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 0.0688 5 0.3838 0.3855 0.3933 0.5555 0.5566 0.5568
#> PCTGRT  0.3915 0.0535 5 0.3271 0.3279 0.3314 0.4652 0.4695 0.4704
#> PCTSUPP 0.2632 0.0869 5 0.1577 0.1583 0.1609 0.3701 0.3774 0.3790
#> 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 0.0688 5 0.3836 0.3840 0.3862 0.5529 0.5558 0.5567
#> PCTGRT  0.3915 0.0535 5 0.3270 0.3272 0.3282 0.4550 0.4664 0.4700
#> PCTSUPP 0.2632 0.0869 5 0.1580 0.1602 0.1671 0.3767 0.3788 0.3792
#> 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 0.0688 5 0.3836 0.3840 0.3864 0.5530 0.5559 0.5567
#> PCTGRT  0.3915 0.0535 5 0.3271 0.3273 0.3286 0.4567 0.4674 0.4702
#> PCTSUPP 0.2632 0.0869 5 0.1578 0.1595 0.1659 0.3759 0.3786 0.3791
#> 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 0.0847 5  0.59 0.5915 0.5983 0.8037 0.807 0.8077
#> 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 0.0847 5 0.5907 0.5963 0.6144 0.8067 0.8076 0.8078
#> 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 0.0847 5 0.5901 0.5937 0.6098 0.8061 0.8074 0.8078
```

```
#> 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 0.0351 5 0.1339 0.1340 0.1342 0.2076 0.2085 0.2087
#> PCTGRT  0.1177 0.0372 5 0.0819 0.0820 0.0827 0.1698 0.1728 0.1735
#> PCTSUPP 0.0569 0.0269 5 0.0550 0.0552 0.0562 0.1175 0.1188 0.1191
#> 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 0.0514 5  0.0603  0.0618  0.0687 0.1952 0.1977 0.1983
#> NARTIC-PCTSUPP 0.2319 0.1239 5  0.0663  0.0686  0.0787 0.3697 0.3720 0.3725
#> PCTGRT-PCTSUPP 0.1282 0.1083 5 -0.0056 -0.0054 -0.0044 0.2228 0.2256 0.2262
#> 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,] 1.0497936  0.4987925  0.5147675
#> [2,] 0.4987925  1.0211076 -0.0110761
#> [3,] 0.5147675 -0.0110761  1.0475873
#>
#> [[2]]
#>           [,1]         [,2]         [,3]
#> [1,] 1.0876579  0.521116370  0.542964563
#> [2,] 0.5211164  1.016612310 -0.003552278
#> [3,] 0.5429646 -0.003552278  1.037042023
#>
#> [[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9690523  0.45440245  0.50064224
#> [2,] 0.4544025  1.01523707 -0.02799613
#> [3,] 0.5006422 -0.02799613  1.03222008
#>
#> [[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9763941 0.47025844 0.50600252
#> [2,] 0.4702584 0.93400318 0.03639612
#> [3,] 0.5060025 0.03639612 1.05404004
#>
#> [[5]]
#>           [,1]         [,2]         [,3]
#> [1,] 0.9960236  0.440518951  0.496778319
#> [2,] 0.4405190  0.977552153 -0.003150502
#> [3,] 0.4967783 -0.003150502  0.961020113
#>
#> [[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9698589  0.49586232  0.47467086
#> [2,] 0.4958623  1.03955159 -0.01250608
#> [3,] 0.4746709 -0.01250608  0.98890651
```

#> 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 0.1003 5 0.3233 0.3249 0.3320 0.5716 0.5753 0.5761
#> PCTGRT  0.3757 0.1651 5 0.0728 0.0761 0.0904 0.4893 0.4958 0.4973
#> PCTSUPP 0.2254 0.1101 5 0.0773 0.0776 0.0787 0.3268 0.3429 0.3465
#> 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 0.0894 5 0.6679 0.6700 0.6795 0.9051 0.9114 0.9128
#> adj 0.7906 0.0958 5 0.6442 0.6464 0.6566 0.8983 0.9051 0.9066
#> 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 0.088 5 0.4566 0.4580 0.4645 0.6821 0.6872 0.6884
#> adj 0.5714 0.090 5 0.4442 0.4457 0.4524 0.6749 0.6801 0.6813
#> 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 0.1009 5 0.2743 0.2775 0.2914 0.5249 0.5257 0.5259
#> PCTGRT  0.3430 0.0986 5 0.2588 0.2589 0.2593 0.4879 0.4985 0.5009
```

```
#> PCTSUPP 0.2385 0.0647 5 0.1076 0.1095 0.1180 0.2721 0.2737 0.2741
#> 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 0.0847 5 0.5901 0.5937 0.6098 0.8061 0.8074 0.8078
#>
#>
#> [[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,] 1.0497936  0.4987925  0.5147675
```

```
#> [2,] 0.4987925  1.0211076 -0.0110761
#> [3,] 0.5147675 -0.0110761  1.0475873
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]          [,2]         [,3]
#> [1,] 1.0876579  0.521116370  0.542964563
#> [2,] 0.5211164  1.016612310 -0.003552278
#> [3,] 0.5429646 -0.003552278  1.037042023
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9690523  0.45440245  0.50064224
#> [2,] 0.4544025  1.01523707 -0.02799613
#> [3,] 0.5006422 -0.02799613  1.03222008
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9763941 0.47025844 0.50600252
#> [2,] 0.4702584 0.93400318 0.03639612
#> [3,] 0.5060025 0.03639612 1.05404004
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]          [,2]         [,3]
#> [1,] 0.9960236  0.440518951  0.496778319
#> [2,] 0.4405190  0.977552153 -0.003150502
#> [3,] 0.4967783 -0.003150502  0.961020113
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9698589  0.49586232  0.47467086
#> [2,] 0.4958623  1.03955159 -0.01250608
#> [3,] 0.4746709 -0.01250608  0.98890651
#>
#>
#>
#> [[1]][[4]]$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/