

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 0.0949 5 0.3494 0.3503 0.3540 0.5855 0.5947 0.5968
#> PCTGRT  0.3915 0.0910 5 0.2370 0.2395 0.2508 0.4643 0.4654 0.4657
#> PCTSUPP 0.2632 0.1074 5 0.1911 0.1925 0.1988 0.4635 0.4719 0.4737
#> 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 0.0949 5 0.3593 0.3838 0.4156 0.5970 0.5970 0.5970
#> PCTGRT  0.3915 0.0910 5 0.2367 0.2373 0.2405 0.4615 0.4646 0.4655
#> PCTSUPP 0.2632 0.1074 5 0.1910 0.1910 0.1910 0.3263 0.3965 0.4515
#> 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 0.0949 5 0.3599 0.3845 0.4159 0.597 0.5970 0.5970
#> PCTGRT  0.3915 0.0910 5 0.2368 0.2376 0.2417 0.462 0.4649 0.4656
#> PCTSUPP 0.2632 0.1074 5 0.1910 0.1910 0.1910 0.323 0.3888 0.4448
#> 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 0.0377 5 0.7345 0.7347 0.7357 0.8231 0.8257 0.8263
#> 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 0.0377 5 0.7346 0.7354 0.738 0.8254 0.8262 0.8263
#> 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 0.0377 5 0.7345 0.735 0.7374 0.825 0.826 0.8263

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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 0.0229 5 0.1101 0.1109 0.1142 0.1683 0.1690 0.1692
#> PCTGRT  0.1177 0.0508 5 0.0489 0.0489 0.0492 0.1655 0.1700 0.1710
#> PCTSUPP 0.0569 0.0105 5 0.0583 0.0583 0.0584 0.0831 0.0843 0.0846
#> 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 0.1922 5 -0.0995 -0.0988 -0.0953 0.3497 0.3625 0.3653
#> NARTIC-PCTSUPP 0.2319 0.1367 5  0.0809  0.0814  0.0837 0.3991 0.4169 0.4209
#> PCTGRT-PCTSUPP 0.1282 0.1176 5 -0.0955 -0.0929 -0.0812 0.1923 0.1933 0.1936
#> 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,] 1.0558686 0.51085903 0.54111035
#> [2,] 0.5108590 1.03163279 -0.01136988
#> [3,] 0.5411103 -0.01136988 1.06987394
#>
#> [[2]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9554987 0.44090004 0.47068872
#> [2,] 0.4409000 0.97779735 0.02348449
#> [3,] 0.4706887 0.02348449 0.97507045
#>
#> [[3]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0202420 0.47318975 0.49218879
#> [2,] 0.4731898 0.97828403 -0.01471549
#> [3,] 0.4921888 -0.01471549 0.94289650
#>
#> [[4]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9720194 0.50295151 0.47672297
#> [2,] 0.5029515 0.98891291 0.01269208
#> [3,] 0.4767230 0.01269208 0.98907914
#>
#> [[5]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0507459 0.50926913 0.49554763
#> [2,] 0.5092691 1.02622573 0.01889351
#> [3,] 0.4955476 0.01889351 0.97947646
#>
#> [[6]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0227348 0.501114312 0.533648833
#> [2,] 0.5011143 1.026527027 0.009520272
#> [3,] 0.5336488 0.009520272 1.067496011
#> 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 0.1073 5 0.3743 0.3761 0.3841 0.6453 0.6499 0.6509
#> PCTGRT  0.3757 0.1081 5 0.3004 0.3014 0.3056 0.5382 0.5390 0.5391
#> PCTSUPP 0.2254 0.1098 5 0.1344 0.1348 0.1365 0.3532 0.3536 0.3537
#> 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 0.0889 5 0.6151 0.6182 0.6321 0.8307 0.832 0.8323
#> adj 0.7906 0.0953 5 0.5876 0.5909 0.6058 0.8186 0.820 0.8203
#> 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 0.1557 5 0.2854 0.2885 0.3023 0.6484 0.6504 0.6509
#> adj 0.5714 0.1593 5 0.2692 0.2724 0.2864 0.6405 0.6425 0.6430
#> 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 0.3652 0.3661 0.3698 0.4737 0.4752 0.4755
#> PCTGRT 0.3430 0.0949 5 0.2008 0.2042 0.2193 0.4363 0.4389 0.4394

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#> PCTSUPP 0.2385 0.0787 5 0.0577 0.0594 0.0665 0.2611 0.2651 0.2659
#> 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 0.0377 5 0.7345 0.735 0.7374 0.825 0.826 0.8263
#>
#>
#> [[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,] 1.0558686 0.51085903 0.54111035

```

```

#> [2,] 0.5108590 1.03163279 -0.01136988
#> [3,] 0.5411103 -0.01136988 1.06987394
#>
#> [[1]][[4]]$value[[1]][[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9554987 0.44090004 0.47068872
#> [2,] 0.4409000 0.97779735 0.02348449
#> [3,] 0.4706887 0.02348449 0.97507045
#>
#> [[1]][[4]]$value[[1]][[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0202420 0.47318975 0.49218879
#> [2,] 0.4731898 0.97828403 -0.01471549
#> [3,] 0.4921888 -0.01471549 0.94289650
#>
#> [[1]][[4]]$value[[1]][[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9720194 0.50295151 0.47672297
#> [2,] 0.5029515 0.98891291 0.01269208
#> [3,] 0.4767230 0.01269208 0.98907914
#>
#> [[1]][[4]]$value[[1]][[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0507459 0.50926913 0.49554763
#> [2,] 0.5092691 1.02622573 0.01889351
#> [3,] 0.4955476 0.01889351 0.97947646
#>
#> [[1]][[4]]$value[[1]][[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0227348 0.501114312 0.533648833
#> [2,] 0.5011143 1.026527027 0.009520272
#> [3,] 0.5336488 0.009520272 1.067496011
#>
#>
#>
#> [[1]][[4]]$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/>