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 0.0537 5 0.3781 0.3788 0.3821 0.5092 0.5118 0.5124
#> PCTGRT  0.3915 0.0623 5 0.2968 0.2980 0.3033 0.4464 0.4467 0.4468
#> PCTSUPP 0.2632 0.0673 5 0.2603 0.2606 0.2619 0.4076 0.4101 0.4106
#> 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 0.0537 5 0.3868 0.4085 0.4197 0.5124 0.5124 0.5124
#> PCTGRT  0.3915 0.0623 5 0.2974 0.3018 0.3160 0.4467 0.4468 0.4468
#> PCTSUPP 0.2632 0.0673 5 0.2603 0.2603 0.2603 0.3771 0.3878 0.4041
#> 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 0.0537 5 0.3874 0.4092 0.4197 0.5124 0.5124 0.5124
#> PCTGRT  0.3915 0.0623 5 0.2979 0.3032 0.3181 0.4467 0.4468 0.4468
#> PCTSUPP 0.2632 0.0673 5 0.2603 0.2603 0.2603 0.3768 0.3855 0.4021
#> 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 0.084 5 0.6679 0.6696 0.6769 0.8693 0.8704 0.8707
#> 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 0.084 5 0.6678 0.6681 0.6702 0.8667 0.8696 0.8706
#> 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 0.084 5 0.6677 0.6679 0.6692 0.8659 0.8691 0.8704
```

```
#> 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 0.0306 5 0.1161 0.1169 0.1203 0.1960 0.1974 0.1977
#> PCTGRT  0.1177 0.0454 5 0.0550 0.0560 0.0603 0.1622 0.1622 0.1622
#> PCTSUPP 0.0569 0.0149 5 0.0327 0.0328 0.0330 0.0653 0.0657 0.0658
#> 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 0.1833 5 -0.2862 -0.2851 -0.2802 0.1407 0.1500 0.1521
#> NARTIC-PCTSUPP 0.2319 0.1884 5 -0.0182 -0.0154 -0.0029 0.4402 0.4457 0.4469
#> PCTGRT-PCTSUPP 0.1282 0.1214 5  0.1536  0.1546  0.1588 0.4526 0.4623 0.4645
#> 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,] 1.0269595 0.53914698 0.47996294
#> [2,] 0.5391470 1.00071078 0.06875958
#> [3,] 0.4799629 0.06875958 0.99733933
#>
#> [[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0733067  0.47922146  0.51045419
#> [2,] 0.4792215  0.96435535 -0.01104066
#> [3,] 0.5104542 -0.01104066  1.01721150
#>
#> [[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9797082 0.46119725 0.49927618
#> [2,] 0.4611972 0.94191991 0.04413112
#> [3,] 0.4992762 0.04413112 1.03600962
#>
#> [[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0415677 0.53136921 0.47189863
#> [2,] 0.5313692 0.99646964 0.07614354
#> [3,] 0.4718986 0.07614354 0.97211843
#>
#> [[5]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9949639  0.48084596  0.50209284
#> [2,] 0.4808460  1.00187844 -0.02655744
#> [3,] 0.5020928 -0.02655744  1.03392538
#>
#> [[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9916337  0.49947422  0.51361770
#> [2,] 0.4994742  1.03173874 -0.02484467
#> [3,] 0.5136177 -0.02484467  1.03824534
```

#> 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 0.0895 5 0.2880 0.2905 0.3018 0.5096 0.5104 0.5105
#> PCTGRT  0.3757 0.1144 5 0.2509 0.2513 0.2533 0.5135 0.5234 0.5256
#> PCTSUPP 0.2254 0.0784 5 0.0900 0.0909 0.0946 0.2878 0.2945 0.2960
#> 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 0.0577 5 0.7532 0.7538 0.7563 0.8941 0.9021 0.9039
#> adj 0.7906 0.0618 5 0.7356 0.7362 0.7389 0.8866 0.8951 0.8970
#> 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 0.0919 5 0.5481 0.5504 0.5606 0.7828 0.7853 0.7859
#> adj 0.5714 0.0940 5 0.5379 0.5402 0.5506 0.7778 0.7804 0.7810
#> 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 0.0272 5 0.3568 0.3575 0.3603 0.4246 0.4252 0.4253
#> PCTGRT  0.3430 0.0643 5 0.2420 0.2438 0.2519 0.4118 0.4155 0.4164
```

```
#> PCTSUPP 0.2385 0.0601 5 0.1946 0.1946 0.1949 0.3296 0.3336 0.3345
#> 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 0.084 5 0.6677 0.6679 0.6692 0.8659 0.8691 0.8704
#>
#>
#> [[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,] 1.0269595 0.53914698 0.47996294
```

```
#> [2,] 0.5391470 1.00071078 0.06875958
#> [3,] 0.4799629 0.06875958 0.99733933
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0733067  0.47922146  0.51045419
#> [2,] 0.4792215  0.96435535 -0.01104066
#> [3,] 0.5104542 -0.01104066  1.01721150
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9797082 0.46119725 0.49927618
#> [2,] 0.4611972 0.94191991 0.04413112
#> [3,] 0.4992762 0.04413112 1.03600962
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0415677 0.53136921 0.47189863
#> [2,] 0.5313692 0.99646964 0.07614354
#> [3,] 0.4718986 0.07614354 0.97211843
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9949639  0.48084596  0.50209284
#> [2,] 0.4808460  1.00187844 -0.02655744
#> [3,] 0.5020928 -0.02655744  1.03392538
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9916337  0.49947422  0.51361770
#> [2,] 0.4994742  1.03173874 -0.02484467
#> [3,] 0.5136177 -0.02484467  1.03824534
#>
#>
#>
#> [[1]][[4]]$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/