

FEEMProbit

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FEEMProbit	<i>Estimate the individual fixed effects expectation-maximization probit model in Chen (2016)</i>
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Description

Function to estimate the individual fixed effects expectation-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, $y \sim x_1 + x_2 \mid id$, where id is the fixed effect
data	A <code>data.frame</code> .
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.

Value

<code>call</code>	The function call.
<code>coefficients</code>	The estimated coefficients.
<code>fixed.effects</code>	The estimated individual fixed effects.
<code>predicted.values</code>	The fitted values of the model.
<code>model</code>	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)
```

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