FEEMProbit

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R topics documented:

FEEMProbit	*Estimate the individual fixed effects expectation-maximization probit model in Chen (2016)*

Description

Function to estimate the individual fixed effects expecation-maximization estimator in Chen (2016)

Usage

```
FEEMProbit(formula, data, tol = 1e-9, show.progress = FALSE)
```

Arguments

formula
: A symbolic description of the model to be estimated. The formula has three parts, the dependent variable, the independent variable and the fixed effect. For example, y ~ x1 + x2 | id, where id is the fixed effect

data
: A data.frame.

tol
: Tolerance level to use for the EM algorithm. Lower tolerances increase computation time.

show.progress
: If TRUE, print the norm between parameter vectors in between each iteration.

1

Value

`call`	The function call.
`coefficients`	The estimated coefficients.
`fixed.effects`	The estimated individual fixed effects.
`fitted.values`	The fitted values of the model.
`residuals`	The model's residuals.
`model`	The `data.frame` used to estimate the model.

Examples

```
library(data.table)
set.seed(1)

# Create data:
N <- 200
nT <- 50
df <- data.table(id = rep(1:N, each = nT),
                 t  = rep(1:nT, N))

# Individual fixed effects:
alpha <- (1:N - N/2)/(N/2)
df[, alpha := rep(alpha, each = nT)]

# Explanatory variable:
df[, x := rnorm(N * nT, mean = -2, sd = 0.5)]

# Coefficient to be estimated:
beta <- 0.5

# Latent variable:
df[, ystar := beta * x + alpha + rnorm(N * nT)]

# Observed variable:
df[, y := as.numeric(ystar > 0)]

# Estimate the model:
FEEMProbit(y ~ x | id, data = df, tol = 1e-6)
```

Index