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 0.0851 5 0.3971 0.3992 0.4089 0.6079 0.6102 0.6107
#> PCTGRT  0.3915 0.0562 5 0.3087 0.3095 0.3130 0.4515 0.4556 0.4565
#> PCTSUPP 0.2632 0.1083 5 0.1545 0.1549 0.1569 0.4131 0.4249 0.4276
#> 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 0.0851 5 0.3968 0.3968 0.3969 0.5780 0.5892 0.6045
#> PCTGRT  0.3915 0.0562 5 0.3086 0.3088 0.3098 0.4419 0.4527 0.4560
#> PCTSUPP 0.2632 0.1083 5 0.1547 0.1563 0.1616 0.4238 0.4273 0.4278
#> 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 0.0851 5 0.3968 0.3968 0.3969 0.5781 0.5896 0.6049
#> PCTGRT  0.3915 0.0562 5 0.3086 0.3089 0.3102 0.4434 0.4536 0.4563
#> PCTSUPP 0.2632 0.1083 5 0.1546 0.1558 0.1607 0.4225 0.4268 0.4278
#> 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 0.0481 5 0.6801 0.6805 0.6824 0.7928 0.795 0.7955
#> 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 0.0481 5 0.6803 0.6819 0.6871 0.7948 0.7955 0.7956
#> 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 0.0481 5 0.6801 0.6812 0.6858 0.7944 0.7953 0.7956
```

```
#> 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 0.0809 5 0.1212 0.1216 0.1236 0.2978 0.2994 0.2998
#> PCTGRT  0.1177 0.0622 5 0.0470 0.0483 0.0538 0.2126 0.2191 0.2205
#> PCTSUPP 0.0569 0.0250 5 0.0459 0.0459 0.0460 0.1021 0.1043 0.1048
#> 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 0.1425 5 -0.0453 -0.0416 -0.0252 0.3377 0.3494 0.3520
#> NARTIC-PCTSUPP 0.2319 0.1667 5  0.1415  0.1422  0.1453 0.5337 0.5521 0.5563
#> PCTGRT-PCTSUPP 0.1282 0.1154 5 -0.0281 -0.0273 -0.0238 0.2233 0.2250 0.2254
#> 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,] 1.0099124 0.53370896 0.47994262
#> [2,] 0.5337090 1.07034018 0.04362108
#> [3,] 0.4799426 0.04362108 0.99932510
#>
#> [[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9528211  0.44685052  0.48008660
#> [2,] 0.4468505  0.98824535 -0.02845785
#> [3,] 0.4800866 -0.02845785  1.04559557
#>
#> [[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0588165 0.540911948 0.480732629
#> [2,] 0.5409119 1.038247062 0.009921316
#> [3,] 0.4807326 0.009921316 1.002934084
#>
#> [[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0611349 0.48205132 0.50436155
#> [2,] 0.4820513 0.99659705 0.00559072
#> [3,] 0.5043616 0.00559072 0.96031537
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.1187257 0.55970856 0.56140845
#> [2,] 0.5597086 1.02203524 0.02477157
#> [3,] 0.5614085 0.02477157 1.12240179
#>
#> [[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0318549 0.54098946 0.47090224
#> [2,] 0.5409895 1.13249519 0.03964982
#> [3,] 0.4709022 0.03964982 0.96126856
```

#> 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 0.0989 5 0.3606 0.3617 0.3666 0.6083 0.6149 0.6164
#> PCTGRT  0.3757 0.0819 5 0.2892 0.2901 0.2942 0.4883 0.4928 0.4938
#> PCTSUPP 0.2254 0.1261 5 0.0114 0.0155 0.0339 0.3196 0.3208 0.3211
#> 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 0.0545 5 0.7330 0.7347 0.7423 0.8743 0.8764 0.8769
#> adj 0.7906 0.0584 5 0.7139 0.7158 0.7239 0.8653 0.8676 0.8681
#> 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 0.0750 5 0.5512 0.5526 0.5591 0.7435 0.7468 0.7476
#> adj 0.5714 0.0767 5 0.5410 0.5425 0.5490 0.7377 0.7411 0.7418
#> 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 0.0741 5 0.3129 0.3147 0.3226 0.5038 0.5065 0.5071
#> PCTGRT  0.3430 0.1078 5 0.2347 0.2351 0.2368 0.4863 0.4959 0.4980
```

```
#> PCTSUPP 0.2385 0.0413 5 0.1942 0.1943 0.1951 0.2830 0.2835 0.2836
#> 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 0.0481 5 0.6801 0.6812 0.6858 0.7944 0.7953 0.7956
#>
#>
#> [[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,] 1.0099124 0.53370896 0.47994262
```

```
#> [2,] 0.5337090 1.07034018 0.04362108
#> [3,] 0.4799426 0.04362108 0.99932510
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]        [,2]        [,3]
#> [1,] 0.9528211  0.44685052  0.48008660
#> [2,] 0.4468505  0.98824535 -0.02845785
#> [3,] 0.4800866 -0.02845785  1.04559557
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]        [,2]        [,3]
#> [1,] 1.0588165 0.540911948 0.480732629
#> [2,] 0.5409119 1.038247062 0.009921316
#> [3,] 0.4807326 0.009921316 1.002934084
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0611349 0.48205132 0.50436155
#> [2,] 0.4820513 0.99659705 0.00559072
#> [3,] 0.5043616 0.00559072 0.96031537
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.1187257 0.55970856 0.56140845
#> [2,] 0.5597086 1.02203524 0.02477157
#> [3,] 0.5614085 0.02477157 1.12240179
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 1.0318549 0.54098946 0.47090224
#> [2,] 0.5409895 1.13249519 0.03964982
#> [3,] 0.4709022 0.03964982 0.96126856
#>
#>
#>
#> [[1]][[4]]$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"
```

Class

```
#> [[1]]
#> [1] "data.frame"
#>
#> [[2]]
#> [1] "root_criterion"
```

References

R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/