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 0.0449 5 0.4394 0.4397 0.4407 0.5483 0.5539 0.5551
#> PCTGRT  0.3915 0.0577 5 0.2892 0.2899 0.2928 0.4178 0.4187 0.4189
#> PCTSUPP 0.2632 0.1195 5 0.1189 0.1212 0.1315 0.4354 0.4454 0.4477
#> 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 0.0449 5 0.4423 0.4493 0.4686 0.5552 0.5553 0.5553
#> PCTGRT  0.3915 0.0577 5 0.2891 0.2893 0.2901 0.4158 0.4181 0.4188
#> PCTSUPP 0.2632 0.1195 5 0.1187 0.1191 0.1221 0.4112 0.4383 0.4466
#> 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 0.0449 5 0.4424 0.4495 0.4689 0.5552 0.5553 0.5553
#> PCTGRT  0.3915 0.0577 5 0.2892 0.2894 0.2904 0.4161 0.4183 0.4188
#> PCTSUPP 0.2632 0.1195 5 0.1186 0.1189 0.1211 0.4065 0.4351 0.4455
#> 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 0.0592 5 0.6773 0.6785 0.6838 0.8303 0.8334 0.8341
#> 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 0.0592 5 0.6772 0.6774 0.679 0.8228 0.8312 0.8338
#> 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 0.0592 5 0.6772 0.6773 0.6783 0.8206 0.8297 0.8332
```

```
#> 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 0.0688 5 0.0446 0.0456 0.0499 0.2047 0.2058 0.2060
#> PCTGRT  0.1177 0.0467 5 0.0846 0.0849 0.0861 0.1956 0.1992 0.2001
#> PCTSUPP 0.0569 0.0190 5 0.0381 0.0381 0.0383 0.0826 0.0846 0.0851
#> 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 0.1555 5 -0.1100 -0.1066 -0.0917 0.2990 0.3096 0.3121
#> NARTIC-PCTSUPP 0.2319 0.0685 5  0.1762  0.1767  0.1790 0.3437 0.3495 0.3508
#> PCTGRT-PCTSUPP 0.1282 0.1875 5 -0.1074 -0.1055 -0.0971 0.3364 0.3418 0.3430
#> 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,] 1.0049407 0.47239349 0.49100251
#> [2,] 0.4723935 0.98390124 0.01201273
#> [3,] 0.4910025 0.01201273 0.97956208
#>
#> [[2]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0141107 0.51350572 0.46862079
#> [2,] 0.5135057 1.01579651 0.01685586
#> [3,] 0.4686208 0.01685586 0.93516801
#>
#> [[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0364143 0.47217805 0.52951546
#> [2,] 0.4721780 0.95568816 0.05533023
#> [3,] 0.5295155 0.05533023 1.00895608
#>
#> [[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.1123515 0.49412102 0.59407258
#> [2,] 0.4941210 0.95687802 0.03470047
#> [3,] 0.5940726 0.03470047 1.09015348
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.1186758 0.54649085 0.57352441
#> [2,] 0.5464908 1.02235621 0.01647562
#> [3,] 0.5735244 0.01647562 1.06548887
#>
#> [[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0234043 0.46040984 0.50154214
#> [2,] 0.4604098 0.94661831 0.04100449
#> [3,] 0.5015421 0.04100449 1.01237377
```

#> 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 0.0604 5 0.3924 0.3925 0.3929 0.5221 0.5256 0.5263
#> PCTGRT  0.3757 0.0636 5 0.3568 0.3583 0.3649 0.5255 0.5304 0.5315
#> PCTSUPP 0.2254 0.1023 5 0.1422 0.1426 0.1445 0.3854 0.3983 0.4012
#> 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 0.0385 5 0.7737 0.7737 0.7741 0.8563 0.8572 0.8574
#> adj 0.7906 0.0413 5 0.7575 0.7576 0.7579 0.8460 0.8470 0.8472
#> 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 0.1354 5 0.3688 0.3710 0.3807 0.7006 0.7041 0.7049
#> adj 0.5714 0.1385 5 0.3545 0.3567 0.3666 0.6938 0.6974 0.6982
#> 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 0.0353 5 0.3779 0.3783 0.3801 0.4679 0.4717 0.4725
#> PCTGRT  0.3430 0.0952 5 0.1704 0.1719 0.1787 0.3936 0.3941 0.3943
```

```
#> PCTSUPP 0.2385 0.0562 5 0.1921 0.1927 0.1950 0.3171 0.3180 0.3182
#> 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 0.0592 5 0.6772 0.6773 0.6783 0.8206 0.8297 0.8332
#>
#>
#> [[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,] 1.0049407 0.47239349 0.49100251
```

```
#> [2,] 0.4723935 0.98390124 0.01201273
#> [3,] 0.4910025 0.01201273 0.97956208
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0141107 0.51350572 0.46862079
#> [2,] 0.5135057 1.01579651 0.01685586
#> [3,] 0.4686208 0.01685586 0.93516801
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0364143 0.47217805 0.52951546
#> [2,] 0.4721780 0.95568816 0.05533023
#> [3,] 0.5295155 0.05533023 1.00895608
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.1123515 0.49412102 0.59407258
#> [2,] 0.4941210 0.95687802 0.03470047
#> [3,] 0.5940726 0.03470047 1.09015348
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.1186758 0.54649085 0.57352441
#> [2,] 0.5464908 1.02235621 0.01647562
#> [3,] 0.5735244 0.01647562 1.06548887
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0234043 0.46040984 0.50154214
#> [2,] 0.4604098 0.94661831 0.04100449
#> [3,] 0.5015421 0.04100449 1.01237377
#>
#>
#>
#> [[1]][[4]]$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/