Title

stata.com

Example 1b — Interval regression with continuous endogenous covariate

Description Remarks and examples Also see

Description

Continuing from [ERM] **Example 1a**, we now consider the case where the dependent variable is interval-censored. We fit this model using `eintreg`.

Remarks and examples

stata.com

We now assume that, for reasons of confidentiality, the researchers conducting the study do not observe the actual college GPA for those with a GPA below 2.0. For the rest, they are given college GPA only in increments of 0.5 points. So the outcome has both left- and interval-censored observations. The model remains the same.

The lower and upper endpoints for college GPA are stored in `gpal` and `gpau`. Both variables contain a missing value for students who dropped out of college. Other than the change in command name and specification of the dependent variable, the command to fit the model is exactly the same.

```
. eintreg gpal gpau income, endogenous(hsgpa = income i.hscomp)
Iteration 0:  Log likelihood = -1716.9969
Iteration 1:  Log likelihood = -1716.9968
Extended interval regression                    Number of obs     =  1,528
                                                      Uncensored  =      0
                                                  Left-censored   =    150
                                                 Right-censored   =      0
                                                 Interval-cens.   =  1,378
                                                Wald chi2(2)      = 912.68
Log likelihood = -1716.9968                     Prob > chi2       = 0.0000
```

	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
income	.0551638	.0057859	9.53	0.000	.0438236	.066504
hsgpa	1.111672	.1407083	7.90	0.000	.8358891	1.387456
_cons	-.8180699	.4032468	-2.03	0.042	-1.608419	-.0277207
hsgpa						
income	.0356351	.0019553	18.22	0.000	.0318027	.0394675
hscomp						
Moderate	-.1317151	.0136277	-9.67	0.000	-.1584249	-.1050052
High	-.2320803	.0233633	-9.93	0.000	-.2778715	-.186289
_cons	2.951568	.0164465	179.46	0.000	2.919333	2.983802
var(e.gpal)	.1354248	.0090267			.1188397	.1543245
var(e.hsgpa)	.0591594	.0021403			.0551097	.0635066
corr(e.hsgpa, e.gpal)	.2700108	.0897936	3.01	0.003	.0868241	.4355353

We again find that unobservable factors that increase high school GPA tend to increase college GPA. The parameter estimates here are interpreted just as we did in [ERM] **Example 1a**. In that example, the estimated coefficient on `hsgpa` was 1.24; here it is 1.11. Like the relationship between `regress` and `intreg`, the 1.24 and 1.11 estimate the same parameter, the relationship between `hsgpa` and the uncensored outcome.

We will not further interpret this model here. Instead we refer you to the interpretation in [ERM] **Example 1a**. The interval-censoring of the dependent variable demonstrated here makes no difference in what commands you would type to answer questions or in how you would interpret the results of those commands. In fact, we encourage you to run the commands discussed in [ERM] **Example 1a** on this model and compare the results.

Because interval regression is a generalization of tobit regression, you can also use `eintreg` to fit a tobit model with endogenous selection. However, you must convert your dependent variable into interval form. We illustrate how to do this in [ERM] **Intro 8**.

Also see

[ERM] **eintreg** — Extended interval regression

[ERM] **eintreg postestimation** — Postestimation tools for eintreg and xteintreg

[ERM] **Intro 3** — Endogenous covariates features

[ERM] **Intro 9** — Conceptual introduction via worked example