

# 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 0.0877 5 0.3509 0.3524 0.3592 0.5742 0.5783 0.5792
#> PCTGRT  0.3915 0.0638 5 0.3856 0.3858 0.3869 0.5340 0.5431 0.5451
#> PCTSUPP 0.2632 0.0707 5 0.1625 0.1641 0.1710 0.3349 0.3353 0.3354
#> 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 0.0877 5 0.3516 0.3572 0.3755 0.5780 0.5791 0.5793
#> PCTGRT  0.3915 0.0638 5 0.3855 0.3855 0.3855 0.4221 0.4611 0.5209
#> PCTSUPP 0.2632 0.0707 5 0.1633 0.1690 0.1877 0.3353 0.3354 0.3354
#> 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 0.0877 5 0.3517 0.3577 0.3762 0.5780 0.5792 0.5793
#> PCTGRT  0.3915 0.0638 5 0.3855 0.3855 0.3855 0.4228 0.4683 0.5265
#> PCTSUPP 0.2632 0.0707 5 0.1628 0.1671 0.1845 0.3352 0.3354 0.3354
#> 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 0.0889 5 0.5991 0.6016 0.6127 0.8165 0.8166 0.8166
#> 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 0.0889 5 0.6004 0.6095 0.6392 0.8166 0.8166 0.8166
#> 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 0.0889 5 0.5993 0.6053 0.6317 0.8166 0.8166 0.8166

```

```

#> 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 0.0565 5 0.0821 0.0835 0.0899 0.2196 0.2203 0.2205
#> PCTGRT  0.1177 0.0360 5 0.0515 0.0516 0.0525 0.1381 0.1429 0.1440
#> PCTSUPP 0.0569 0.0529 5 0.0351 0.0352 0.0354 0.1559 0.1605 0.1615
#> 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 0.0880 5 -0.0384 -0.0370 -0.0310 0.1831 0.1872 0.1882
#> NARTIC-PCTSUPP 0.2319 0.1018 5  0.1105  0.1118  0.1176 0.3701 0.3835 0.3865
#> PCTGRT-PCTSUPP 0.1282 0.0967 5  0.0383  0.0385  0.0391 0.2526 0.2574 0.2584
#> 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,] 1.0473787 0.478789393 0.526845642
#> [2,] 0.4787894 1.016729238 -0.003984011
#> [3,] 0.5268456 -0.003984011 0.996925453
#>
#> [[2]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9765837 0.48616657 0.49862874
#> [2,] 0.4861666 0.99236372 0.02137292
#> [3,] 0.4986287 0.02137292 0.95228469
#>
#> [[3]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9221104 0.467656122 0.452039424
#> [2,] 0.4676561 0.999588660 0.008700758
#> [3,] 0.4520394 0.008700758 0.999923049
#>
#> [[4]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0532748 0.53875490 0.48482022
#> [2,] 0.5387549 1.01528704 0.01864242
#> [3,] 0.4848202 0.01864242 0.99017426
#>
#> [[5]]
#>          [,1]          [,2]          [,3]
#> [1,] 0.9854083 0.44817993 0.51776120
#> [2,] 0.4481799 0.95578231 -0.01293011
#> [3,] 0.5177612 -0.01293011 1.02452782
#>
#> [[6]]
#>          [,1]          [,2]          [,3]
#> [1,] 1.0449694 0.519414799 0.462433094
#> [2,] 0.5194148 1.037477724 0.009119776
#> [3,] 0.4624331 0.009119776 0.929288260
#> 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 0.1047 5 0.4022 0.4042 0.4131 0.6691 0.6740 0.6751
#> PCTGRT  0.3757 0.0521 5 0.2982 0.2983 0.2986 0.4108 0.4140 0.4148
#> PCTSUPP 0.2254 0.1296 5 0.0651 0.0697 0.0902 0.3820 0.3838 0.3842
#> 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 0.0462 5 0.7500 0.7508 0.7541 0.8615 0.8632 0.8635
#> adj 0.7906 0.0495 5 0.7321 0.7330 0.7365 0.8516 0.8534 0.8538
#> 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 0.0946 5 0.4823 0.4848 0.4957 0.7252 0.7284 0.7292
#> adj 0.5714 0.0968 5 0.4706 0.4731 0.4843 0.7189 0.7223 0.7230
#> 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 0.0660 5 0.3480 0.3495 0.3562 0.5094 0.5098 0.5098
#> PCTGRT 0.3430 0.0668 5 0.2370 0.2374 0.2395 0.3975 0.4034 0.4047

```

```

#> PCTSUPP 0.2385 0.0334 5 0.2023 0.2023 0.2024 0.2781 0.2826 0.2836
#> 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 0.0889 5 0.5993 0.6053 0.6317 0.8166 0.8166 0.8166
#>
#>
#> [[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,] 1.0473787 0.478789393 0.526845642

```

```

#> [2,] 0.4787894 1.016729238 -0.003984011
#> [3,] 0.5268456 -0.003984011 0.996925453
#>
#> [[1]][[4]]$value[[1]][[2]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9765837 0.48616657 0.49862874
#> [2,] 0.4861666 0.99236372 0.02137292
#> [3,] 0.4986287 0.02137292 0.95228469
#>
#> [[1]][[4]]$value[[1]][[3]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9221104 0.467656122 0.452039424
#> [2,] 0.4676561 0.999588660 0.008700758
#> [3,] 0.4520394 0.008700758 0.999923049
#>
#> [[1]][[4]]$value[[1]][[4]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0532748 0.53875490 0.48482022
#> [2,] 0.5387549 1.01528704 0.01864242
#> [3,] 0.4848202 0.01864242 0.99017426
#>
#> [[1]][[4]]$value[[1]][[5]]
#>      [,1]      [,2]      [,3]
#> [1,] 0.9854083 0.44817993 0.51776120
#> [2,] 0.4481799 0.95578231 -0.01293011
#> [3,] 0.5177612 -0.01293011 1.02452782
#>
#> [[1]][[4]]$value[[1]][[6]]
#>      [,1]      [,2]      [,3]
#> [1,] 1.0449694 0.519414799 0.462433094
#> [2,] 0.5194148 1.037477724 0.009119776
#> [3,] 0.4624331 0.009119776 0.929288260
#>
#>
#>
#> [[1]][[4]]$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/>