

# 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 0.0610 5 0.4303 0.4310 0.4341 0.5857 0.5927 0.5943
#> PCTGRT  0.3915 0.0828 5 0.3094 0.3111 0.3188 0.5303 0.5379 0.5396
#> PCTSUPP 0.2632 0.0839 5 0.1167 0.1175 0.1210 0.2990 0.2995 0.2996
#> 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 0.0610 5 0.4306 0.4332 0.4414 0.5921 0.5941 0.5944
#> PCTGRT  0.3915 0.0828 5 0.3092 0.3092 0.3093 0.4297 0.4690 0.5193
#> PCTSUPP 0.2632 0.0839 5 0.1170 0.1200 0.1295 0.2995 0.2996 0.2997
#> 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 0.0610 5 0.4307 0.4334 0.4417 0.5922 0.5941 0.5944
#> PCTGRT  0.3915 0.0828 5 0.3092 0.3092 0.3093 0.4307 0.4750 0.5239
#> PCTSUPP 0.2632 0.0839 5 0.1168 0.1190 0.1278 0.2994 0.2996 0.2997
#> 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 0.0666 5 0.6918 0.6924 0.6954 0.8391 0.8402 0.8405
#> 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 0.0666 5 0.6917 0.6918 0.6927 0.8363 0.8394 0.8403
#> 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 0.0666 5 0.6917 0.6917 0.6923 0.8355 0.8388 0.8401

```

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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 0.0851 5 0.1447 0.1447 0.1449 0.3293 0.3406 0.3432
#> PCTGRT  0.1177 0.0459 5 0.0729 0.0731 0.0743 0.1843 0.1891 0.1902
#> PCTSUPP 0.0569 0.0488 5 0.0254 0.0255 0.0262 0.1349 0.1382 0.1389
#> 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 0.1853 5 -0.1557 -0.1535 -0.1439 0.2930 0.3020 0.3041
#> NARTIC-PCTSUPP 0.2319 0.1610 5  0.1165  0.1169  0.1186 0.4872 0.5059 0.5101
#> PCTGRT-PCTSUPP 0.1282 0.1508 5 -0.0743 -0.0693 -0.0468 0.2933 0.2940 0.2941
#> 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,] 1.0372560 0.50217669 0.53518123
#> [2,] 0.5021767 0.98247457 0.04277413
#> [3,] 0.5351812 0.04277413 1.05475907
#>
#> [[2]]
#>           [,1]           [,2]           [,3]
#> [1,] 0.9580792 0.45639880 0.51150463
#> [2,] 0.4563988 0.98831007 0.02294026
#> [3,] 0.5115046 0.02294026 1.02126875
#>
#> [[3]]
#>           [,1]           [,2]           [,3]
#> [1,] 0.9656352 0.50046627 0.48613577
#> [2,] 0.5004663 1.02117641 0.06908424
#> [3,] 0.4861358 0.06908424 0.99906363
#>
#> [[4]]
#>           [,1]           [,2]           [,3]
#> [1,] 1.0646410 0.522498064 0.498656155
#> [2,] 0.5224981 1.022569337 0.001369501
#> [3,] 0.4986562 0.001369501 0.948248104
#>
#> [[5]]
#>           [,1]           [,2]           [,3]
#> [1,] 0.9649007 0.45565237 0.45300757
#> [2,] 0.4556524 0.99613299 -0.04044985
#> [3,] 0.4530076 -0.04044985 0.96196082
#>
#> [[6]]
#>           [,1]           [,2]           [,3]
#> [1,] 1.0184051 0.50927964 0.52133250
#> [2,] 0.5092796 0.98639722 0.00370947
#> [3,] 0.5213325 0.00370947 1.03803649
#> 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 0.0701 5 0.4672 0.4684 0.4738 0.6496 0.6549 0.6561
#> PCTGRT  0.3757 0.1658 5 0.1620 0.1667 0.1879 0.5862 0.5905 0.5915
#> PCTSUPP 0.2254 0.1750 5 0.0542 0.0573 0.0710 0.5051 0.5152 0.5175
#> 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 0.0368 5 0.7424 0.7433 0.7468 0.8284 0.8286 0.8286
#> adj 0.7906 0.0395 5 0.7241 0.7249 0.7288 0.8161 0.8163 0.8164
#> 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 0.1084 5 0.4273 0.4281 0.4313 0.6519 0.6523 0.6524
#> adj 0.5714 0.1109 5 0.4143 0.4151 0.4184 0.6440 0.6444 0.6445
#> 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 0.0518 5 0.4246 0.4249 0.4265 0.5433 0.5458 0.5463
#> PCTGRT 0.3430 0.0768 5 0.2131 0.2146 0.2212 0.4034 0.4052 0.4056

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#> PCTSUPP 0.2385 0.0387 5 0.1843 0.1845 0.1851 0.2649 0.2650 0.2650
#> 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 0.0666 5 0.6917 0.6917 0.6923 0.8355 0.8388 0.8401
#>
#>
#> [[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,] 1.0372560 0.50217669 0.53518123

```

```

#> [2,] 0.5021767 0.98247457 0.04277413
#> [3,] 0.5351812 0.04277413 1.05475907
#>
#> [[1]][[4]]$value[[1]][[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9580792 0.45639880 0.51150463
#> [2,] 0.4563988 0.98831007 0.02294026
#> [3,] 0.5115046 0.02294026 1.02126875
#>
#> [[1]][[4]]$value[[1]][[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9656352 0.50046627 0.48613577
#> [2,] 0.5004663 1.02117641 0.06908424
#> [3,] 0.4861358 0.06908424 0.99906363
#>
#> [[1]][[4]]$value[[1]][[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0646410 0.522498064 0.498656155
#> [2,] 0.5224981 1.022569337 0.001369501
#> [3,] 0.4986562 0.001369501 0.948248104
#>
#> [[1]][[4]]$value[[1]][[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9649007 0.45565237 0.45300757
#> [2,] 0.4556524 0.99613299 -0.04044985
#> [3,] 0.4530076 -0.04044985 0.96196082
#>
#> [[1]][[4]]$value[[1]][[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0184051 0.50927964 0.52133250
#> [2,] 0.5092796 0.98639722 0.00370947
#> [3,] 0.5213325 0.00370947 1.03803649
#>
#>
#>
#> [[1]][[4]]$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/>