betaDelta: Internal Tests

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Tests

```
#> test-betaDelta-beta-adf
#> Test passed
#> Test passed

#> test-betaDelta-beta-delta-methods

#> Call:
#> BetaDelta(object = object, type = "mvn")
#>
#> Standardized regression slopes with MVN standard errors:
#>            est     se      t     p   0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4951 0.0759 6.5272 0.000  0.2268 0.2905 0.3421 0.6482 0.6998 0.7635
#> PCTGRT  0.3915 0.0770 5.0824 0.000  0.1190 0.1837 0.2360 0.5469 0.5993 0.6640
#> PCTSUPP 0.2632 0.0747 3.5224 0.001 -0.0011 0.0616 0.1124 0.4141 0.4649 0.5276
#> Call:
#> BetaDelta(object = object, type = "mvn")
#>
#> Standardized regression slopes with MVN standard errors:
#> Call:
#> BetaDelta(object = object, type = "adf")
#>
#> Standardized regression slopes with ADF standard errors:
#>            est     se      t      p   0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4951 0.0674 7.3490 0.0000  0.2568 0.3134 0.3592 0.6311 0.6769 0.7335
#> PCTGRT  0.3915 0.0710 5.5164 0.0000  0.1404 0.2000 0.2483 0.5347 0.5830 0.6426
#> PCTSUPP 0.2632 0.0769 3.4231 0.0014 -0.0088 0.0558 0.1081 0.4184 0.4707 0.5353
#> Call:
#> BetaDelta(object = object, type = "adf")
#>
#> Standardized regression slopes with ADF standard errors:
#> Call:
#> BetaDelta(object = object, type = "mvn")
#>
#> Standardized regression slopes with MVN standard errors:
#>          est     se       t p  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
```

```
#> NARTIC 0.7622 0.0618 12.3341 0 0.5443 0.5958 0.6376 0.8867 0.9285   0.98
#> Call:
#> BetaDelta(object = object, type = "mvn")
#>
#> Standardized regression slopes with MVN standard errors:
#> Call:
#> BetaDelta(object = object, type = "adf")
#>
#> Standardized regression slopes with ADF standard errors:
#>          est     se      t p  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC 0.7622 0.0604 12.625 0 0.5493 0.5996 0.6405 0.8838 0.9247  0.975
#> Call:
#> BetaDelta(object = object, type = "adf")
#>
#> Standardized regression slopes with ADF standard errors:
```

#> test-betaDelta-beta-mvn

```
#> Test passed
#> Test passed
```

#> test-betaDelta-diff-beta-delta-methods

```
#> Difference between standardized regression coefficients with MVN standard errors:
#>                   est     se      t      p   0.05%    0.5%    2.5%  97.5%
#> NARTIC-PCTGRT  0.1037 0.1357 0.7640 0.4491 -0.3763 -0.2624 -0.1702 0.3775
#> NARTIC-PCTSUPP 0.2319 0.1252 1.8524 0.0710 -0.2110 -0.1059 -0.0207 0.4845
#> PCTGRT-PCTSUPP 0.1282 0.1227 1.0451 0.3020 -0.3059 -0.2028 -0.1194 0.3759
#>                 99.5% 99.95%
#> NARTIC-PCTGRT  0.4697 0.5837
#> NARTIC-PCTSUPP 0.5697 0.6748
#> PCTGRT-PCTSUPP 0.4593 0.5624
#> Difference between standardized regression coefficients with MVN standard errors:
#> Difference between standardized regression coefficients with ADF standard errors:
#>                   est     se      t      p   0.05%    0.5%    2.5%  97.5%
#> NARTIC-PCTGRT  0.1037 0.1212 0.8555 0.3971 -0.3250 -0.2233 -0.1409 0.3482
#> NARTIC-PCTSUPP 0.2319 0.1181 1.9642 0.0561 -0.1858 -0.0866 -0.0064 0.4702
#> PCTGRT-PCTSUPP 0.1282 0.1215 1.0555 0.2973 -0.3016 -0.1996 -0.1170 0.3734
#>                 99.5% 99.95%
#> NARTIC-PCTGRT  0.4306 0.5323
#> NARTIC-PCTSUPP 0.5504 0.6496
#> PCTGRT-PCTSUPP 0.4561 0.5581
#> Difference between standardized regression coefficients with ADF standard errors:
```

#> test-betaDelta-diff-beta-delta

```
#> Test passed
#> Test passed
```

```
#> Test passed
#> Test passed
```

#> test-betaDelta-r-sq-beta-delta-methods

```
#> R-squared with MVN standard errors:
#>              est     se       t p  0.05%   0.5%   2.5%  97.5% 99.5% 99.95%
#> R-squared 0.8045 0.0517 15.5608 0 0.6216 0.6650 0.7002 0.9089 0.944 0.9874
#> Adjusted  0.7906 0.0554 14.2713 0 0.5946 0.6411 0.6788 0.9024 0.940 0.9865
#> R-squared with MVN standard errors:
#> R-squared with ADF standard errors:
#>              est     se       t p  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> R-squared 0.8045 0.0519 15.4910 0 0.6208 0.6644 0.6997 0.9093 0.9447 0.9883
#> Adjusted  0.7906 0.0556 14.2073 0 0.5937 0.6404 0.6783 0.9029 0.9407 0.9874
#> R-squared with ADF standard errors:
#> R-squared with MVN standard errors:
#>              est     se      t p  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> R-squared 0.5809 0.0942 6.1670 0 0.2488 0.3273 0.3911 0.7707 0.8345  0.913
#> Adjusted  0.5714 0.0963 5.9311 0 0.2317 0.3120 0.3772 0.7655 0.8307  0.911
#> R-squared with MVN standard errors:
#> R-squared with ADF standard errors:
#>              est     se      t p  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> R-squared 0.5809 0.0920 6.3125 0 0.2564 0.3331 0.3954 0.7664 0.8286 0.9054
#> Adjusted  0.5714 0.0941 6.0710 0 0.2395 0.3180 0.3817 0.7610 0.8248 0.9032
#> R-squared with ADF standard errors:
```

#> test-betaDelta-r-sq-beta-delta

```
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#>      2.5%     97.5%
```

```
#> 0.6404985 0.8838331
#>
#>
#> [[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]]
#>                          2.5%     97.5%
#> NARTIC-PCTGRT  -0.140868200 0.3481810
#> NARTIC-PCTSUPP -0.006364043 0.4701589
#> PCTGRT-PCTSUPP -0.116962608 0.3734447
#>
#>
#> [[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]]
#>                2.5%     97.5%
#> R-squared 0.3954354 0.7663581
#> Adjusted  0.3816953 0.7610480
```

```
#>
#>
#> [[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/