

betaNB: Internal Tests

Ivan Jacob Agaloos Pesigan

Tests

```
#> test-betaNB-beta-nb-est
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5%  99.95%
#> NARTIC  0.4951 0.0388 5 0.4677 0.4677 0.4678 0.5564 0.5594 0.5601
#> PCTGRT  0.3915 0.0677 5 0.2863 0.2866 0.2878 0.4398 0.4425 0.4431
#> PCTSUPP 0.2632 0.0625 5 0.1960 0.1967 0.1998 0.3469 0.3492 0.3498
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5%  99.95%
#> NARTIC  0.4951 0.0388 5 0.4677 0.4677 0.4677 0.5492 0.5572 0.5597
#> PCTGRT  0.3915 0.0677 5 0.2865 0.2874 0.2906 0.4422 0.4430 0.4431
#> PCTSUPP 0.2632 0.0625 5 0.1959 0.1960 0.1969 0.3413 0.3476 0.3495
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
```

```

#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4951 0.0388 5 0.4677 0.4677 0.4677 0.5495 0.5574 0.5598
#> PCTGRT  0.3915 0.0677 5 0.2866 0.2877 0.2910 0.4424 0.4431 0.4431
#> PCTSUPP 0.2632 0.0625 5 0.1959 0.1960 0.1966 0.3402 0.3468 0.3493
#> Test passed
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.7622 0.0327 5 0.7582 0.7583 0.7589 0.8289 0.8295 0.8296
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "pc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.7622 0.0327 5 0.7582 0.7582 0.7582 0.8123 0.8239 0.828
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
#> Call:
#> BetaNB(object = nb)
#>
#> Standardized regression slopes
#> type = "bca"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.7622 0.0327 5 0.7582 0.7582 0.7582 0.8113 0.8231 0.8272

```

```

#> test-betaNB-delta-r-sq-nb-est

#> Call:
#> DeltaRSqNB(object = nb)
#>
#> Improvement in R-squared
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.1859 0.0766 5 0.0755 0.0769 0.0832 0.2707 0.2739 0.2747
#> PCTGRT  0.1177 0.0549 5 0.0219 0.0228 0.0268 0.1587 0.1614 0.1620
#> PCTSUPP 0.0569 0.0470 5 0.0429 0.0431 0.0439 0.1405 0.1405 0.1405
#> Call:
#> DeltaRSqNB(object = nb)
#>
#> Improvement in R-squared
#> type = "pc"
#> Test passed
#> Test passed

#> test-betaNB-diff-beta-nb-est

#> Call:
#> DiffBetaNB(object = nb)
#>
#> Differences of standardized regression slopes
#> type = "pc"
#>      est      se R   0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.1656 5  0.0410  0.0422  0.0477 0.4078 0.4100 0.4105
#> NARTIC-PCTSUPP 0.2319 0.1082 5  0.2075  0.2088  0.2148 0.4806 0.4936 0.4966
#> PCTGRT-PCTSUPP 0.1282 0.1151 5 -0.0967 -0.0934 -0.0787 0.1714 0.1718 0.1719
#> Call:
#> DiffBetaNB(object = nb)
#>
#> Differences of standardized regression slopes
#> type = "pc"
#> Test passed
#> Test passed

#> test-betaNB-nb

#> Test passed
#> Call:
#> NB(object = object, R = 6)
#>
#> The first six bootstrap covariance matrices.
#>
#> [[1]]
#>      [,1]      [,2]      [,3]

```

```

#> [1,] 1.0044316 0.48541988 0.46539299
#> [2,] 0.4854199 0.96624995 -0.02207043
#> [3,] 0.4653930 -0.02207043 1.05371296
#>
#> [[2]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.1327284 0.53285940 0.56361754
#> [2,] 0.5328594 1.02576730 0.01865439
#> [3,] 0.5636175 0.01865439 1.08163259
#>
#> [[3]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9452128 0.50592531 0.45204959
#> [2,] 0.5059253 1.03229459 -0.02271538
#> [3,] 0.4520496 -0.02271538 1.00641780
#>
#> [[4]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0035377 0.49456018 0.54631762
#> [2,] 0.4945602 1.03350335 0.05429238
#> [3,] 0.5463176 0.05429238 1.06109915
#>
#> [[5]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9945694 0.47799422 0.51604757
#> [2,] 0.4779942 1.03552024 0.02375812
#> [3,] 0.5160476 0.02375812 0.96483661
#>
#> [[6]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0702729 0.5162647763 0.4879989445
#> [2,] 0.5162648 1.0264778292 0.0002882234
#> [3,] 0.4879989 0.0002882234 1.0028590422
#> test-betaNB-p-cor-nb-est
#> Call:
#> PCorNB(object = nb)
#>
#> Squared partial correlations
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5%  99.95%
#> NARTIC 0.4874 0.1306 5 0.3758 0.3766 0.3803 0.6806 0.7010 0.7056
#> PCTGRT 0.3757 0.1074 5 0.2067 0.2102 0.2260 0.4733 0.4749 0.4752
#> PCTSUPP 0.2254 0.0814 5 0.0881 0.0889 0.0922 0.2715 0.2739 0.2744
#> Call:
#> PCorNB(object = nb)

```

```

#>
#> Squared partial correlations
#> type = "pc"
#> Test passed
#> Test passed

#> test-betaNB-r-sq-mc-est

#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0571 5 0.7519 0.7528 0.7572 0.8879 0.8882 0.8883
#> adj 0.7906 0.0611 5 0.7341 0.7352 0.7398 0.8799 0.8803 0.8803
#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#> Test passed
#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> rsq 0.5809 0.0825 5 0.4833 0.4841 0.4878 0.6873 0.6933 0.6947
#> adj 0.5714 0.0844 5 0.4715 0.4724 0.4762 0.6802 0.6864 0.6877
#> Call:
#> RSqNB(object = nb)
#>
#> R-squared and adjusted R-squared
#> type = "pc"
#> Test passed

#> test-betaNB-s-cor-nb-est

#> Call:
#> SCorNB(object = nb)
#>
#> Semipartial correlations
#> type = "pc"
#>      est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC 0.4312 0.0982 5 0.2886 0.2897 0.2947 0.5144 0.5166 0.5171
#> PCTGRT 0.3430 0.0334 5 0.3430 0.3431 0.3436 0.4220 0.4249 0.4256

```

```

#> PCTSUPP 0.2385 0.0311 5 0.1562 0.1572 0.1612 0.2310 0.2313 0.2314
#> Call:
#> SCorNB(object = nb)
#>
#> Semipartial correlations
#> type = "pc"
#> Test passed
#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#>          est      se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC 0.7622 0.0327 5 0.7582 0.7582 0.7582 0.8113 0.8231 0.8272
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[2]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[3]]
#> [[1]][[3]]$value
#> [[1]][[3]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[3]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[4]]
#> [[1]][[4]]$value
#> [[1]][[4]]$value[[1]]
#> [[1]][[4]]$value[[1]][[1]]
#>          [,1]      [,2]      [,3]
#> [1,] 1.0044316 0.48541988 0.46539299

```

```

#> [2,] 0.4854199 0.96624995 -0.02207043
#> [3,] 0.4653930 -0.02207043 1.05371296
#>
#> [[1]][[4]]$value[[1]][[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.1327284 0.53285940 0.56361754
#> [2,] 0.5328594 1.02576730 0.01865439
#> [3,] 0.5636175 0.01865439 1.08163259
#>
#> [[1]][[4]]$value[[1]][[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9452128 0.50592531 0.45204959
#> [2,] 0.5059253 1.03229459 -0.02271538
#> [3,] 0.4520496 -0.02271538 1.00641780
#>
#> [[1]][[4]]$value[[1]][[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0035377 0.49456018 0.54631762
#> [2,] 0.4945602 1.03350335 0.05429238
#> [3,] 0.5463176 0.05429238 1.06109915
#>
#> [[1]][[4]]$value[[1]][[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9945694 0.47799422 0.51604757
#> [2,] 0.4779942 1.03552024 0.02375812
#> [3,] 0.5160476 0.02375812 0.96483661
#>
#> [[1]][[4]]$value[[1]][[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0702729 0.5162647763 0.4879989445
#> [2,] 0.5162648 1.0264778292 0.0002882234
#> [3,] 0.4879989 0.0002882234 1.0028590422
#>
#>
#>
#> [[1]][[4]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[5]]
#> [[1]][[5]]$value
#> [[1]][[5]]$value[[1]]
#> [1] TRUE
#>
#>

```

```
#> [[1]][[5]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[6]]
#> [[1]][[6]]$value
#> [[1]][[6]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[6]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[7]]
#> [[1]][[7]]$value
#> [[1]][[7]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[7]]$visible
#> [1] TRUE
```


Environment

```
ls()
```

```
#> [1] "nas1982" "root"    "tex_file"
```

Class

```
#> [[1]]  
#> [1] "data.frame"  
#>  
#> [[2]]  
#> [1] "root_criterion"  
#>  
#> [[3]]  
#> [1] "character"
```

References

R Core Team. (2022). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. <https://www.R-project.org/>