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 0.0617 5 0.3855 0.3859 0.3875 0.5294 0.5324 0.5330
#> PCTGRT  0.3915 0.0272 5 0.3899 0.3901 0.3909 0.4525 0.4535 0.4537
#> PCTSUPP 0.2632 0.0446 5 0.2339 0.2343 0.2363 0.3439 0.3471 0.3478
#> 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 0.0617 5 0.3857 0.3870 0.3913 0.5321 0.5330 0.5331
#> PCTGRT  0.3915 0.0272 5 0.3899 0.3899 0.3899 0.4250 0.4448 0.4511
#> PCTSUPP 0.2632 0.0446 5 0.2338 0.2339 0.2345 0.3363 0.3448 0.3475
#> 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 0.0617 5 0.3857 0.3871 0.3915 0.5322 0.5330 0.5331
#> PCTGRT  0.3915 0.0272 5 0.3899 0.3899 0.3899 0.4262 0.4456 0.4517
#> PCTSUPP 0.2632 0.0446 5 0.2338 0.2339 0.2343 0.3348 0.3438 0.3471
#> 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 0.0613 5 0.6483 0.649 0.6523 0.7886 0.7903 0.7907
#> 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 0.0613 5 0.6482 0.6484 0.6493 0.7845 0.7891 0.7905
#> 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 0.0613 5 0.6482 0.6483 0.6489 0.7833 0.7883 0.7902
```

```
#> 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 0.0397 5 0.1203 0.1203 0.1204 0.2060 0.2080 0.2084
#> PCTGRT  0.1177 0.0456 5 0.0288 0.0294 0.0322 0.1411 0.1429 0.1433
#> PCTSUPP 0.0569 0.0188 5 0.0222 0.0227 0.0246 0.0706 0.0715 0.0717
#> 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 0.1283 5  0.0471  0.0482  0.0533 0.3638 0.3814 0.3854
#> NARTIC-PCTSUPP 0.2319 0.0974 5  0.0257  0.0269  0.0321 0.2532 0.2545 0.2548
#> PCTGRT-PCTSUPP 0.1282 0.0745 5 -0.1307 -0.1288 -0.1200 0.0672 0.0716 0.0726
#> 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,] 1.0268663 0.49701853 0.52068549
#> [2,] 0.4970185 0.95820802 0.05115815
#> [3,] 0.5206855 0.05115815 1.00960020
#>
#> [[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9796210  0.46909123  0.46931556
#> [2,] 0.4690912  1.00160615 -0.03453483
#> [3,] 0.4693156 -0.03453483  1.01956809
#>
#> [[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9399431  0.46058572  0.45306494
#> [2,] 0.4605857  1.00809552 -0.04016965
#> [3,] 0.4530649 -0.04016965  0.96809629
#>
#> [[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0102560  0.42095548  0.50423682
#> [2,] 0.4209555  0.97419344 -0.05842812
#> [3,] 0.5042368 -0.05842812  1.03744359
#>
#> [[5]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9840144  0.49262688  0.44134994
#> [2,] 0.4926269  1.04868208 -0.04855824
#> [3,] 0.4413499 -0.04855824  0.96104025
#>
#> [[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0800160  0.56388719  0.48445189
#> [2,] 0.5638872  1.05502088 -0.01233418
#> [3,] 0.4844519 -0.01233418  0.96882812
```

#> 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 0.0640 5 0.4285 0.4291 0.4317 0.5653 0.5658 0.5659
#> PCTGRT  0.3757 0.1345 5 0.1864 0.1908 0.2105 0.5303 0.5346 0.5356
#> PCTSUPP 0.2254 0.1190 5 0.0822 0.0830 0.0866 0.3346 0.3355 0.3357
#> 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 0.0546 5 0.7429 0.7431 0.7438 0.8685 0.8726 0.8736
#> adj 0.7906 0.0585 5 0.7245 0.7247 0.7255 0.8591 0.8635 0.8645
#> 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 0.1063 5 0.5233 0.5234 0.5237 0.7412 0.7419 0.7421
#> adj 0.5714 0.1088 5 0.5125 0.5126 0.5128 0.7353 0.7361 0.7362
#> 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 0.0542 5 0.3877 0.3878 0.3886 0.5081 0.5098 0.5102
#> PCTGRT  0.3430 0.0216 5 0.3244 0.3249 0.3270 0.3804 0.3814 0.3816
```

```
#> PCTSUPP 0.2385 0.0553 5 0.1474 0.1479 0.1499 0.2754 0.2774 0.2778
#> 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 0.0613 5 0.6482 0.6483 0.6489 0.7833 0.7883 0.7902
#>
#>
#> [[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,] 1.0268663 0.49701853 0.52068549
```

```
#> [2,] 0.4970185 0.95820802 0.05115815
#> [3,] 0.5206855 0.05115815 1.00960020
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9796210  0.46909123  0.46931556
#> [2,] 0.4690912  1.00160615 -0.03453483
#> [3,] 0.4693156 -0.03453483  1.01956809
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9399431  0.46058572  0.45306494
#> [2,] 0.4605857  1.00809552 -0.04016965
#> [3,] 0.4530649 -0.04016965  0.96809629
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0102560  0.42095548  0.50423682
#> [2,] 0.4209555  0.97419344 -0.05842812
#> [3,] 0.5042368 -0.05842812  1.03744359
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9840144  0.49262688  0.44134994
#> [2,] 0.4926269  1.04868208 -0.04855824
#> [3,] 0.4413499 -0.04855824  0.96104025
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0800160  0.56388719  0.48445189
#> [2,] 0.5638872  1.05502088 -0.01233418
#> [3,] 0.4844519 -0.01233418  0.96882812
#>
#>
#>
#> [[1]][[4]]$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/