

# betaNB: Internal Tests

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## 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 0.0339 5 0.5175 0.5176 0.5184 0.5995 0.6030 0.6038
#> PCTGRT  0.3915 0.0370 5 0.3344 0.3345 0.3351 0.4106 0.4110 0.4110
#> PCTSUPP 0.2632 0.0480 5 0.1237 0.1251 0.1309 0.2526 0.2564 0.2572
#> 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 0.0339 5 0.5174 0.5174 0.5174 0.5174 0.5174 0.5174
#> PCTGRT  0.3915 0.0370 5 0.3344 0.3344 0.3346 0.4096 0.4107 0.4110
#> PCTSUPP 0.2632 0.0480 5 0.2573 0.2573 0.2573 0.2573 0.2573 0.2573
#> 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 0.0339 5    NaN    NaN    NaN    NaN    NaN    NaN
#> PCTGRT 0.3915 0.0370 5 0.3344 0.3344 0.3346 0.4098 0.4108 0.411
#> PCTSUPP 0.2632 0.0480 5    NaN    NaN    NaN    NaN    NaN    NaN
#> 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 0.0395 5 0.7295 0.7304 0.7341 0.8316 0.8334 0.8338
#> 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 0.0395 5 0.7294 0.7295 0.7295 0.7987 0.8172 0.829
#> 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 0.0395 5 0.7294 0.7294 0.7295 0.7973 0.8147 0.8269

```

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#> 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 0.0847 5 0.1714 0.1714 0.1716 0.3551 0.3683 0.3713
#> PCTGRT  0.1177 0.0492 5 0.0790 0.0796 0.0823 0.2022 0.2055 0.2063
#> PCTSUPP 0.0569 0.0212 5 0.0282 0.0283 0.0289 0.0747 0.0750 0.0750
#> 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 0.0490 5  0.0451  0.0452  0.0456 0.1582 0.1620 0.1629
#> NARTIC-PCTSUPP 0.2319 0.1367 5  0.0432  0.0433  0.0434 0.3497 0.3585 0.3605
#> PCTGRT-PCTSUPP 0.1282 0.1032 5 -0.0378 -0.0373 -0.0348 0.1926 0.1967 0.1976
#> 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]

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```

#> [1,] 0.9886536 0.52162114 0.42840419
#> [2,] 0.5216211 1.07007532 -0.01504324
#> [3,] 0.4284042 -0.01504324 0.94849275
#>
#> [[2]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9492791 0.51057343 0.49051335
#> [2,] 0.5105734 1.07290857 -0.01141621
#> [3,] 0.4905134 -0.01141621 1.04526965
#>
#> [[3]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0649200 0.51942454 0.54198423
#> [2,] 0.5194245 1.02551908 0.03941884
#> [3,] 0.5419842 0.03941884 1.10454277
#>
#> [[4]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0338804 0.5608799 0.5059064
#> [2,] 0.5608799 1.0192278 0.0437041
#> [3,] 0.5059064 0.0437041 1.0204568
#>
#> [[5]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0758670 0.51126059 0.56344986
#> [2,] 0.5112606 1.06606455 0.04347067
#> [3,] 0.5634499 0.04347067 1.04606869
#>
#> [[6]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9354371 0.48921539 0.44257490
#> [2,] 0.4892154 1.00383644 0.02229987
#> [3,] 0.4425749 0.02229987 0.96181999
#> 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 0.0307 5 0.4897 0.4900 0.4912 0.5605 0.5612 0.5614
#> PCTGRT 0.3757 0.0951 5 0.2727 0.2741 0.2802 0.5133 0.5186 0.5197
#> PCTSUPP 0.2254 0.0559 5 0.1934 0.1936 0.1947 0.3264 0.3341 0.3358
#> Call:
#> PCorNB(object = nb)

```

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#>
#> 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 0.0502 5 0.6963 0.6964 0.6965 0.8038 0.8054 0.8058
#> adj 0.7906 0.0538 5 0.6747 0.6747 0.6749 0.7898 0.7915 0.7919
#> 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 0.0479 5 0.4624 0.4633 0.4670 0.5820 0.5838 0.5843
#> adj 0.5714 0.0489 5 0.4502 0.4511 0.4549 0.5725 0.5744 0.5748
#> 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 0.0816 5 0.3111 0.3123 0.3175 0.5153 0.5196 0.5205
#> PCTGRT 0.3430 0.0491 5 0.2866 0.2868 0.2877 0.3914 0.3916 0.3917

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#> PCTSUPP 0.2385 0.0776 5 0.1079 0.1089 0.1132 0.3009 0.3051 0.3060
#> 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 0.0395 5 0.7294 0.7294 0.7295 0.7973 0.8147 0.8269
#>
#>
#> [[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,] 0.9886536 0.52162114 0.42840419

```

```

#> [2,] 0.5216211 1.07007532 -0.01504324
#> [3,] 0.4284042 -0.01504324 0.94849275
#>
#> [[1]][[4]]$value[[1]][[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9492791 0.51057343 0.49051335
#> [2,] 0.5105734 1.07290857 -0.01141621
#> [3,] 0.4905134 -0.01141621 1.04526965
#>
#> [[1]][[4]]$value[[1]][[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0649200 0.51942454 0.54198423
#> [2,] 0.5194245 1.02551908 0.03941884
#> [3,] 0.5419842 0.03941884 1.10454277
#>
#> [[1]][[4]]$value[[1]][[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0338804 0.5608799 0.5059064
#> [2,] 0.5608799 1.0192278 0.0437041
#> [3,] 0.5059064 0.0437041 1.0204568
#>
#> [[1]][[4]]$value[[1]][[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0758670 0.51126059 0.56344986
#> [2,] 0.5112606 1.06606455 0.04347067
#> [3,] 0.5634499 0.04347067 1.04606869
#>
#> [[1]][[4]]$value[[1]][[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9354371 0.48921539 0.44257490
#> [2,] 0.4892154 1.00383644 0.02229987
#> [3,] 0.4425749 0.02229987 0.96181999
#>
#>
#>
#> [[1]][[4]]$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/>