Package: mcount (via r-universe)

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Type Package

Title Marginalized Count Regression Models

Version 1.0.0

Author Zhengyang Zhou [aut, cre] Dateng Li [aut] David Huh [aut] Eun-Young Mun [aut]

Depends R (>= 3.6)

Maintainer Zhengyang Zhou <zhengyang.zhou@unthsc.edu>

Description Implementation of marginalized models for zero-inflated count data. This package provides a tool to implement an estimation algorithm for the marginalized count models, which directly makes inference on the effect of each covariate on the marginal mean of the outcome. The method involves the marginalized zero-inflated Poisson model described in Long et al. (2014) <doi:10.1002/sim.6293>.

License GPL-3

Encoding UTF-8

LazyData true

Imports bbmle, stats

NeedsCompilation no

RoxygenNote 7.1.2

Repository CRAN

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Contents

dat.pfi *Example Data*

Description

A data set from White et al. (2008), which is also described in Mun et al. (2015, 2022)

Usage

```
data(dat.pfi)
```

Format

The data fram contains 194 rows and 5 columns:

m0 the number of standard alcohol drinks consumed at baseline

int_PF 1: received personalized feedback interventions (PFI); 0: did not receive PFI

year_new 1: first-year college student; 0: otherwise

race_new 1: white; 0: non-white

y the number of standard alcohol drinks consumed at post-intervention; the response variable

References

Mun, E.-Y., Zhou, Z., Huh, D., Tan, L., Li, D., Tanner-Smith, E. E., Walters, S. T., & Larimer, M.E. (2022). Brief alcohol interventions are effective through six months: Findings from marginalized zero-inflated Poisson and negative binomial models in a two-step IPD meta-analysis. Prevention Science. (under review)

Mun, E. Y., De La Torre, J., Atkins, D. C., White, H. R., Ray, A. E., Kim, S. Y., ... & The Project INTEGRATE Team. (2015). Project INTEGRATE: An integrative study of brief alcohol interventions for college students. Psychology of Addictive Behaviors, 29(1), 34-48.

White, H. R., Mun, E.-Y., & Morgan, T. J. (2008). Do brief personalized feedback interventions work for mandated students or is it just getting caught that works? Psychology of Addictive Behaviors, 22 (1), 107–116. https://doi.org/10.1037/0893-164X.22.1.107.

mzip *Estimating marginalized zero-inflated Poisson model*

Description

Function to estimate a marginalized zero-inflated Poisson model

Usage

```
mzip(formula, data)
```

Arguments

formula	an object of class "formula" (or one that can be coerced to that class): a symbolic description of the model to be fitted. A typical formula has the form response ~ terms where response is the count response vector and terms is a series of terms that predict response. For example, formula = y ~ x1 + x2 + x3. Do not write intercept in the formula; intercept will be automatically added in model fitting.
data	a data frame containing variables in the model.

Details

Function returns an object of class "mle2" from **bbmle** R package. Apply summary function to the resulting object from the function to obtain more estimation information.

Value

Suffix _zero corresponds to the parameters associated with the structrual zero rate part of a model.

Suffix _mean corresponds to the parameters associated with the overall mean, which evaluate the effects of covariates on the overall mean.

References

Long, D. L., Preisser, J. S., Herring, A. H., & Golin, C. E. (2014). A marginalized zero-inflated Poisson regression model with overall exposure effects. Statistics in Medicine, 33(29), 5151-5165.

Examples

```
head(dat.pfi)

#Fit a marginalized zero-inflated Poisson model
res = mzip(formula = y ~ m0 + int_PF + year_new + race_new, data = dat.pfi)

#Obtain estimation results
bbmle::summary(res)
```

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