Package 'iccmult'

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Title Intracluster Correlation Coefficient (ICC) in Clustered Categorical Data

Version 1.0.1

Description Assists in generating categorical clustered outcome data, estimating the Intracluster Correlation Coefficient (ICC) for nominal or ordinal data with 2+ categories under the resampling and method of moments (MoM) methods, with confidence intervals.

BugReports <https://github.com/ncs14/iccmult/issues>

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Imports dirmult, gtools, ICCbin, lme4, stats

Encoding UTF-8

RoxygenNote 7.3.2

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

URL <https://github.com/ncs14/iccmult>

NeedsCompilation no

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Repository CRAN

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Description

Estimate ICC for nominal or ordinal categorical response data

Usage

```
iccmulti(
  cid,
  y,
  data,
  alpha = 0.05,
  method = c("rm", "mom"),
  binmethod = c("aov", "aovs", "keq", "kpr", "keqs", "kprs", "stab", "ub", "fc", "mak",
    "peq", "pgp", "ppr", "rm", "lin", "sim"),
  ci.type = c("aov", "wal", "fc", "peq", "rm"),
  kappa = 0.45,
  nAGQ = 1,
  M = 1000,
  nowarnings = FALSE
)
```

Arguments

cid	Cluster id variable.
y	Categorical response variable.
data	Dataframe containing 'cid' and 'y'.
alpha	Significance level for confidence interval computation. Default is 0.05.
method	Method used to estimate categorical ICC. A single method or multiple methods can be specified. Default is both resampling and moments estimators. See iccmult::iccmulti for more details.
binmethod	Method used to estimate binary ICC. A single or multiple methods can be specified. By default all 16 methods are returned. See full details in ICCbin::iccbin().
ci.type	Type of confidence interval to be computed for binary ICC. By default, all 5 types will be returned See full details in ICCbin::iccbin() for more.
kappa	Value of Kappa to be used in computing Stabilized ICC when the binary response method 'stab' is chosen. Default value is 0.45.
nAGQ	An integer scaler, as in lme4::glmer(), denoting the number of points per axis for evaluating the adaptive Gauss-Hermite approximation to the log-likelihood. Used when the binary response method 'lin' is chosen. Default value is 1.
M	Number of Monte Carlo replicates used in binary ICC computation method 'sim'. Default is 1000.
nowarnings	Flag to turn off estimation warnings. Default is False.

Value

Data frame or list of data frames with single column estimate of ICC, se(ICC), and lower and upper CI bounds.

Examples

```
iccdat4 <- rccat(rho=0.15, prop=c(0.15,0.25,0.20,0.40), noc=10, csize=25)
iccmulti(cid=cid, y=y, data=iccdat4)
iccdat3 <- rccat(rho=0.10, prop=c(0.30,0.25,0.45), noc=15, csize=50)
iccmulti(cid=cid, y=y, data=iccdat3)
```

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rccat	*Generate Correlated Clustered Categorical Data*

Description

Generate Correlated Clustered Categorical Data

Usage

```
rccat(
  rho,
  prop,
  prvar = 0,
  noc,
  csize,
  csvar = 0,
  allevtcl = TRUE,
  drawn = 10,
  nowarnings = FALSE
)
```

Arguments

rho	Numeric value between 0 and 1 of the desired ICC value.
prop	Numeric vector of each response category's probability, each taking value between 0 and 1.
prvar	Numeric value or vector of values between 0 and 1 denoting percent variation in each assumed event rate. Default is 0.
noc	Numeric value of number of clusters to be generated.
csize	Numeric value of desired cluster size.
csvar	Numeric value between 0 and 1 denoting percent variation in cluster sizes. Default is 0.
allevtcl	Logical value specifying whether all clusters must have all categories. Default is True.
drawn	Maximum number of attempts to apply variation to event probabilities.
nowarnings	Flag to turn off warnings. Default is False.

Value

Dataframe with two columns, a column identifier 'cid' and categorical response 'y', and one row for each observation within each cluster

Examples

```
rccat(rho=0.2, prop=c(0.2, 0.3, 0.5), prvar=0, noc=5, csize=20, csvar=0.2)
rccat(rho=0.1, prop=c(0.2, 0.4, 0.3, 0.1), prvar=0.10, noc=30, csize=40, csvar=0)
```

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