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 0.0711 5 0.4599 0.4599 0.4599 0.5992 0.5999 0.6000
#> PCTGRT  0.3915 0.0223 5 0.3535 0.3535 0.3535 0.4024 0.4047 0.4053
#> PCTSUPP 0.2632 0.0616 5 0.1573 0.1590 0.1666 0.3229 0.3277 0.3288
#> 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 0.0711 5 0.4599 0.4599 0.4599 0.5975 0.5994 0.6000
#> PCTGRT  0.3915 0.0223 5 0.3535 0.3536 0.3557 0.4053 0.4053 0.4053
#> PCTSUPP 0.2632 0.0616 5 0.1582 0.1644 0.1848 0.3273 0.3287 0.3289
#> 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 0.0711 5 0.4599 0.4599 0.4599 0.5975 0.5994 0.6000
#> PCTGRT  0.3915 0.0223 5 0.3535 0.3536 0.3558 0.4053 0.4053 0.4053
#> PCTSUPP 0.2632 0.0616 5 0.1576 0.1624 0.1813 0.3267 0.3285 0.3289
#> 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 0.0353 5 0.6179 0.6188 0.6232 0.7079 0.7092 0.7096
#> 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 0.0353 5 0.7096 0.7096 0.7096 0.7096 0.7096 0.7096
#> 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 0.0353 5   NaN  NaN  NaN   NaN   NaN    NaN
```

```
#> 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 0.0630 5 0.1051 0.1052 0.1056 0.2370 0.2391 0.2396
#> PCTGRT  0.1177 0.0637 5 0.0565 0.0576 0.0625 0.2229 0.2308 0.2326
#> PCTSUPP 0.0569 0.0114 5 0.0450 0.0452 0.0460 0.0737 0.0743 0.0744
#> 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 0.1359 5  0.0186  0.0192  0.0219 0.3377 0.3461 0.3480
#> NARTIC-PCTSUPP 0.2319 0.1926 5 -0.1832 -0.1777 -0.1534 0.2913 0.2922 0.2924
#> PCTGRT-PCTSUPP 0.1282 0.2336 5 -0.4268 -0.4203 -0.3914 0.1314 0.1322 0.1324
#> 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,] 0.9937187  0.498383596  0.509830350
#> [2,] 0.4983836  1.034437703 -0.004617204
#> [3,] 0.5098304 -0.004617204  0.976566302
#>
#> [[2]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9801738 0.51873358 0.47503709
#> [2,] 0.5187336 1.00676430 0.02486066
#> [3,] 0.4750371 0.02486066 0.96513188
#>
#> [[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9710767 0.46710919 0.48058223
#> [2,] 0.4671092 0.94795955 0.01401762
#> [3,] 0.4805822 0.01401762 0.98728954
#>
#> [[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9839812 0.52757059 0.50609755
#> [2,] 0.5275706 1.01251439 0.05042117
#> [3,] 0.5060976 0.05042117 1.05272418
#>
#> [[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9880470 0.46396171 0.48426924
#> [2,] 0.4639617 0.97849947 0.01204761
#> [3,] 0.4842692 0.01204761 0.96395523
#>
#> [[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9513891 0.49366165 0.45117534
#> [2,] 0.4936617 0.98411598 0.00677116
#> [3,] 0.4511753 0.00677116 0.98302925
```

#> 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 0.0902 5 0.3642 0.3650 0.3682 0.5786 0.5842 0.5854
#> PCTGRT  0.3757 0.0664 5 0.3596 0.3605 0.3641 0.5259 0.5300 0.5309
#> PCTSUPP 0.2254 0.0708 5 0.0385 0.0396 0.0442 0.2020 0.2032 0.2035
#> 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 0.0386 5 0.7524 0.7530 0.7554 0.8384 0.8387 0.8387
#> adj 0.7906 0.0414 5 0.7348 0.7353 0.7379 0.8269 0.8272 0.8272
#> 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 0.0822 5 0.4334 0.4357 0.4461 0.6279 0.6279 0.6279
#> adj 0.5714 0.0841 5 0.4205 0.4229 0.4335 0.6194 0.6195 0.6195
#> 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 0.0766 5 0.2731 0.2737 0.2762 0.4550 0.4593 0.4603
#> PCTGRT  0.3430 0.0803 5 0.1936 0.1942 0.1964 0.3725 0.3743 0.3747
```

```
#> PCTSUPP 0.2385 0.0664 5 0.1068 0.1087 0.1173 0.2728 0.2743 0.2746
#> 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 0.0353 5   NaN  NaN  NaN   NaN   NaN    NaN
#>
#>
#> [[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,] 0.9937187  0.498383596  0.509830350
```

```
#> [2,] 0.4983836  1.034437703 -0.004617204
#> [3,] 0.5098304 -0.004617204  0.976566302
#>
#> [[1]][[4]]$value[[1]][[2]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9801738 0.51873358 0.47503709
#> [2,] 0.5187336 1.00676430 0.02486066
#> [3,] 0.4750371 0.02486066 0.96513188
#>
#> [[1]][[4]]$value[[1]][[3]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9710767 0.46710919 0.48058223
#> [2,] 0.4671092 0.94795955 0.01401762
#> [3,] 0.4805822 0.01401762 0.98728954
#>
#> [[1]][[4]]$value[[1]][[4]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9839812 0.52757059 0.50609755
#> [2,] 0.5275706 1.01251439 0.05042117
#> [3,] 0.5060976 0.05042117 1.05272418
#>
#> [[1]][[4]]$value[[1]][[5]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9880470 0.46396171 0.48426924
#> [2,] 0.4639617 0.97849947 0.01204761
#> [3,] 0.4842692 0.01204761 0.96395523
#>
#> [[1]][[4]]$value[[1]][[6]]
#>           [,1]       [,2]       [,3]
#> [1,] 0.9513891 0.49366165 0.45117534
#> [2,] 0.4936617 0.98411598 0.00677116
#> [3,] 0.4511753 0.00677116 0.98302925
#>
#>
#>
#> [[1]][[4]]$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/