p3\_summarise\_ssd.R

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## Including Plots

You can also embed plots, for example:

# Bias

## Get results for correlated data

Range of for all, then C-statistics of c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.813 | 0.846 | 0.864 | 0.885 | 0.922 | -0.034 | -0.036 |
| 0.888 | 0.896 | 0.900 | 0.904 | 0.913 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.900 | 0.910 | 0.918 | 0.925 | 0.938 | 0.019 | 0.018 |
| Rvs-adj | 0.883 | 0.896 | 0.902 | 0.909 | 0.925 | 0.002 | 0.002 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.886 | 0.899 | 0.907 | 0.916 | 0.934 | 0.008 | 0.007 |
| Rvs-adj | 0.883 | 0.895 | 0.901 | 0.907 | 0.919 | 0.001 | 0.001 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.870 | 0.881 | 0.889 | 0.898 | 0.919 | -0.010 | -0.011 |
| Rvs-adj | 0.886 | 0.896 | 0.901 | 0.905 | 0.916 | 0.001 | 0.001 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.848 | 0.859 | 0.867 | 0.875 | 0.893 | -0.032 | -0.033 |
| Rvs-adj | 0.888 | 0.896 | 0.900 | 0.904 | 0.912 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.818 | 0.834 | 0.843 | 0.851 | 0.867 | -0.057 | -0.057 |
| Rvs-adj | 0.890 | 0.897 | 0.900 | 0.904 | 0.910 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.784 | 0.807 | 0.815 | 0.822 | 0.838 | -0.086 | -0.085 |
| Rvs-adj | 0.891 | 0.897 | 0.901 | 0.904 | 0.909 | 0.001 | 0.001 |

Get number of observations total, and in each C-statistic group c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

## [1] "N= 10513"

## [[1]]  
## [1] "N= 252"  
##   
## [[2]]  
## [1] "N= 828"  
##   
## [[3]]  
## [1] "N= 1953"  
##   
## [[4]]  
## [1] "N= 3410"  
##   
## [[5]]  
## [1] "N= 3471"  
##   
## [[6]]  
## [1] "N= 563"

Range of for scenarios where failed.

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.891 | 0.929 | 0.954 | 0.995 | 1.254 | 0.082 | 0.054 |
| NA | NA | NA | NA | NA | NA | NA |

## [1] "N= 1702"

## Get results for uncorrelated data

S.pop.by.quantiles <- lapply(quantiles.list, function(x) {get\_quantiles(x[1],x[2], correlated = FALSE)})  
S.pop.by.quantiles.riley <- lapply(quantiles.list, function(x) {get\_quantiles(x[1],x[2], correlated = FALSE, both = FALSE)})  
S.pop.all <- get\_quantiles(0,1, correlated = FALSE)  
S.pop.all.riley <- get\_quantiles(0,1, correlated = FALSE, both = FALSE)  
  
### Put into a table  
S.pop.by.quantiles <- lapply(S.pop.by.quantiles, function(x) {  
 out <- rbind(x[[1]], x[[2]])  
 rownames(out) <- c("RvS", "Rvs-adj")  
 return(out)  
})  
S.pop.all <- rbind(S.pop.all[[1]], S.pop.all[[2]])  
  
### Suppress warnings for scenarios where N\_adapted fails, as they give all NA, but we are only interetes in the results for N\_original  
S.pop.by.quantiles.riley <- suppressWarnings(lapply(S.pop.by.quantiles.riley, function(x) {  
 out <- rbind(x[[1]], x[[2]])  
 rownames(out) <- c("RvS", "Rvs-adj")  
 return(out)  
}))  
S.pop.all.riley <- suppressWarnings(rbind(S.pop.all.riley[[1]], S.pop.all.riley[[2]]))

Range of for all, then C-statistics of c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.844 | 0.866 | 0.879 | 0.894 | 0.925 | -0.019 | -0.021 |
| 0.888 | 0.896 | 0.900 | 0.904 | 0.914 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.897 | 0.909 | 0.917 | 0.924 | 0.939 | 0.018 | 0.017 |
| Rvs-adj | 0.882 | 0.896 | 0.902 | 0.908 | 0.921 | 0.002 | 0.002 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.885 | 0.895 | 0.902 | 0.910 | 0.928 | 0.003 | 0.002 |
| Rvs-adj | 0.885 | 0.896 | 0.901 | 0.906 | 0.918 | 0.001 | 0.001 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.868 | 0.878 | 0.884 | 0.890 | 0.906 | -0.015 | -0.016 |
| Rvs-adj | 0.888 | 0.896 | 0.900 | 0.904 | 0.912 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.85 | 0.860 | 0.866 | 0.872 | 0.886 | -0.033 | -0.034 |
| Rvs-adj | 0.89 | 0.897 | 0.900 | 0.904 | 0.910 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.829 | 0.842 | 0.848 | 0.854 | 0.867 | -0.052 | -0.052 |
| Rvs-adj | 0.890 | 0.897 | 0.900 | 0.903 | 0.909 | 0.000 | 0.000 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.802 | 0.806 | 0.809 | 0.819 | 0.829 | -0.086 | -0.091 |
| Rvs-adj | 0.890 | 0.894 | 0.899 | 0.900 | 0.901 | -0.001 | -0.001 |

Get number of observations total, and in each C-statistic group c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

## [[1]]  
## [1] "N= 625"  
##   
## [[2]]  
## [1] "N= 1711"  
##   
## [[3]]  
## [1] "N= 3324"  
##   
## [[4]]  
## [1] "N= 3536"  
##   
## [[5]]  
## [1] "N= 781"  
##   
## [[6]]  
## [1] "N= 3"

## [1] "N= 10029"

Range of for scenarios where failed.

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.886 | 0.925 | 0.948 | 0.99 | 1.257 | 0.069 | 0.048 |
| NA | NA | NA | NA | NA | NA | NA |

## [1] "N= 1984"

# Magnitude of bias

## Get results for correlated data

Range of for all, then C-statistics of c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.813 | 0.846 | 0.864 | 0.885 | 0.922 | 0.038 | 0.036 |
| 0.888 | 0.896 | 0.900 | 0.904 | 0.913 | 0.004 | 0.004 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.900 | 0.910 | 0.918 | 0.925 | 0.938 | 0.019 | 0.018 |
| Rvs-adj | 0.883 | 0.896 | 0.902 | 0.909 | 0.925 | 0.006 | 0.006 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.886 | 0.899 | 0.907 | 0.916 | 0.934 | 0.012 | 0.009 |
| Rvs-adj | 0.883 | 0.895 | 0.901 | 0.907 | 0.919 | 0.006 | 0.006 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.870 | 0.881 | 0.889 | 0.898 | 0.919 | 0.013 | 0.013 |
| Rvs-adj | 0.886 | 0.896 | 0.901 | 0.905 | 0.916 | 0.005 | 0.005 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.848 | 0.859 | 0.867 | 0.875 | 0.893 | 0.032 | 0.033 |
| Rvs-adj | 0.888 | 0.896 | 0.900 | 0.904 | 0.912 | 0.004 | 0.004 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.818 | 0.834 | 0.843 | 0.851 | 0.867 | 0.057 | 0.057 |
| Rvs-adj | 0.890 | 0.897 | 0.900 | 0.904 | 0.910 | 0.003 | 0.003 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.784 | 0.807 | 0.815 | 0.822 | 0.838 | 0.086 | 0.085 |
| Rvs-adj | 0.891 | 0.897 | 0.901 | 0.904 | 0.909 | 0.003 | 0.003 |

Get number of observations total, and in each C-statistic group c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

## [1] "N= 10513"

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## [1] "N= 252"  
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## [1] "N= 3410"  
##   
## [[5]]  
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##   
## [[6]]  
## [1] "N= 563"

Range of for scenarios where failed.

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.891 | 0.929 | 0.954 | 0.995 | 1.254 | 0.106 | 0.055 |
| NA | NA | NA | NA | NA | NA | NA |

## [1] "N= 1702"

## Get results for uncorrelated data

S.pop.by.quantiles <- lapply(quantiles.list, function(x) {get\_quantiles(x[1],x[2], correlated = FALSE, magnitude = TRUE)})  
S.pop.by.quantiles.riley <- lapply(quantiles.list, function(x) {get\_quantiles(x[1],x[2], correlated = FALSE, both = FALSE, magnitude = TRUE)})  
S.pop.all <- get\_quantiles(0,1, correlated = FALSE, magnitude = TRUE)  
S.pop.all.riley <- get\_quantiles(0,1, correlated = FALSE, both = FALSE, magnitude = TRUE)  
  
### Put into a table  
S.pop.by.quantiles <- lapply(S.pop.by.quantiles, function(x) {  
 out <- rbind(x[[1]], x[[2]])  
 rownames(out) <- c("RvS", "Rvs-adj")  
 return(out)  
})  
S.pop.all <- rbind(S.pop.all[[1]], S.pop.all[[2]])  
  
### Suppress warnings for scenarios where N\_adapted fails, as they give all NA, but we are only interetes in the results for N\_original  
S.pop.by.quantiles.riley <- suppressWarnings(lapply(S.pop.by.quantiles.riley, function(x) {  
 out <- rbind(x[[1]], x[[2]])  
 rownames(out) <- c("RvS", "Rvs-adj")  
 return(out)  
}))  
S.pop.all.riley <- suppressWarnings(rbind(S.pop.all.riley[[1]], S.pop.all.riley[[2]]))

Range of for all, then C-statistics of c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.844 | 0.866 | 0.879 | 0.894 | 0.925 | 0.024 | 0.023 |
| 0.888 | 0.896 | 0.900 | 0.904 | 0.914 | 0.004 | 0.004 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.897 | 0.909 | 0.917 | 0.924 | 0.939 | 0.018 | 0.017 |
| Rvs-adj | 0.882 | 0.896 | 0.902 | 0.908 | 0.921 | 0.006 | 0.006 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.885 | 0.895 | 0.902 | 0.910 | 0.928 | 0.009 | 0.007 |
| Rvs-adj | 0.885 | 0.896 | 0.901 | 0.906 | 0.918 | 0.005 | 0.005 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.868 | 0.878 | 0.884 | 0.890 | 0.906 | 0.016 | 0.016 |
| Rvs-adj | 0.888 | 0.896 | 0.900 | 0.904 | 0.912 | 0.004 | 0.004 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.85 | 0.860 | 0.866 | 0.872 | 0.886 | 0.033 | 0.034 |
| Rvs-adj | 0.89 | 0.897 | 0.900 | 0.904 | 0.910 | 0.003 | 0.003 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.829 | 0.842 | 0.848 | 0.854 | 0.867 | 0.052 | 0.052 |
| Rvs-adj | 0.890 | 0.897 | 0.900 | 0.903 | 0.909 | 0.003 | 0.003 |

|  | 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RvS | 0.802 | 0.806 | 0.809 | 0.819 | 0.829 | 0.086 | 0.091 |
| Rvs-adj | 0.890 | 0.894 | 0.899 | 0.900 | 0.901 | 0.001 | 0.001 |

Get number of observations total, and in each C-statistic group c(0.6, 0.65), c(0.65, 0.7), c(0.7, 0.75), c(0.75, 0.8), c(0.8, 0.85), and c(0.85, 0.9).

## [[1]]  
## [1] "N= 625"  
##   
## [[2]]  
## [1] "N= 1711"  
##   
## [[3]]  
## [1] "N= 3324"  
##   
## [[4]]  
## [1] "N= 3536"  
##   
## [[5]]  
## [1] "N= 781"  
##   
## [[6]]  
## [1] "N= 3"

## [1] "N= 10029"

Range of for scenarios where failed.

| 2.5% | 25% | 50% | 75% | 97.5% | mean | median |
| --- | --- | --- | --- | --- | --- | --- |
| 0.886 | 0.925 | 0.948 | 0.99 | 1.257 | 0.099 | 0.049 |
| NA | NA | NA | NA | NA | NA | NA |

## [1] "N= 1984"