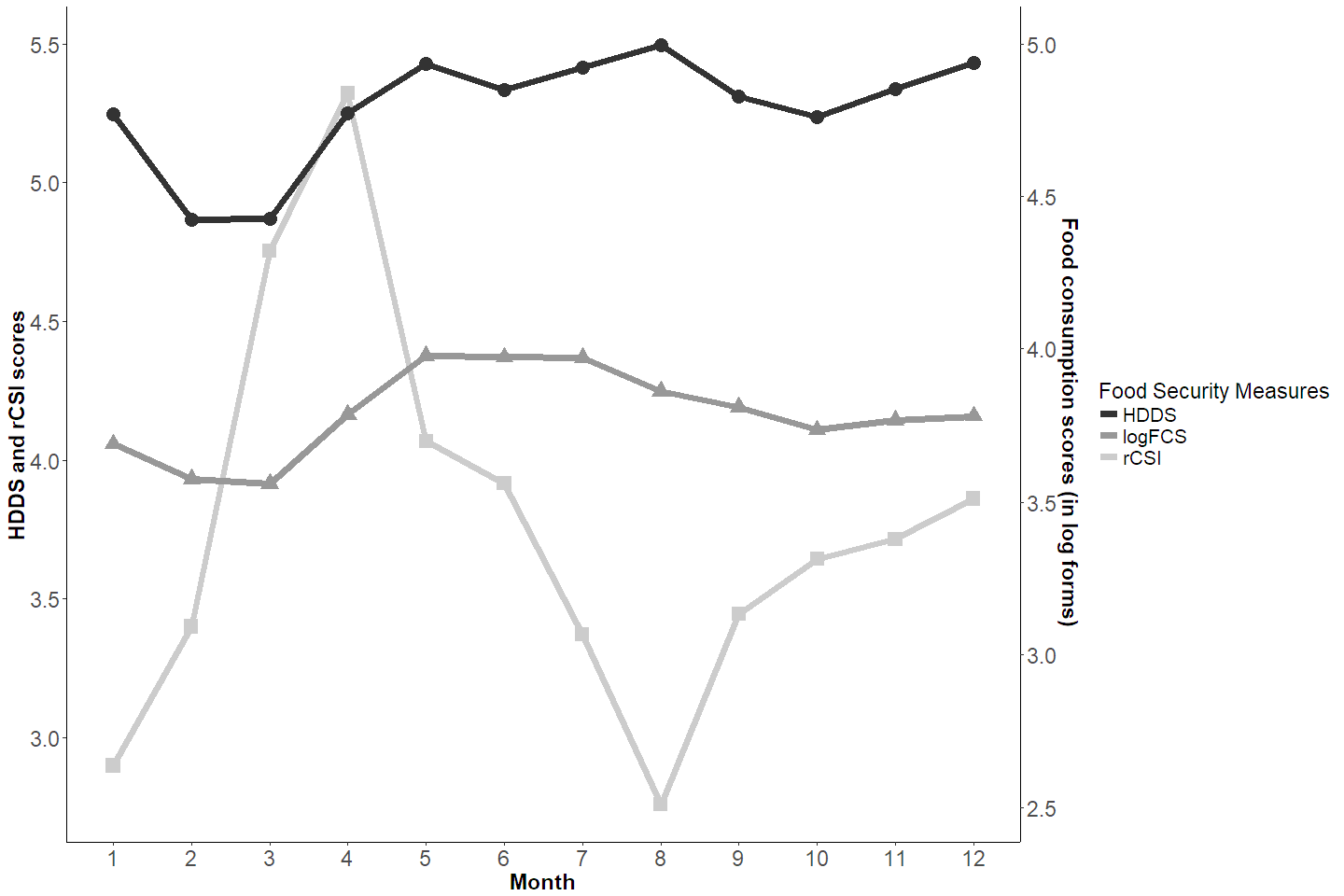
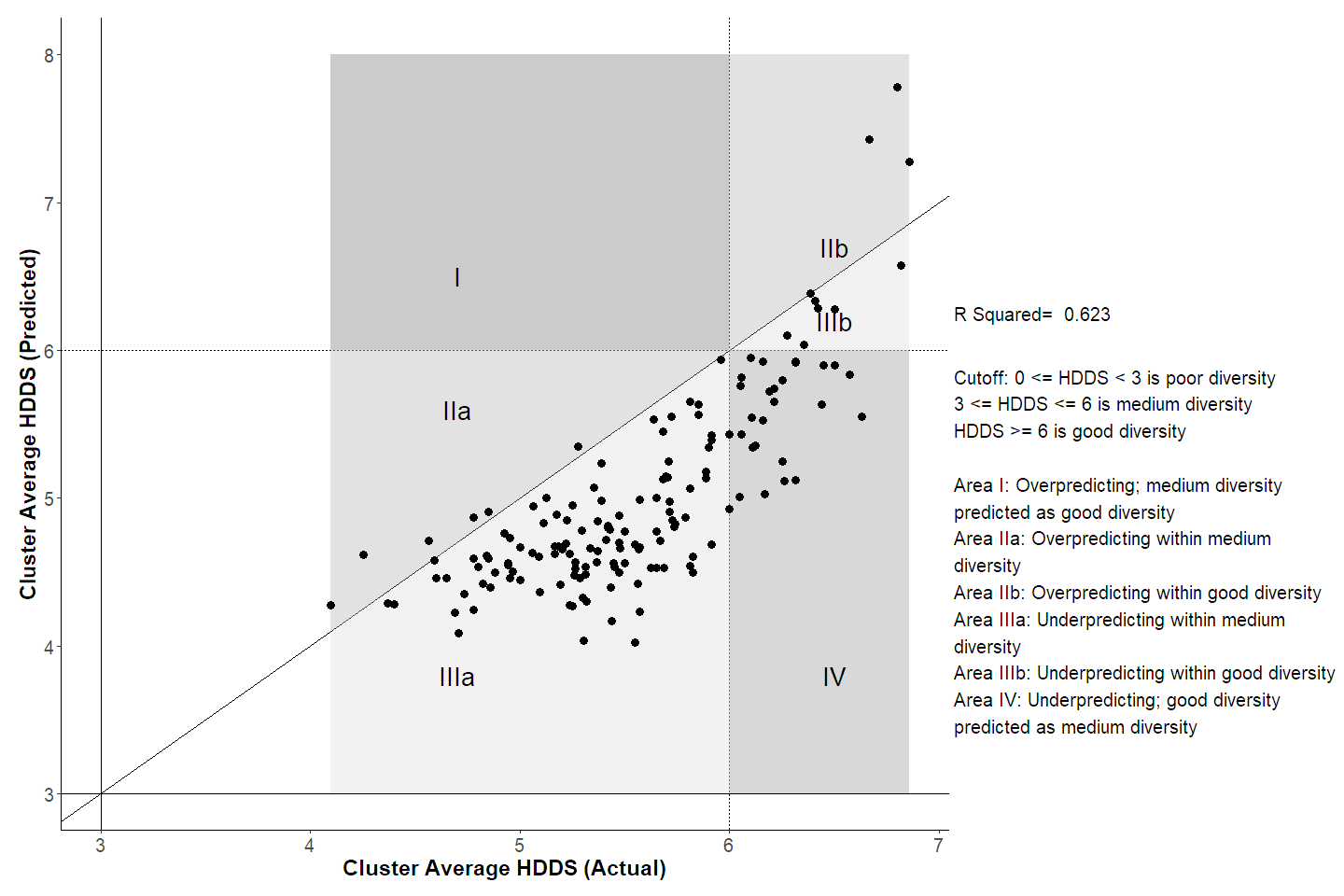
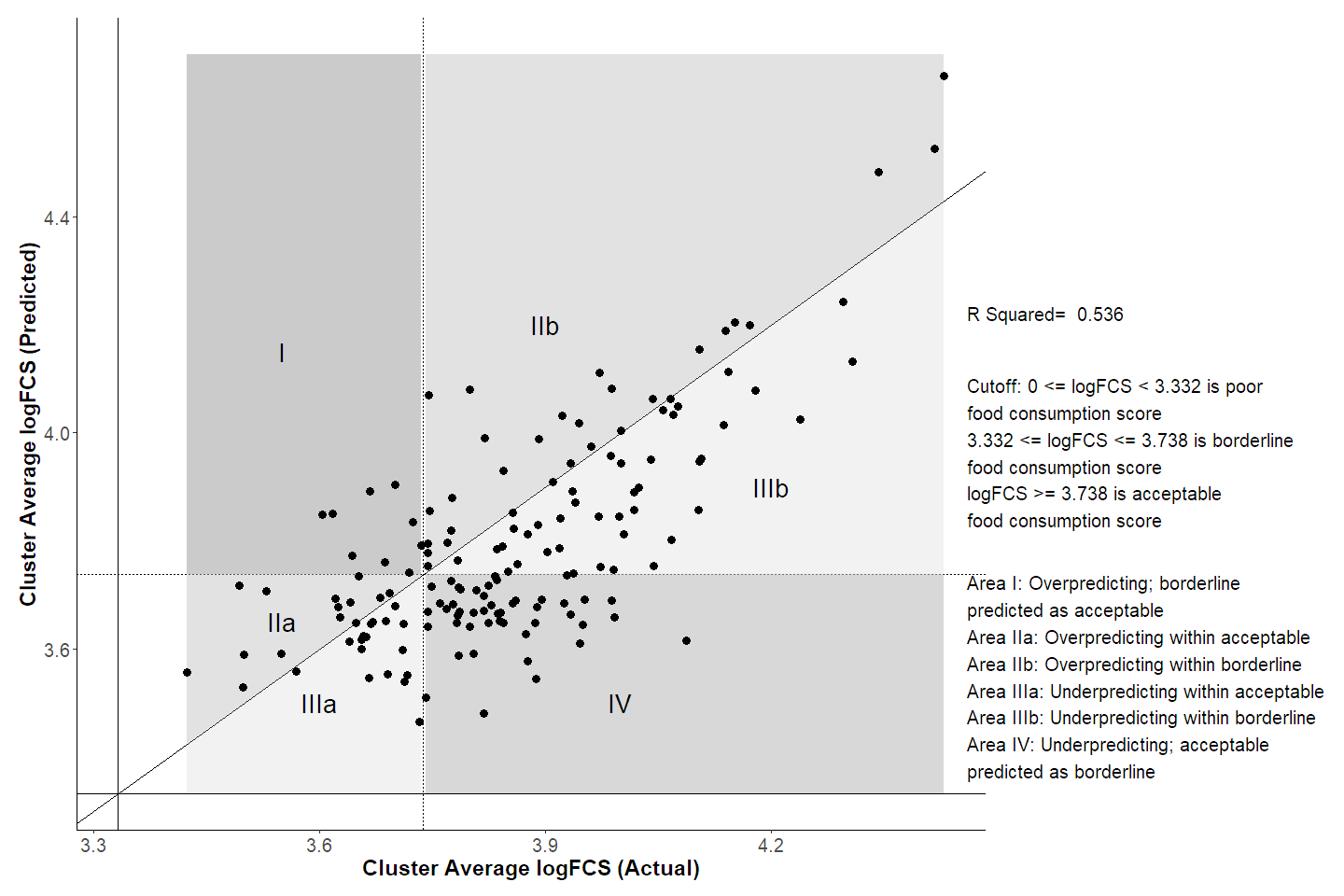
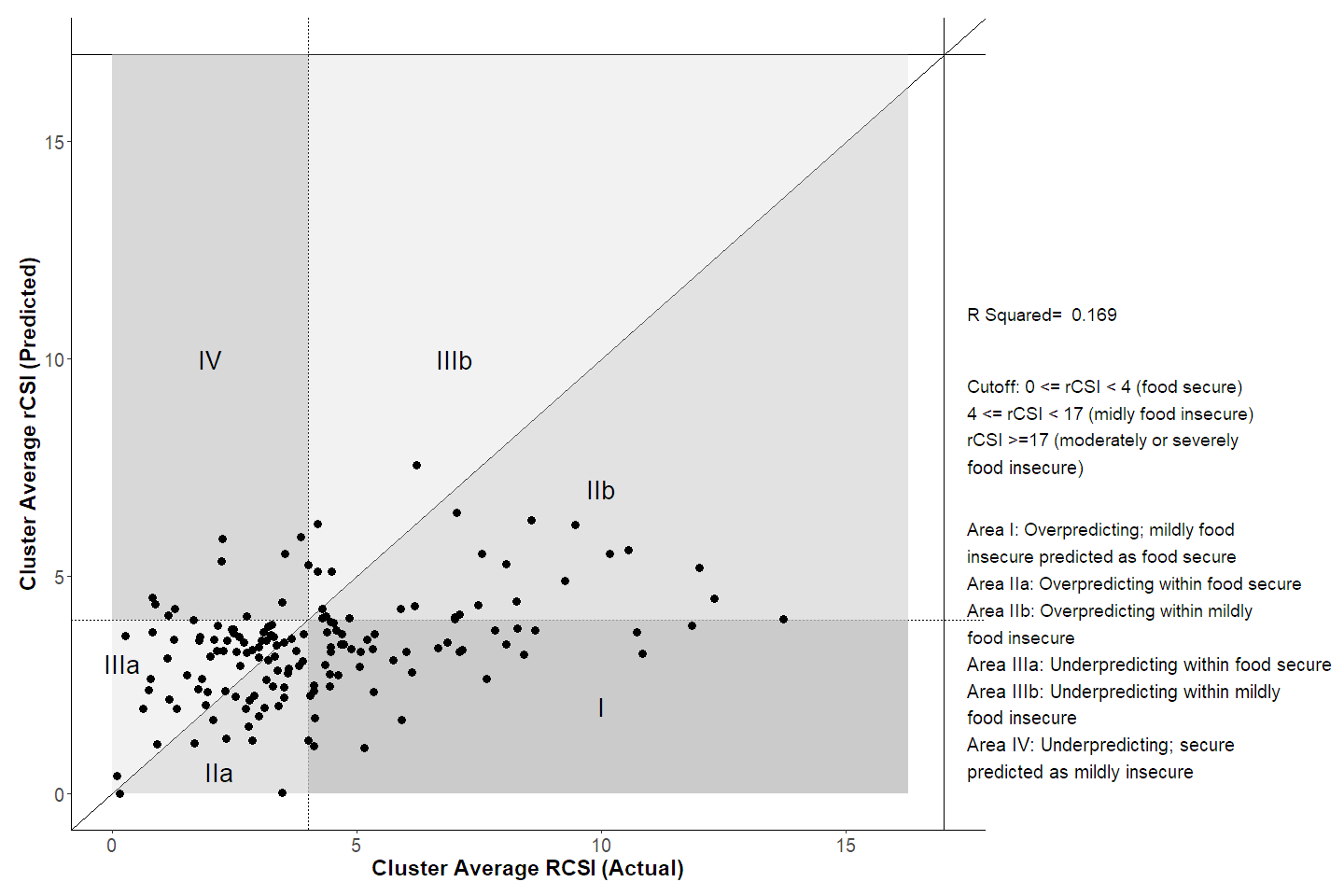
Result\_writeup

1. summary stats (pooled data of 2010 and 2013)
2. FS by month plot



1. bar chart of variation
2. Result of 2013 prediction
3. Scatter plots (predict vs. actual) 
4. Scatter plots (predict vs. actual) plus ipc only value
5. Density plot (predication using different scales + household)
   1. Unexplored variation of household level

## <environment: R\_GlobalEnv>

## Warning in cbind(predict\_df$clust\_logFCS\_ipczone\_predict\_m3, predict\_df  
## $clust\_logFCS\_TA\_predict\_m3, : number of rows of result is not a multiple  
## of vector length (arg 1)

## Warning in bind\_rows\_(x, .id): binding factor and character vector,  
## coercing into character vector

## Warning in bind\_rows\_(x, .id): binding character and factor vector,  
## coercing into character vector

## Warning in cbind(predict\_df$clust\_HDDS\_ipczone\_predict\_m3, predict\_df  
## $clust\_HDDS\_TA\_predict\_m3, : number of rows of result is not a multiple of  
## vector length (arg 1)

## Warning in bind\_rows\_(x, .id): binding factor and character vector,  
## coercing into character vector

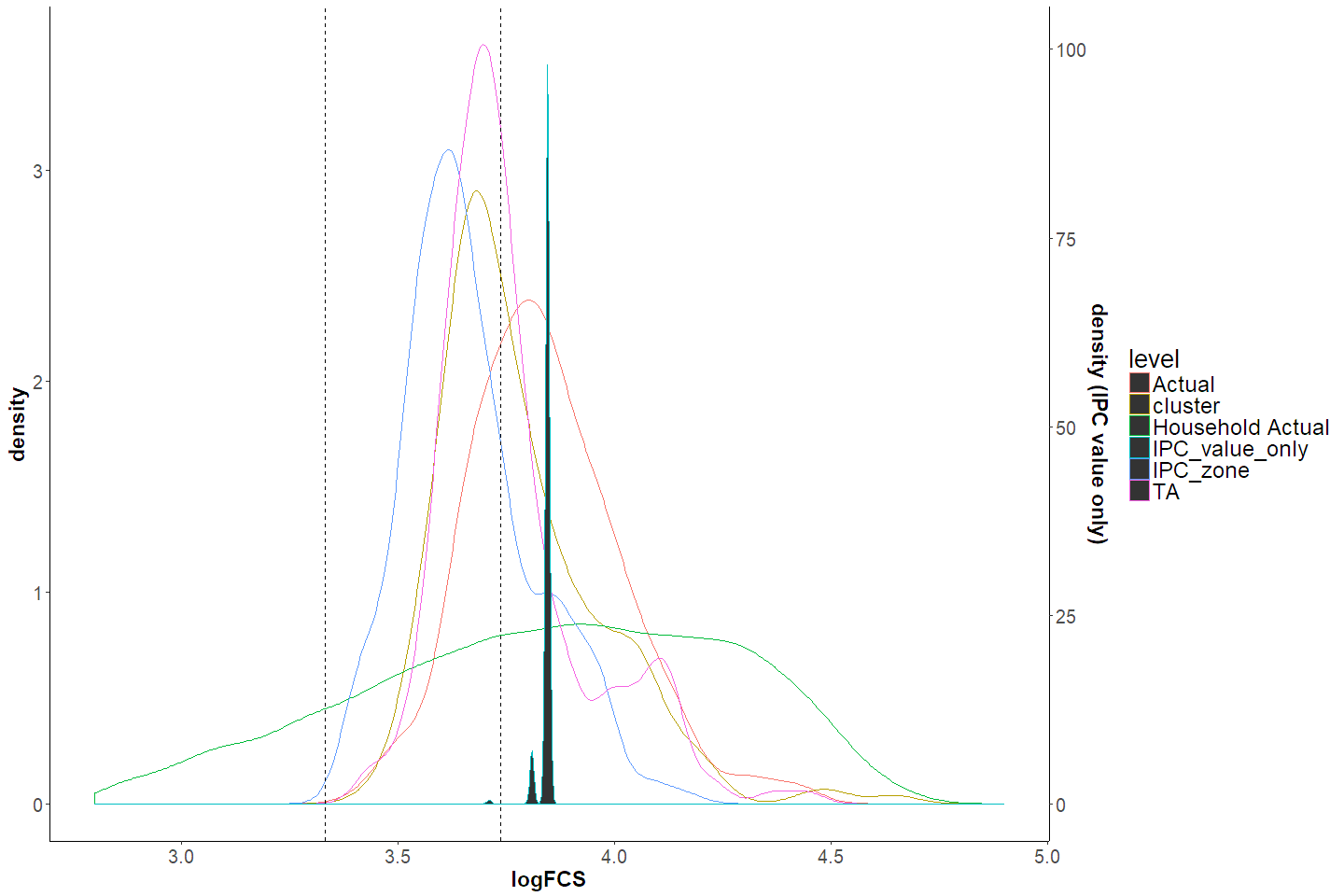
## Warning in bind\_rows\_(x, .id): binding character and factor vector,  
## coercing into character vector

## Warning in cbind(predict\_df$clust\_RCSI\_ipczone\_predict\_m3, predict\_df  
## $clust\_RCSI\_TA\_predict\_m3, : number of rows of result is not a multiple of  
## vector length (arg 1)

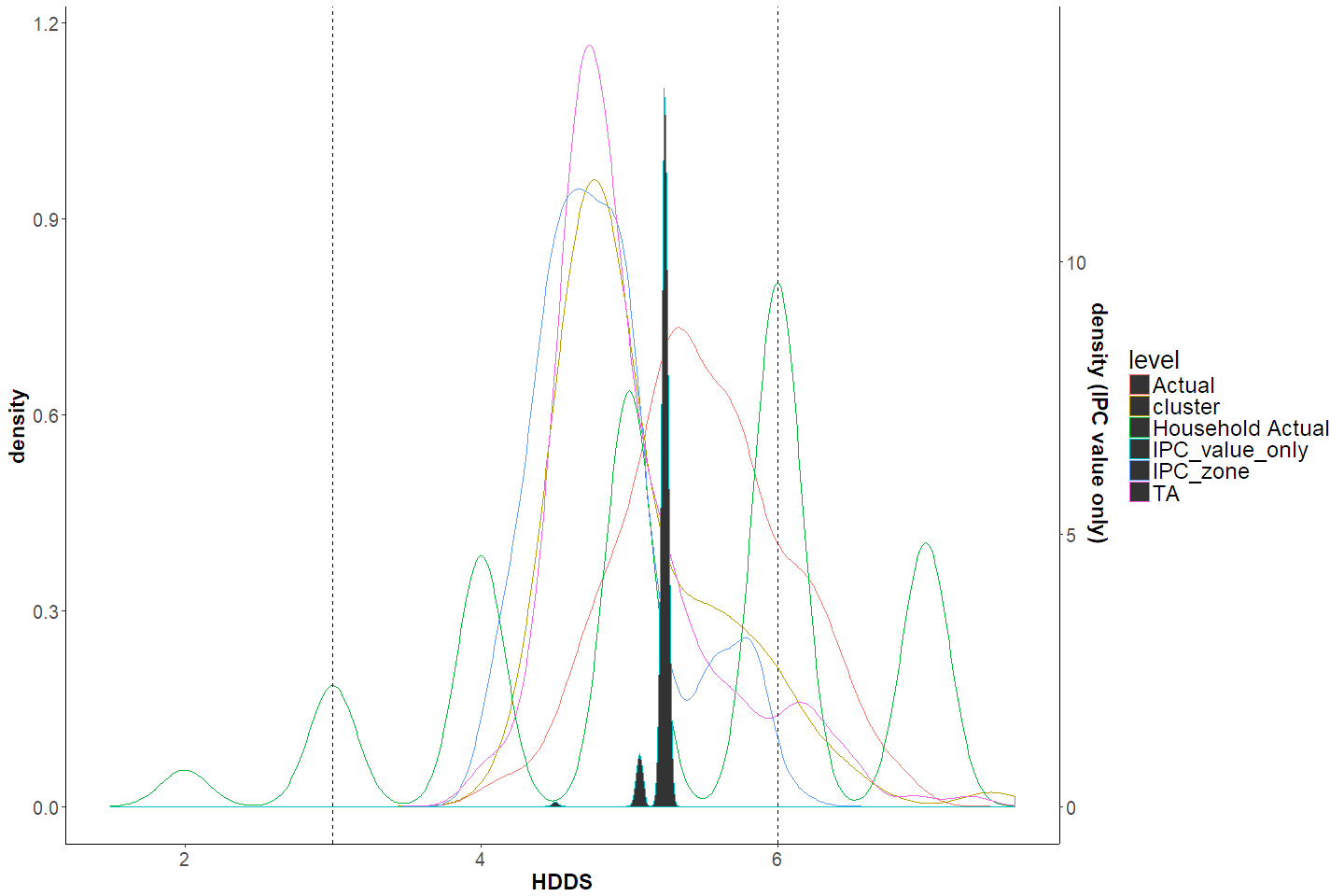
## Warning in bind\_rows\_(x, .id): binding factor and character vector,  
## coercing into character vector

## Warning in bind\_rows\_(x, .id): binding character and factor vector,  
## coercing into character vector

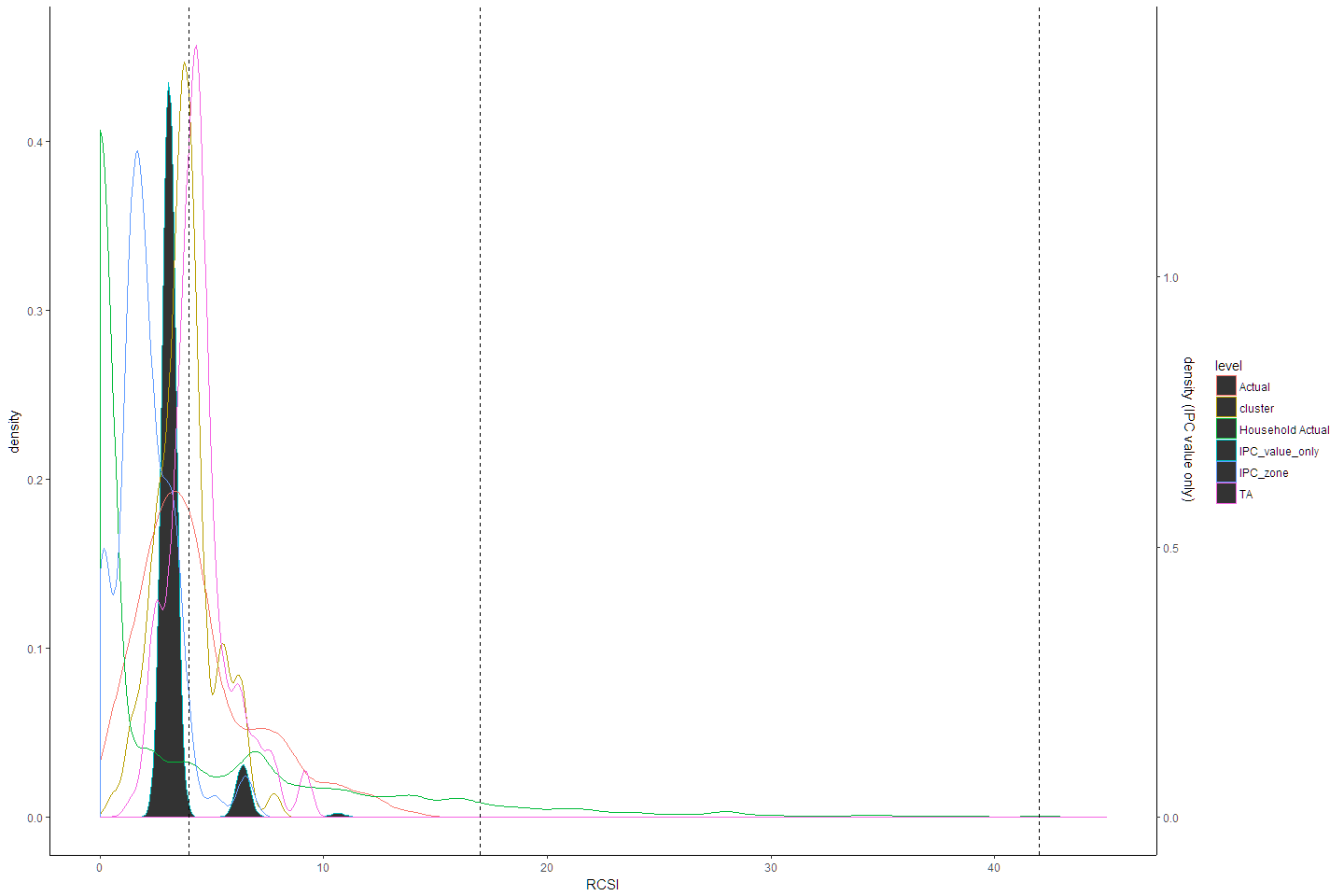
## Warning: Removed 423 rows containing non-finite values (stat\_density).



## Warning: Removed 7 rows containing non-finite values (stat\_density).



## Warning: Removed 40 rows containing non-finite values (stat\_density).

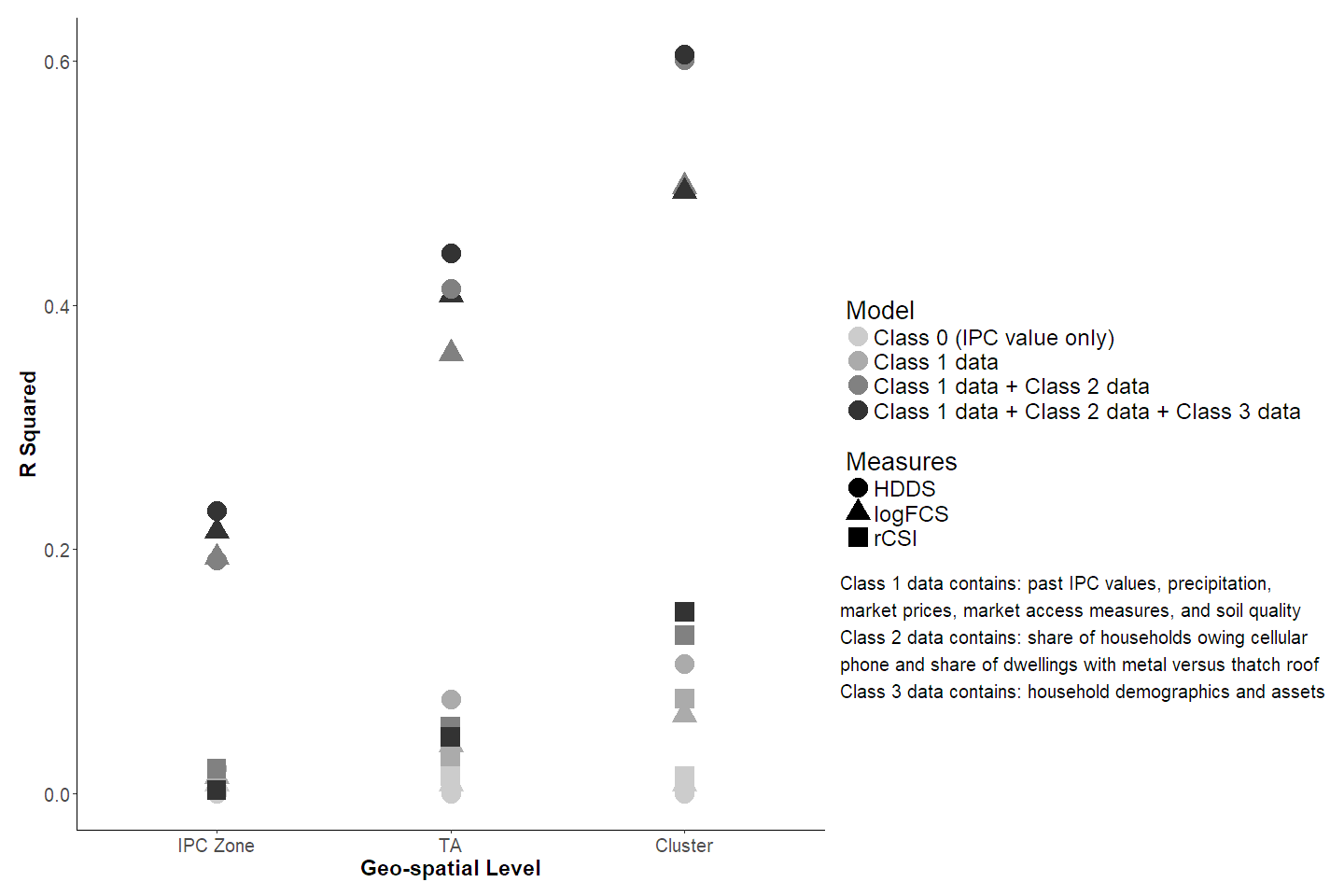


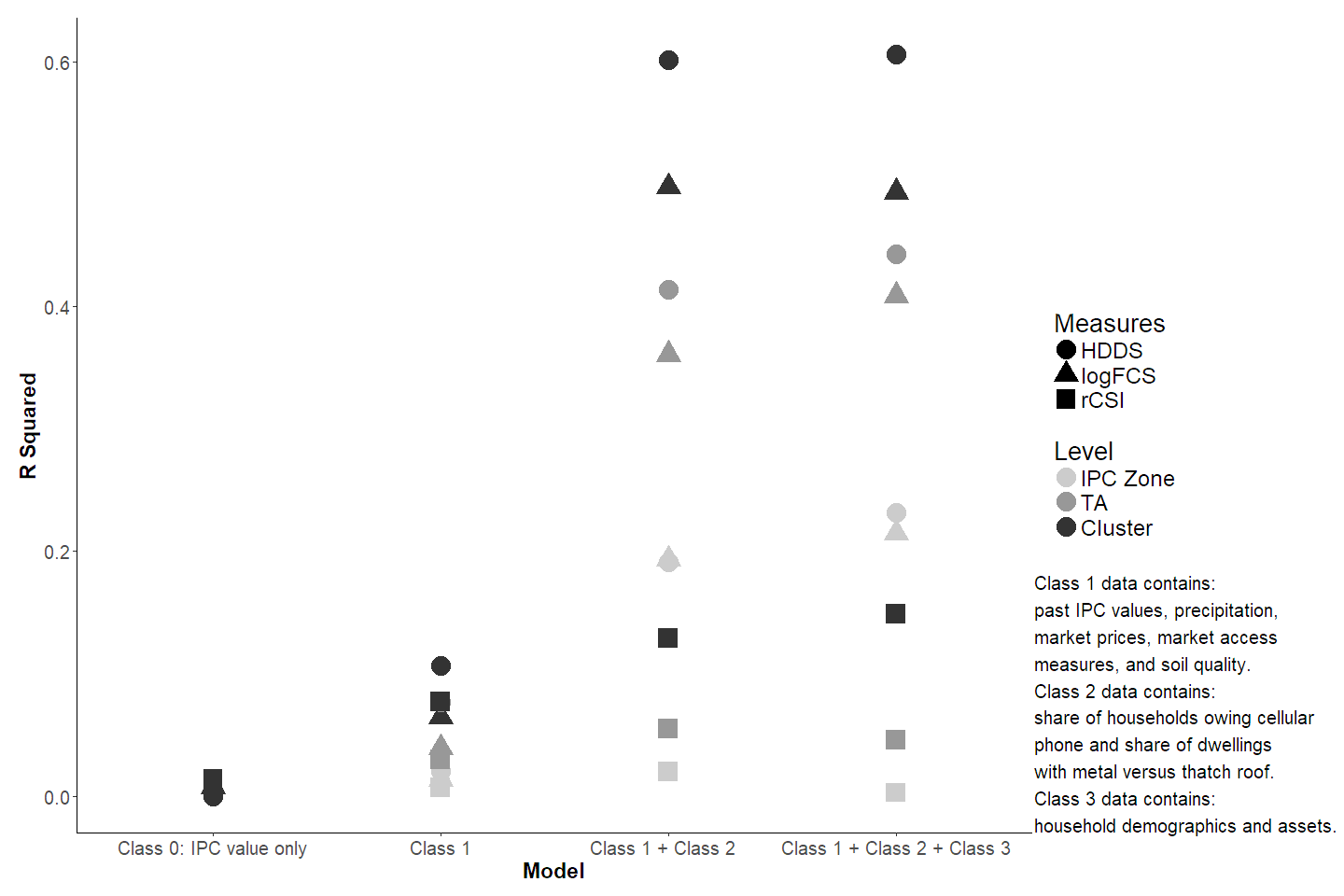
1. R Squared of 2013 predication

## Warning in cbind(logFCS\_IPC$clust\_logFCS\_predict\_ipc, logFCS\_IPC  
## $clust\_logFCS\_predict\_ipc, : number of rows of result is not a multiple of  
## vector length (arg 4)

## Warning in cbind(HDDS\_IPC$clust\_HDDS\_predict\_ipc, HDDS\_IPC  
## $clust\_HDDS\_predict\_ipc, : number of rows of result is not a multiple of  
## vector length (arg 4)

## Warning in cbind(RCSI\_IPC$clust\_RCSI\_predict\_ipc, RCSI\_IPC  
## $clust\_RCSI\_predict\_ipc, : number of rows of result is not a multiple of  
## vector length (arg 4)





1. Discussion of classification
2. hit and miss tables (for the predications)
   1. one is cluster to actual cluster outcomes

## Warning: package 'caret' was built under R version 3.3.3

## Loading required package: lattice

## [1] "logFCS confusionMatrix"

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction Poor Borderline Acceptable  
## Poor 0 0 0  
## Borderline 0 31 50  
## Acceptable 0 9 66  
##   
## Overall Statistics  
##   
## Accuracy : 0.6218   
## 95% CI : (0.5408, 0.6981)  
## No Information Rate : 0.7436   
## P-Value [Acc > NIR] : 0.9997   
##   
## Kappa : 0.2575   
## Mcnemar's Test P-Value : NA   
##   
## Statistics by Class:  
##   
## Class: Poor Class: Borderline Class: Acceptable  
## Sensitivity NA 0.7750 0.5690  
## Specificity 1 0.5690 0.7750  
## Pos Pred Value NA 0.3827 0.8800  
## Neg Pred Value NA 0.8800 0.3827  
## Prevalence 0 0.2564 0.7436  
## Detection Rate 0 0.1987 0.4231  
## Detection Prevalence 0 0.5192 0.4808  
## Balanced Accuracy NA 0.6720 0.6720

## [1] "HDDS confusionMatrix"

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction Low Diversity Medium Diversity Good Diversity  
## Low Diversity 0 0 0  
## Medium Diversity 0 120 20  
## Good Diversity 0 1 15  
##   
## Overall Statistics  
##   
## Accuracy : 0.8654   
## 95% CI : (0.8016, 0.9147)  
## No Information Rate : 0.7756   
## P-Value [Acc > NIR] : 0.003282   
##   
## Kappa : 0.5208   
## Mcnemar's Test P-Value : NA   
##   
## Statistics by Class:  
##   
## Class: Low Diversity Class: Medium Diversity  
## Sensitivity NA 0.9917  
## Specificity 1 0.4286  
## Pos Pred Value NA 0.8571  
## Neg Pred Value NA 0.9375  
## Prevalence 0 0.7756  
## Detection Rate 0 0.7692  
## Detection Prevalence 0 0.8974  
## Balanced Accuracy NA 0.7102  
## Class: Good Diversity  
## Sensitivity 0.42857  
## Specificity 0.99174  
## Pos Pred Value 0.93750  
## Neg Pred Value 0.85714  
## Prevalence 0.22436  
## Detection Rate 0.09615  
## Detection Prevalence 0.10256  
## Balanced Accuracy 0.71015

## [1] "RCSI confusionMatrix"

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction Food Secure Mild Moderate Severe  
## Food Secure 69 37 0 0  
## Mild 18 32 0 0  
## Moderate 0 0 0 0  
## Severe 0 0 0 0  
##   
## Overall Statistics  
##   
## Accuracy : 0.6474   
## 95% CI : (0.567, 0.7221)  
## No Information Rate : 0.5577   
## P-Value [Acc > NIR] : 0.01417   
##   
## Kappa : 0.2644   
## Mcnemar's Test P-Value : NA   
##   
## Statistics by Class:  
##   
## Class: Food Secure Class: Mild Class: Moderate  
## Sensitivity 0.7931 0.4638 NA  
## Specificity 0.4638 0.7931 1  
## Pos Pred Value 0.6509 0.6400 NA  
## Neg Pred Value 0.6400 0.6509 NA  
## Prevalence 0.5577 0.4423 0  
## Detection Rate 0.4423 0.2051 0  
## Detection Prevalence 0.6795 0.3205 0  
## Balanced Accuracy 0.6284 0.6284 NA  
## Class: Severe  
## Sensitivity NA  
## Specificity 1  
## Pos Pred Value NA  
## Neg Pred Value NA  
## Prevalence 0  
## Detection Rate 0  
## Detection Prevalence 0  
## Balanced Accuracy NA

1. cluster predication to actual household level outcomes

## [1] "logFCS confusionMatrix"

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction Poor Borderline Acceptable  
## Poor 0 0 0  
## Borderline 172 436 637  
## Acceptable 73 245 920  
##   
## Overall Statistics  
##   
## Accuracy : 0.5461   
## 95% CI : (0.5263, 0.5658)  
## No Information Rate : 0.6271   
## P-Value [Acc > NIR] : 1   
##   
## Kappa : 0.1745   
## Mcnemar's Test P-Value : <2e-16   
##   
## Statistics by Class:  
##   
## Class: Poor Class: Borderline Class: Acceptable  
## Sensitivity 0.00000 0.6402 0.5909  
## Specificity 1.00000 0.5511 0.6566  
## Pos Pred Value NaN 0.3502 0.7431  
## Neg Pred Value 0.90133 0.8021 0.4884  
## Prevalence 0.09867 0.2743 0.6271  
## Detection Rate 0.00000 0.1756 0.3705  
## Detection Prevalence 0.00000 0.5014 0.4986  
## Balanced Accuracy 0.50000 0.5956 0.6237

## [1] "HDDS confusionMatrix"

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction Low Diversity Medium Diversity Good Diversity  
## Low Diversity 0 0 0  
## Medium Diversity 246 1709 368  
## Good Diversity 1 55 104  
##   
## Overall Statistics  
##   
## Accuracy : 0.7302   
## 95% CI : (0.7122, 0.7475)  
## No Information Rate : 0.7104   
## P-Value [Acc > NIR] : 0.01548   
##   
## Kappa : 0.1649   
## Mcnemar's Test P-Value : < 2e-16   
##   
## Statistics by Class:  
##   
## Class: Low Diversity Class: Medium Diversity  
## Sensitivity 0.00000 0.9688  
## Specificity 1.00000 0.1460  
## Pos Pred Value NaN 0.7357  
## Neg Pred Value 0.90052 0.6562  
## Prevalence 0.09948 0.7104  
## Detection Rate 0.00000 0.6883  
## Detection Prevalence 0.00000 0.9356  
## Balanced Accuracy 0.50000 0.5574  
## Class: Good Diversity  
## Sensitivity 0.22034  
## Specificity 0.97215  
## Pos Pred Value 0.65000  
## Neg Pred Value 0.84158  
## Prevalence 0.19009  
## Detection Rate 0.04188  
## Detection Prevalence 0.06444  
## Balanced Accuracy 0.59625

## [1] "RCSI confusionMatrix"

## Confusion Matrix and Statistics  
##   
## Reference  
## Prediction Food Secure Mild Moderate Severe  
## Food Secure 1463 352 61 0  
## Mild 408 147 52 0  
## Moderate 0 0 0 0  
## Severe 0 0 0 0  
##   
## Overall Statistics  
##   
## Accuracy : 0.6484   
## 95% CI : (0.6293, 0.6672)  
## No Information Rate : 0.7535   
## P-Value [Acc > NIR] : 1   
##   
## Kappa : 0.0785   
## Mcnemar's Test P-Value : NA   
##   
## Statistics by Class:  
##   
## Class: Food Secure Class: Mild Class: Moderate  
## Sensitivity 0.7819 0.2946 0.00000  
## Specificity 0.3252 0.7681 1.00000  
## Pos Pred Value 0.7799 0.2422 NaN  
## Neg Pred Value 0.3278 0.8124 0.95449  
## Prevalence 0.7535 0.2010 0.04551  
## Detection Rate 0.5892 0.0592 0.00000  
## Detection Prevalence 0.7555 0.2445 0.00000  
## Balanced Accuracy 0.5535 0.5314 0.50000  
## Class: Severe  
## Sensitivity NA  
## Specificity 1  
## Pos Pred Value NA  
## Neg Pred Value NA  
## Prevalence 0  
## Detection Rate 0  
## Detection Prevalence 0  
## Balanced Accuracy NA

1. how bad it can be to just target the cluster level ?  
  
  
2. put it in SI ?

1. 2010 data (only what matters for 2010 is the tables (coefficients and variables))
2. regression results
3. discussion on the coefficients