal +   
 cln\_PSCrate+ cp\_OffPerf7+cp\_OffPSC7+  
 cn\_PairHist7+cln\_PairCA+  
 cln\_Base + clr\_Ceil2Base + cln\_Days+  
 Comp+  
 Veh+  
 Pricing+  
 Crisis+  
 cln\_Def6HHI+clr\_Def6toUS+  
 cln\_Def3HHI+  
 clr\_Def3toUS+  
 cp\_PairObl7+  
 cln\_OffObl7+   
 cln\_OffFocus+  
 cp\_OffPerf7:cp\_PairObl7 +   
 # cp\_OffPerf7:cln\_PairCA +   
 cp\_OffPSC7:cln\_OffFocus+  
   
 Pricing:cln\_PSCrate+  
 # cp\_OffPerf7:cln\_Days+  
 # Pricing:cln\_PSCrate+  
 cln\_OffObl7:cln\_OffFocus+  
 (1 | NAICS3/NAICS6/ServArea)+   
 (1 | Agency/Office) +  
 (1 | Place)+   
 (1 | StartFY),  
 family=binomial(link="logit"),  
 verbose=TRUE)  
   
 save(b\_AllOpt26A,file="..\\output\\b\_AllOpt26A.rda")  
  
}  
  
glmer\_examine(b\_AllOpt26A)

## [[1]]  
## GVIF Df GVIF^(1/(2\*Df))  
## cln\_US6sal 1.064923 1 1.031951  
## cln\_PSCrate 1.099503 1 1.048572  
## cp\_OffPerf7 1.109265 1 1.053216  
## cp\_OffPSC7 1.286291 1 1.134148  
## cn\_PairHist7 1.359993 1 1.166187  
## cln\_PairCA 1.787506 1 1.336976  
## cln\_Base 1.159549 1 1.076823  
## clr\_Ceil2Base 1.066374 1 1.032654  
## cln\_Days 1.042561 1 1.021059  
## Comp 1.161180 3 1.025219  
## Veh 1.459185 4 1.048368  
## Pricing 4.163678 6 1.126220  
## Crisis 1.028852 3 1.004752  
## cln\_Def6HHI 1.186484 1 1.089259  
## clr\_Def6toUS 1.181533 1 1.086983  
## cln\_Def3HHI 1.189430 1 1.090610  
## clr\_Def3toUS 1.230824 1 1.109425  
## cp\_PairObl7 1.371218 1 1.170990  
## cln\_OffObl7 1.363349 1 1.167626  
## cln\_OffFocus 1.117581 1 1.057157  
## cp\_OffPerf7:cp\_PairObl7 1.167857 1 1.080674  
## cp\_OffPSC7:cln\_OffFocus 1.266560 1 1.125415  
## cln\_PSCrate:Pricing 3.980569 6 1.122007  
## cln\_OffObl7:cln\_OffFocus 1.298144 1 1.139361  
##   
## [[2]]  
## # Intraclass Correlation Coefficient  
##   
## Adjusted ICC: 0.137  
## Conditional ICC: 0.119  
##   
## [[3]]  
## [1] "Model failed to converge with max|grad| = 0.00364159 (tol = 0.001, component 1)"  
##   
## [[4]]  
## ServArea:(NAICS6:NAICS3).(Intercept) Office:Agency.(Intercept)   
## 0.1811424 0.4707001   
## NAICS6:NAICS3.(Intercept) Place.(Intercept)   
## 0.3079215 0.2689522   
## NAICS3.(Intercept) Agency.(Intercept)   
## 0.1296557 0.2352865   
## StartFY.(Intercept)   
## 0.1714321

# glmer\_examine(p\_Opt\_12C,display=TRUE)  
# stargazer::stargazer(p\_Opt\_12C,type="text",  
# digits=2)  
  
glmer\_examine(b\_SomeOpt25Cv3)

## [[1]]  
## GVIF Df GVIF^(1/(2\*Df))  
## cln\_US6sal 1.047479 1 1.023464  
## cln\_PSCrate 1.024780 1 1.012314  
## cp\_OffPerf7 1.136534 1 1.066084  
## cp\_OffPSC7 1.228139 1 1.108214  
## cn\_PairHist7 1.402637 1 1.184330  
## cln\_PairCA 1.829788 1 1.352697  
## cln\_Base 1.930475 1 1.389415  
## clr\_Ceil2Base 1.098552 1 1.048118  
## cln\_Days 1.054625 1 1.026949  
## Comp 1.134899 3 1.021315  
## Veh 1.430044 4 1.045728  
## Pricing 2.222059 6 1.068800  
## Crisis 1.018403 3 1.003044  
## cln\_Def6HHI 1.208464 1 1.099302  
## clr\_Def6toUS 1.158370 1 1.076276  
## cln\_Def3HHI 1.208161 1 1.099164  
## clr\_Def3toUS 1.188483 1 1.090176  
## cp\_PairObl7 1.813427 1 1.346636  
## cln\_OffObl7 3.171537 1 1.780881  
## cln\_OffFocus 1.098722 1 1.048199  
## cp\_OffPerf7:cp\_PairObl7 1.642782 1 1.281711  
## cp\_PairObl7:cln\_OffObl7 1.674192 1 1.293906  
## cn\_PairHist7:Pricing 2.234718 6 1.069306  
## cp\_OffPerf7:cln\_PairCA 1.311745 1 1.145314  
## cln\_Base:clr\_Ceil2Base 1.826092 1 1.351330  
## cp\_OffPSC7:cln\_OffObl7 2.972175 1 1.724000  
##   
## [[2]]  
## # Intraclass Correlation Coefficient  
##   
## Adjusted ICC: 0.285  
## Conditional ICC: 0.257  
##   
## [[3]]  
## [1] "Model failed to converge with max|grad| = 0.00987252 (tol = 0.001, component 1)"  
##   
## [[4]]  
## ServArea:(NAICS6:NAICS3).(Intercept) Office:Agency.(Intercept)   
## 0.37036191 0.73454189   
## NAICS6:NAICS3.(Intercept) Place.(Intercept)   
## 0.21098304 0.52045517   
## NAICS3.(Intercept) Agency.(Intercept)   
## 0.17013830 0.03999664   
## StartFY.(Intercept)   
## 0.53665792

## Some Options

## All Options

# Ceiling Breach

if(file.exists("..//Output//b\_CBre29AB.rda")) load("..//Output//b\_CBre29AB.rda")  
  
if(!exists("b\_CBre29B")){  
 b\_CBre29B <- glmer(data=serv\_smp1m, b\_CBre ~ cln\_US6sal +  
 cln\_PSCrate+ cp\_OffPerf7+cp\_OffPSC7+  
 cn\_PairHist7+cln\_PairCA+  
 cln\_Base + clr\_Ceil2Base + cln\_Days+  
 Comp+  
 Veh+  
 Pricing+  
 Crisis+  
 cln\_Def6HHI+clr\_Def6toUS+  
 #cln\_Def3HHI+  
 clr\_Def3toUS+  
 cp\_PairObl7+  
 cln\_OffObl7+  
 cln\_OffFocus+  
 cp\_OffPerf7:cln\_PairCA+  
 #cp\_OffPerf7:cp\_PairObl7+  
 cp\_OffPerf7:cln\_Days+  
 # clr\_Ceil2Base:cln\_Base+  
 (1 | NAICS3/NAICS6/ServArea)+  
 (1 | Agency/Office) +  
 (1 | Place)+  
 (1 | StartFY),  
 family=binomial(link="logit"),  
 verbose=TRUE)  
  
}  
glmer\_examine(b\_CBre29B)

## [[1]]  
## GVIF Df GVIF^(1/(2\*Df))  
## cln\_US6sal 1.031540 1 1.015647  
## cln\_PSCrate 1.040981 1 1.020285  
## cp\_OffPerf7 1.327036 1 1.151971  
## cp\_OffPSC7 1.694827 1 1.301855  
## cn\_PairHist7 1.266040 1 1.125184  
## cln\_PairCA 1.556359 1 1.247541  
## cln\_Base 1.178172 1 1.085436  
## clr\_Ceil2Base 1.054316 1 1.026799  
## cln\_Days 1.167189 1 1.080365  
## Comp 1.121085 3 1.019232  
## Veh 1.430197 4 1.045742  
## Pricing 1.067455 6 1.005455  
## Crisis 1.046224 3 1.007560  
## cln\_Def6HHI 1.030654 1 1.015211  
## clr\_Def6toUS 1.180614 1 1.086561  
## clr\_Def3toUS 1.194564 1 1.092961  
## cp\_PairObl7 1.233907 1 1.110814  
## cln\_OffObl7 1.811823 1 1.346040  
## cln\_OffFocus 1.061505 1 1.030293  
## cp\_OffPerf7:cln\_PairCA 1.166241 1 1.079926  
## cp\_OffPerf7:cln\_Days 1.064677 1 1.031832  
##   
## [[2]]  
## # Intraclass Correlation Coefficient  
##   
## Adjusted ICC: 0.428  
## Conditional ICC: 0.381  
##   
## [[3]]  
## [1] "Model failed to converge with max|grad| = 0.0670472 (tol = 0.001, component 1)"  
##   
## [[4]]  
## ServArea:(NAICS6:NAICS3).(Intercept) Office:Agency.(Intercept)   
## 0.4607491 1.2414533   
## NAICS6:NAICS3.(Intercept) Place.(Intercept)   
## 0.3823538 0.4392544   
## NAICS3.(Intercept) Agency.(Intercept)   
## 0.4442963 0.3961069   
## StartFY.(Intercept)   
## 0.1391915

if(file.exists("..//Output//CBre25A.rda")) load("..//Output//CBre25A.rda")  
  
if(!exists("n\_CBre25A")){  
   
 n\_CBre25A <- lmer(data=serv\_breach, ln\_CBre ~ cln\_US6sal +   
 cln\_PSCrate+ cp\_OffPerf7+cp\_OffPSC7+  
 cn\_PairHist7+cln\_PairCA+  
 cln\_Base + clr\_Ceil2Base + cln\_Days+  
 Comp+  
 Veh+  
 Pricing+  
 Crisis+  
 cln\_Def6HHI+clr\_Def6toUS+  
 #cln\_Def3HHI+  
 clr\_Def3toUS+  
 cp\_PairObl7+  
 cln\_OffObl7+   
 #cl\_office\_NAICS6\_hhi\_kc+  
 cp\_OffPerf7:cln\_PairCA+  
 (1 | NAICS3/NAICS6/ServArea)+   
 (1 | Agency/Office) +  
 (1 | Place)+   
 (1 | StartFY),  
 verbose=TRUE)  
   
 save(n\_CBre25A,file="..\\output\\n\_CBre25A.rda")  
}  
  
  
glmer\_examine(n\_CBre25A)

## [[1]]  
## GVIF Df GVIF^(1/(2\*Df))  
## cln\_US6sal 1.043359 1 1.021450  
## cln\_PSCrate 1.047556 1 1.023502  
## cp\_OffPerf7 1.297150 1 1.138925  
## cp\_OffPSC7 1.552161 1 1.245857  
## cn\_PairHist7 1.258603 1 1.121875  
## cln\_PairCA 1.567469 1 1.251986  
## cln\_Base 1.203104 1 1.096861  
## clr\_Ceil2Base 1.056344 1 1.027786  
## cln\_Days 1.195631 1 1.093449  
## Comp 1.112113 3 1.017868  
## Veh 1.410407 4 1.043922  
## Pricing 1.071976 6 1.005809  
## Crisis 1.053055 3 1.008653  
## cln\_Def6HHI 1.028841 1 1.014318  
## clr\_Def6toUS 1.098625 1 1.048153  
## clr\_Def3toUS 1.112190 1 1.054604  
## cp\_PairObl7 1.258396 1 1.121782  
## cln\_OffObl7 1.528491 1 1.236321  
## cp\_OffPerf7:cln\_PairCA 1.159844 1 1.076960  
##   
## [[2]]  
## # Intraclass Correlation Coefficient  
##   
## Adjusted ICC: 0.160  
## Conditional ICC: 0.092  
##   
## [[3]]  
## [1] "Model failed to converge with max|grad| = 0.00219991 (tol = 0.002, component 1)"  
##   
## [[4]]  
## ServArea:(NAICS6:NAICS3).(Intercept) Office:Agency.(Intercept)   
## 0.21764855 0.22259707   
## NAICS6:NAICS3.(Intercept) Place.(Intercept)   
## 0.11722286 0.18983714   
## NAICS3.(Intercept) Agency.(Intercept)   
## 0.14869246 0.13630345   
## StartFY.(Intercept)   
## 0.04961028

## Breach Likelihood

## Breach Size

n\_CBre25A <- lmer(data=serv\_breach, ln\_CBre ~ cln\_US6sal + cln\_PSCrate+ cp\_OffPerf7+cp\_OffPSC7+ cn\_PairHist7+cln\_PairCA+ cln\_Base + clr\_Ceil2Base + cln\_Days+ Comp+ Veh+ Pricing+ Crisis+ cln\_Def6HHI+clr\_Def6toUS+ #cln\_Def3HHI+ clr\_Def3toUS+ cp\_PairObl7+ cln\_OffObl7+ #cl\_office\_NAICS6\_hhi\_kc+ cp\_OffPerf7:cln\_PairCA+ (1 | NAICS3/NAICS6/ServArea)+  
(1 | Agency/Office) + (1 | Place)+ (1 | StartFY), verbose=TRUE)

# Terminations

if(file.exists("..//Output//term25B.rdata")) load("..//Output//term25B.rdata")  
  
if(!exists("term25B")){  
  
 term25B <- glmer(data=serv\_smp1m, b\_Term ~ cl\_US6\_avg\_sal\_lag1Const +   
 cl\_CFTE+ c\_pPBSC+c\_pOffPSC+  
 c\_pairHist+cl\_pairCA +  
 cl\_Base + cln\_Days+ cl\_Base2Ceil+  
 Comp+  
 Veh+  
 Pricing+  
 Crisis+  
 cl\_def6\_HHI\_lag1+cl\_def6\_ratio\_lag1+  
 cl\_def3\_HHI\_lag1+cl\_def3\_ratio\_lag1+  
 c\_pMarket+  
 cl\_OffVol+cl\_office\_naics\_hhi\_k +  
 c\_pairHist:Pricing+   
 (1 | NAICS3/NAICS/CrisisProductOrServiceArea)+   
 (1 | Agency/Office) +  
 (1 | PlaceCountryISO3)+   
 (1 | StartFY),  
 family=binomial(link="logit"),  
 verbose=TRUE)  
   
 save(term25A,term25B,file="..\\output\\term25AB.rdata")  
}  
  
glmer\_examine(term25B)

## [[1]]  
## GVIF Df GVIF^(1/(2\*Df))  
## cln\_US6sal 1.023581 1 1.011722  
## cln\_PSCrate 1.077570 1 1.038061  
## cp\_OffPerf7 1.061212 1 1.030152  
## cp\_OffPSC7 1.088078 1 1.043110  
## cn\_PairHist7 1.327677 1 1.152249  
## cln\_PairCA 1.684679 1 1.297952  
## cln\_Base 1.156270 1 1.075300  
## cln\_Days 1.174037 1 1.083530  
## clr\_Ceil2Base 1.079836 1 1.039152  
## Comp 1.131030 3 1.020733  
## Veh 1.426813 4 1.045432  
## Pricing 2.548032 6 1.081062  
## Crisis 1.099538 3 1.015941  
## cln\_Def6HHI 1.370578 1 1.170717  
## clr\_Def6toUS 1.088018 1 1.043081  
## cln\_Def3HHI 1.376273 1 1.173147  
## clr\_Def3toUS 1.085676 1 1.041958  
## cp\_PairObl7 1.245483 1 1.116012  
## cln\_OffObl7 1.096063 1 1.046930  
## cln\_OffFocus 1.108827 1 1.053009  
## cn\_PairHist7:Pricing 2.533441 6 1.080544  
##   
## [[2]]  
## # Intraclass Correlation Coefficient  
##   
## Adjusted ICC: 0.307  
## Conditional ICC: 0.273  
##   
## [[3]]  
## [1] "Model failed to converge with max|grad| = 0.021645 (tol = 0.001, component 1)"  
##   
## [[4]]  
## ServArea:(NAICS6:NAICS3).(Intercept) Office:Agency.(Intercept)   
## 0.4246339 0.8130444   
## NAICS6:NAICS3.(Intercept) Place.(Intercept)   
## 0.3333396 0.6252668   
## NAICS3.(Intercept) Agency.(Intercept)   
## 0.2077932 0.2444498   
## StartFY.(Intercept)   
## 0.1094118