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 0.1430 5 0.3423 0.3428 0.3450 0.6647 0.6714 0.6729
#> PCTGRT  0.3915 0.1301 5 0.1689 0.1718 0.1848 0.5063 0.5121 0.5133
#> PCTSUPP 0.2632 0.0621 5 0.1043 0.1063 0.1154 0.2566 0.2572 0.2573
#> 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 0.1430 5 0.3423 0.3424 0.3430 0.6485 0.6666 0.6722
#> PCTGRT  0.3915 0.1301 5 0.1703 0.1811 0.2160 0.5115 0.5132 0.5135
#> PCTSUPP 0.2632 0.0621 5 0.2574 0.2574 0.2574 0.2574 0.2574 0.2574
#> 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 0.1430 5 0.3423 0.3424 0.3431 0.6492 0.6670 0.6723
#> PCTGRT  0.3915 0.1301 5 0.1715 0.1845 0.2212 0.5120 0.5133 0.5135
#> PCTSUPP 0.2632 0.0621 5    NaN    NaN    NaN    NaN    NaN    NaN
#> 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 0.0524 5 0.6705 0.6711 0.674 0.7958 0.7971 0.7974
#> 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 0.0524 5 0.6708 0.6732 0.6809 0.797 0.7973 0.7974
#> 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 0.0524 5 0.6705 0.6721 0.6789 0.7967 0.7972 0.7974
```

```
#> 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 0.0309 5 0.1893 0.1894 0.1901 0.2607 0.2627 0.2631
#> PCTGRT  0.1177 0.0208 5 0.0723 0.0727 0.0744 0.1269 0.1286 0.1290
#> PCTSUPP 0.0569 0.0301 5 0.0089 0.0092 0.0101 0.0746 0.0747 0.0747
#> 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 0.1018 5 -0.0755 -0.0736 -0.0648 0.1869 0.1919 0.1930
#> NARTIC-PCTSUPP  0.2319 0.0433 5  0.2516  0.2524  0.2563 0.3604 0.3616 0.3619
#> PCTGRT-PCTSUPP  0.1282 0.1221 5  0.0587  0.0615  0.0741 0.3704 0.3742 0.3750
#> 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,] 0.9820075 0.48626252 0.43846303
#> [2,] 0.4862625 0.99102569 0.01722928
#> [3,] 0.4384630 0.01722928 0.90182719
#>
#> [[2]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0329375 0.51940231 0.47003773
#> [2,] 0.5194023 1.01378751 0.01992123
#> [3,] 0.4700377 0.01992123 0.98840247
#>
#> [[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9539169  0.49904818  0.45220761
#> [2,] 0.4990482  1.07292057 -0.02000634
#> [3,] 0.4522076 -0.02000634  0.97433821
#>
#> [[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9953239 0.52135678 0.51801290
#> [2,] 0.5213568 1.03626273 0.01268446
#> [3,] 0.5180129 0.01268446 1.05426969
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0140920 0.50980867 0.55107565
#> [2,] 0.5098087 1.04110350 0.06470456
#> [3,] 0.5510756 0.06470456 1.04528274
#>
#> [[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9885238 0.50886342 0.49081844
#> [2,] 0.5088634 0.94856830 0.01391382
#> [3,] 0.4908184 0.01391382 0.94164443
#> 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 0.0955 5 0.3270 0.3281 0.3331 0.5509 0.5538 0.5544
#> PCTGRT   0.3757 0.0565 5 0.3203 0.3209 0.3239 0.4629 0.4673 0.4683
#> PCTSUPP  0.2254 0.0432 5 0.2025 0.2026 0.2028 0.2979 0.2997 0.3002
#> Call:
#> PCorNB(object = nb)
```

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```
#>
#> 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 0.0602 5 0.7452 0.7457 0.7478 0.8903 0.8961 0.8974
#> adj 0.7906 0.0645 5 0.7270 0.7275 0.7298 0.8825 0.8887 0.8900
#> 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 0.0659 5 0.5177 0.5186 0.5222 0.6794 0.6820 0.6826
#> adj 0.5714 0.0674 5 0.5068 0.5076 0.5114 0.6721 0.6748 0.6754
#> 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 0.0915 5 0.2358 0.2370 0.2419 0.4522 0.4539 0.4543
#> PCTGRT  0.3430 0.1005 5 0.2158 0.2159 0.2160 0.4303 0.4332 0.4338
```

```
#> PCTSUPP 0.2385 0.0654 5 0.1008 0.1022 0.1084 0.2703 0.2742 0.2751
#> 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 0.0524 5 0.6705 0.6721 0.6789 0.7967 0.7972 0.7974
#>
#>
#> [[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,] 0.9820075 0.48626252 0.43846303
```

```
#> [2,] 0.4862625 0.99102569 0.01722928
#> [3,] 0.4384630 0.01722928 0.90182719
#>
#> [[1]][[4]]$value[[1]][[2]]
#>            [,1]       [,2]       [,3]
#> [1,] 1.0329375 0.51940231 0.47003773
#> [2,] 0.5194023 1.01378751 0.01992123
#> [3,] 0.4700377 0.01992123 0.98840247
#>
#> [[1]][[4]]$value[[1]][[3]]
#>            [,1]       [,2]        [,3]
#> [1,] 0.9539169  0.49904818  0.45220761
#> [2,] 0.4990482  1.07292057 -0.02000634
#> [3,] 0.4522076 -0.02000634  0.97433821
#>
#> [[1]][[4]]$value[[1]][[4]]
#>            [,1]       [,2]       [,3]
#> [1,] 0.9953239 0.52135678 0.51801290
#> [2,] 0.5213568 1.03626273 0.01268446
#> [3,] 0.5180129 0.01268446 1.05426969
#>
#> [[1]][[4]]$value[[1]][[5]]
#>            [,1]       [,2]       [,3]
#> [1,] 1.0140920 0.50980867 0.55107565
#> [2,] 0.5098087 1.04110350 0.06470456
#> [3,] 0.5510756 0.06470456 1.04528274
#>
#> [[1]][[4]]$value[[1]][[6]]
#>            [,1]       [,2]       [,3]
#> [1,] 0.9885238 0.50886342 0.49081844
#> [2,] 0.5088634 0.94856830 0.01391382
#> [3,] 0.4908184 0.01391382 0.94164443
#>
#>
#>
#> [[1]][[4]]$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/