

fmm: tobit — Finite mixtures of tobit regression models

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Description

`fmm: tobit` fits mixtures of tobit regression models; see [\[FMM\] fmm](#) and [\[R\] tobit](#) for details.

Quick start

Mixture of two tobit regression models of y on x_1 and x_2 where y is censored at the minimum of y

```
fmm 2: tobit y x1 x2, ll
```

As above, but where the lower-censoring limit is zero

```
fmm 2: tobit y x1 x2, ll(0)
```

As above, but where `lower` and `upper` are variables containing the censoring limits

```
fmm 2: tobit y x1 x2, ll(lower) ul(upper)
```

With class probabilities depending on z_1 and z_2

```
fmm 2, lcprob(z1 z2): tobit y x1 x2, ll
```

With robust standard errors

```
fmm 2, vce(robust): tobit y x1 x2, ll
```

Constrain coefficients on x_1 and x_2 to be equal across classes

```
fmm 2, lcinvariant(coef): tobit y x1 x2, ll
```

Menu

Statistics > FMM (finite mixture models) > Continuous outcomes > Tobit regression

Syntax

Basic syntax

```
fmm # : tobit depvar [indepvars] [, options]
```

Full syntax

```
fmm # [if] [in] [weight] [, fmmopts]: tobit depvar [indepvars] [, options]
```

where # specifies the number of class models.

<i>options</i>	Description
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noconstant	suppress the constant term
ll [(<i>varname</i> #)]	left-censoring variable or limit
ul [(<i>varname</i> #)]	right-censoring variable or limit
offset (<i>varname</i>)	include <i>varname</i> in model with coefficient constrained to 1

indepvars may contain factor variables; see [U] [11.4.3 Factor variables](#).

depvar and *indepvars* may contain time-series operators; see [U] [11.4.4 Time-series varlists](#).

For a detailed description of *options*, see *Options* in [R] [tobit](#).

<i>fmmopts</i>	Description
Model	
<code>lcinvariant(<i>pclassname</i>)</code>	specify parameters that are equal across classes; default is <code>lcinvariant(none)</code>
<code>lcprob(<i>varlist</i>)</code>	specify independent variables for class probabilities
<code>lclabel(<i>name</i>)</code>	name of the categorical latent variable; default is <code>lclabel(Class)</code>
<code>lcbase(#)</code>	base latent class
<code>constraints(<i>constraints</i>)</code>	apply specified linear constraints
<code>collinear</code>	keep collinear variables

SE/Robust

`vce(vcetype)` *vcetype* may be `oim`, `robust`, or `cluster clustvar`

Reporting

`level(#)` set confidence level; default is `level(95)`
`nocnsreport` do not display constraints
`noheader` do not display header above parameter table
`nodvheader` do not display dependent variables information in the header
`notable` do not display parameter table
`display_options` control columns and column formats, row spacing, line width, display of omitted variables and base and empty cells, and factor-variable labeling

Maximization

`maximize_options` control the maximization process
`startvalues(svmethod)` method for obtaining starting values; default is `startvalues(factor)`
`emopts(maxopts)` control EM algorithm for improved starting values
`noestimate` do not fit the model; show starting values instead
`coeflegend` display legend instead of statistics

varlist may contain factor variables; see [U] 11.4.3 Factor variables.

`by`, `statsby`, and `svy` are allowed; see [U] 11.1.10 Prefix commands.

`vce()` and weights are not allowed with the `svy` prefix; see [SVY] `svy`.

`fweights`, `iweights`, and `pweights` are allowed; see [U] 11.1.6 weight.

`coeflegend` does not appear in the dialog box.

See [U] 20 Estimation and postestimation commands for more capabilities of estimation commands.

For a detailed description of *fmmopts*, see *Options* in [FMM] `fmm`.

<i>pclassname</i>	Description
<code>cons</code>	intercepts and cutpoints
<code>coef</code>	fixed coefficients
<code>errvar</code>	covariances of errors
<code>scale</code>	scaling parameters
<code>all</code>	all the above
<code>none</code>	none of the above; the default

Remarks and examples

For a general introduction to finite mixture models, see [FMM] [fmm intro](#). For general information about tobit regression, see [R] [tobit](#). For examples using `fmm`, see examples in [Contents](#).

Stored results

See *Stored results* in [FMM] [fmm](#).

Methods and formulas

See *Methods and formulas* in [FMM] [fmm](#).

Also see

[FMM] [fmm](#) — Finite mixture models using the `fmm` prefix

[FMM] [fmm intro](#) — Introduction to finite mixture models

[FMM] [Glossary](#)

[R] [tobit](#) — Tobit regression

[SVY] [svy estimation](#) — Estimation commands for survey data