

# 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 0.0445 5 0.4188 0.4188 0.4189 0.5174 0.5201 0.5207
#> PCTGRT  0.3915 0.0282 5 0.3337 0.3345 0.3376 0.4071 0.4084 0.4087
#> PCTSUPP 0.2632 0.0771 5 0.2475 0.2485 0.2529 0.4396 0.4448 0.4460
#> 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 0.0445 5 0.4190 0.4193 0.4511 0.5208 0.5208 0.5208
#> PCTGRT  0.3915 0.0282 5 0.3341 0.3367 0.3452 0.4083 0.4087 0.4088
#> PCTSUPP 0.2632 0.0771 5 0.2474 0.2474 0.2474 0.3409 0.3977 0.4321
#> 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 0.0445 5 0.4190 0.4193 0.4516 0.5208 0.5208 0.5208
#> PCTGRT  0.3915 0.0282 5 0.3344 0.3375 0.3465 0.4084 0.4087 0.4088
#> PCTSUPP 0.2632 0.0771 5 0.2474 0.2474 0.2474 0.3378 0.3929 0.4279
#> 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 0.0384 5 0.7527 0.7534 0.7565 0.8433 0.8435 0.8436
#> 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 0.0384 5 0.7526 0.7526 0.7526 0.832 0.841 0.8429
#> 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 0.0384 5 0.7526 0.7526 0.7526 0.8311 0.8406 0.8425

```

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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 0.0331 5 0.1533 0.1534 0.1540 0.2239 0.2247 0.2248
#> PCTGRT  0.1177 0.0322 5 0.1215 0.1218 0.1228 0.1982 0.2009 0.2015
#> PCTSUPP 0.0569 0.0514 5 0.0039 0.0040 0.0048 0.1160 0.1171 0.1174
#> 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 0.1730 5 -0.1480 -0.1447 -0.1297 0.2959 0.3036 0.3053
#> NARTIC-PCTSUPP 0.2319 0.1654 5  0.0352  0.0365  0.0421 0.4103 0.4131 0.4137
#> PCTGRT-PCTSUPP 0.1282 0.2294 5 -0.2695 -0.2609 -0.2229 0.2783 0.2805 0.2810
#> 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,] 1.0550475 0.49948424 0.50459454
#> [2,] 0.4994842 0.96519152 0.02941156
#> [3,] 0.5045945 0.02941156 0.96733200
#>
#> [[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9576332 0.45633782 0.47318798
#> [2,] 0.4563378 0.96590909 0.01584787
#> [3,] 0.4731880 0.01584787 0.94955360
#>
#> [[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9678420 0.47941723 0.44443174
#> [2,] 0.4794172 1.05690931 -0.01381667
#> [3,] 0.4444317 -0.01381667 0.97939322
#>
#> [[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0708602 0.5604695 0.5422932
#> [2,] 0.5604695 1.1012623 0.0434891
#> [3,] 0.5422932 0.0434891 1.0348010
#>
#> [[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0432006 0.50259481 0.50068032
#> [2,] 0.5025948 1.00220673 0.01496032
#> [3,] 0.5006803 0.01496032 1.02385560
#>
#> [[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0441626 0.51395641 0.54033483
#> [2,] 0.5139564 1.00653244 0.03773538
#> [3,] 0.5403348 0.03773538 0.98394904
#> 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 0.0934 5 0.3383 0.3412 0.3540 0.5753 0.5785 0.5792
#> PCTGRT  0.3757 0.0789 5 0.2903 0.2905 0.2918 0.4609 0.4636 0.4642
#> PCTSUPP 0.2254 0.1117 5 0.0339 0.0363 0.0473 0.3159 0.3201 0.3210
#> 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 0.0453 5 0.7597 0.7611 0.7673 0.8747 0.8758 0.8760
#> adj 0.7906 0.0486 5 0.7426 0.7441 0.7507 0.8658 0.8669 0.8672
#> 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 0.0556 5 0.5384 0.5387 0.5399 0.6680 0.6716 0.6724
#> adj 0.5714 0.0569 5 0.5280 0.5282 0.5295 0.6604 0.6641 0.6649
#> 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 0.0428 5 0.3459 0.3461 0.3466 0.4357 0.4362 0.4363
#> PCTGRT 0.3430 0.0723 5 0.2151 0.2158 0.2186 0.3896 0.3943 0.3953

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#> PCTSUPP 0.2385 0.0591 5 0.1896 0.1911 0.1978 0.3425 0.3448 0.3453
#> 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 0.0384 5 0.7526 0.7526 0.7526 0.8311 0.8406 0.8425
#>
#>
#> [[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,] 1.0550475 0.49948424 0.50459454

```

```

#> [2,] 0.4994842 0.96519152 0.02941156
#> [3,] 0.5045945 0.02941156 0.96733200
#>
#> [[1]][[4]]$value[[1]][[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9576332 0.45633782 0.47318798
#> [2,] 0.4563378 0.96590909 0.01584787
#> [3,] 0.4731880 0.01584787 0.94955360
#>
#> [[1]][[4]]$value[[1]][[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9678420 0.47941723 0.44443174
#> [2,] 0.4794172 1.05690931 -0.01381667
#> [3,] 0.4444317 -0.01381667 0.97939322
#>
#> [[1]][[4]]$value[[1]][[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0708602 0.5604695 0.5422932
#> [2,] 0.5604695 1.1012623 0.0434891
#> [3,] 0.5422932 0.0434891 1.0348010
#>
#> [[1]][[4]]$value[[1]][[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0432006 0.50259481 0.50068032
#> [2,] 0.5025948 1.00220673 0.01496032
#> [3,] 0.5006803 0.01496032 1.02385560
#>
#> [[1]][[4]]$value[[1]][[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0441626 0.51395641 0.54033483
#> [2,] 0.5139564 1.00653244 0.03773538
#> [3,] 0.5403348 0.03773538 0.98394904
#>
#>
#>
#> [[1]][[4]]$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. (2023). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. <https://www.R-project.org/>