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 0.0425 5 0.4591 0.4599 0.4632 0.5641 0.5655 0.5658
#> PCTGRT  0.3915 0.0903 5 0.2553 0.2556 0.2569 0.4674 0.4745 0.4761
#> PCTSUPP 0.2632 0.0814 5 0.1120 0.1139 0.1224 0.3102 0.3105 0.3105
#> 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 0.0425 5 0.4590 0.4590 0.4591 0.5411 0.5528 0.5620
#> PCTGRT  0.3915 0.0903 5 0.2589 0.2677 0.3240 0.4762 0.4763 0.4763
#> PCTSUPP 0.2632 0.0814 5 0.1129 0.1199 0.1426 0.3104 0.3105 0.3105
#> 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 0.0425 5 0.4590 0.4590 0.4591 0.5412 0.5531 0.5623
#> PCTGRT  0.3915 0.0903 5 0.2598 0.2687 0.3274 0.4762 0.4763 0.4763
#> PCTSUPP 0.2632 0.0814 5 0.1124 0.1177 0.1387 0.3104 0.3105 0.3105
#> 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 0.0729 5 0.6737 0.6746 0.6782 0.8568 0.8629 0.8642
#> 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 0.0729 5 0.6737 0.6738 0.6749 0.8423 0.8585 0.8636
#> 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 0.0729 5 0.6737 0.6737 0.6744 0.838 0.8556 0.8625
```

```
#> 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 0.0416 5 0.0951 0.0957 0.0983 0.1968 0.1981 0.1984
#> PCTGRT  0.1177 0.0423 5 0.0648 0.0658 0.0702 0.1629 0.1629 0.1629
#> PCTSUPP 0.0569 0.0180 5 0.0330 0.0335 0.0357 0.0796 0.0805 0.0807
#> 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 0.1402 5 -0.1445 -0.1415 -0.1282 0.1945 0.1961 0.1965
#> NARTIC-PCTSUPP 0.2319 0.1213 5  0.0006  0.0024  0.0100 0.3064 0.3132 0.3148
#> PCTGRT-PCTSUPP 0.1282 0.0400 5  0.0529  0.0530  0.0536 0.1426 0.1447 0.1452
#> 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,] 0.9327183  0.44412545  0.41501235
#> [2,] 0.4441255  1.00700642 -0.03600103
#> [3,] 0.4150123 -0.03600103  0.97393564
#>
#> [[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0157382  0.44023587  0.48618161
#> [2,] 0.4402359  0.92437585 -0.04846288
#> [3,] 0.4861816 -0.04846288  0.99274285
#>
#> [[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0065640 0.51309267 0.46980336
#> [2,] 0.5130927 0.97489055 0.01590446
#> [3,] 0.4698034 0.01590446 0.95883510
#>
#> [[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0794534 0.492286970 0.542344723
#> [2,] 0.4922870 0.909629767 0.006595525
#> [3,] 0.5423447 0.006595525 1.024361825
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0140033 0.46629551 0.53764772
#> [2,] 0.4662955 0.99755844 0.04871342
#> [3,] 0.5376477 0.04871342 1.03308890
#>
#> [[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0430092  0.52794791  0.49209587
#> [2,] 0.5279479  1.01911783 -0.02148767
#> [3,] 0.4920959 -0.02148767  1.03218107
```

#> 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 0.1084 5 0.2124 0.2147 0.2246 0.4665 0.4669 0.4670
#> PCTGRT  0.3757 0.0758 5 0.2641 0.2652 0.2703 0.4609 0.4685 0.4703
#> PCTSUPP 0.2254 0.0893 5 0.1630 0.1632 0.1640 0.3643 0.3761 0.3787
#> 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 0.0507 5 0.6939 0.6948 0.6991 0.8192 0.8202 0.8204
#> adj 0.7906 0.0543 5 0.6720 0.6730 0.6776 0.8063 0.8074 0.8076
#> 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 0.0439 5 0.5434 0.5441 0.5472 0.6583 0.6629 0.6639
#> adj 0.5714 0.0449 5 0.5331 0.5338 0.5369 0.6505 0.6552 0.6562
#> 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 0.0375 5 0.3528 0.3535 0.3565 0.4521 0.4559 0.4567
#> PCTGRT  0.3430 0.0754 5 0.1633 0.1656 0.1762 0.3595 0.3633 0.3642
```

```
#> PCTSUPP 0.2385 0.0838 5 0.1502 0.1510 0.1542 0.3477 0.3505 0.3511
#> 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 0.0729 5 0.6737 0.6737 0.6744 0.838 0.8556 0.8625
#>
#>
#> [[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,] 0.9327183  0.44412545  0.41501235
```

```
#> [2,] 0.4441255  1.00700642 -0.03600103
#> [3,] 0.4150123 -0.03600103  0.97393564
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0157382  0.44023587  0.48618161
#> [2,] 0.4402359  0.92437585 -0.04846288
#> [3,] 0.4861816 -0.04846288  0.99274285
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0065640 0.51309267 0.46980336
#> [2,] 0.5130927 0.97489055 0.01590446
#> [3,] 0.4698034 0.01590446 0.95883510
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0794534 0.492286970 0.542344723
#> [2,] 0.4922870 0.909629767 0.006595525
#> [3,] 0.5423447 0.006595525 1.024361825
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0140033 0.46629551 0.53764772
#> [2,] 0.4662955 0.99755844 0.04871342
#> [3,] 0.5376477 0.04871342 1.03308890
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0430092  0.52794791  0.49209587
#> [2,] 0.5279479  1.01911783 -0.02148767
#> [3,] 0.4920959 -0.02148767  1.03218107
#>
#>
#>
#> [[1]][[4]]$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/