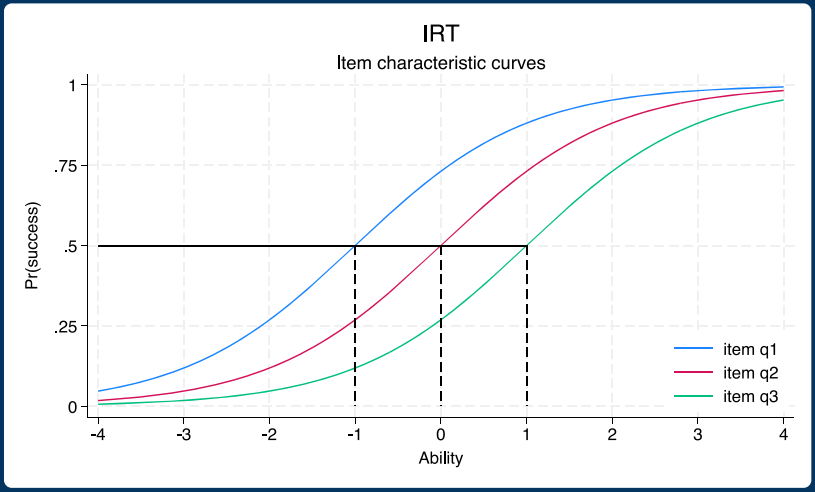
Stata Features

Item response theory (IRT)

- **Binary response models**
  - One-parameter logistic (1PL)
  - Two-parameter logistic (2PL)
  - Three-parameter logistic (3PL)
- **Ordinal response models**
  - Graded response
  - Partial credit
  - Rating scale
- **Categorical response models**
  - Nominal response
- **Hybrid models with differing response types**
- **Multiple-group models**
- **Graphs**
  - Item characteristic curve
  - Test characteristic curve
  - Item information function
  - Test information function
- **Differential item functioning (DIF)**



Fit the model

1PL model for items **q1–q8**

```
. irt 1pl q1-q8
```

2PL model for **q1–q8**

```
. irt 2pl q1-q8
```

Partial credit model for **q9–q15**

```
. irt pcm q9-q15
```

Rating scale model for **q9–q15**

```
. irt rsm q9-q15
```

Graded response model for **q9–q15**

```
. irt grm q9-q15
```

Hybrid model

```
. irt (2pl q1-q8) (grm q9-q15)
```

Multiple-group model

```
. irt 2pl q1-q8, group(grp)
```

Viewer - view irt1.smcl

view irt1.smcl

Dialog | Also see | Jump to

```
. irt 1pl q1-q8

One-parameter logistic model                    Number of obs = 800
Log likelihood = -3669.4715
```

		Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
	Discrim	.8926881	.0497697	17.94	0.000	.7951412	.990235
q1	Diff	-.6826695	.1000551	-6.82	0.000	-.8787739	-.486565
q2	Diff	-.1177849	.0930488	-1.27	0.206	-.3001572	.0645875
q3	Diff	-1.754276	.1356766	-12.93	0.000	-2.020197	-1.488355
q4	Diff	.3101872	.0943281	3.29	0.001	.1253074	.4950669
q5	Diff	1.595213	.1288328	12.38	0.000	1.342705	1.847721
q6	Diff	.6694488	.0997334	6.71	0.000	.4739748	.8649227
q7	Diff	1.279229	.1167531	10.96	0.000	1.050397	1.508061
q8	Diff	-2.328184	.1640633	-14.19	0.000	-2.649742	-2.006625

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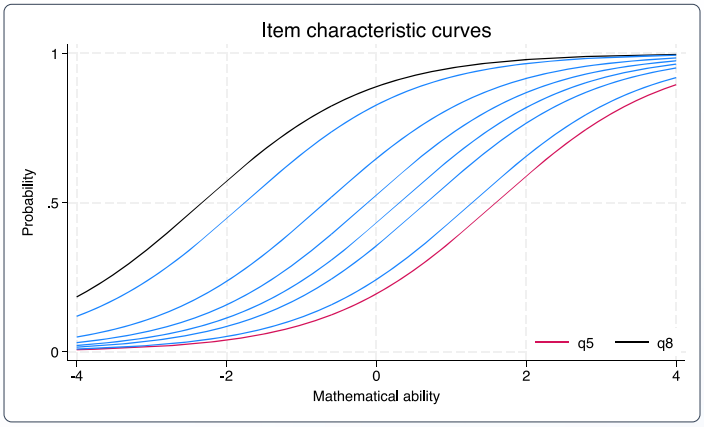
Graph the results

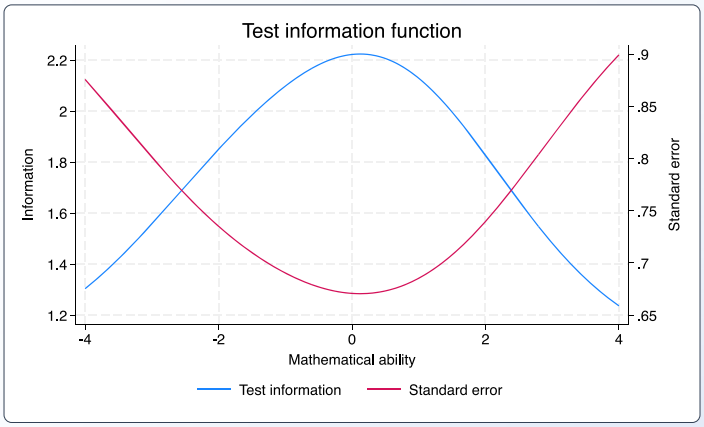
Item characteristic curves

```
. irtgraph icc ...
```



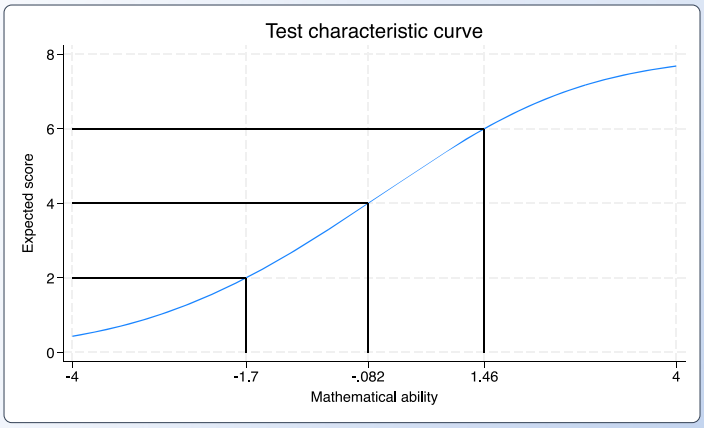
Test information function

```
. irtgraph tif, se
```



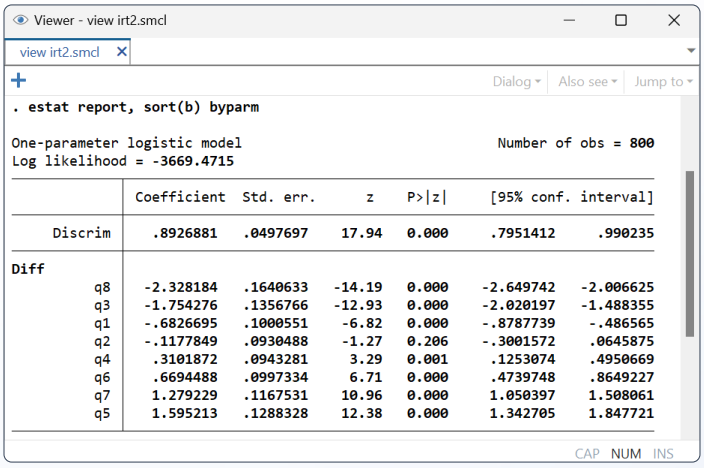
Test characteristic curve

```
. irtgraph tcc, scorelines(2 4 6)
```

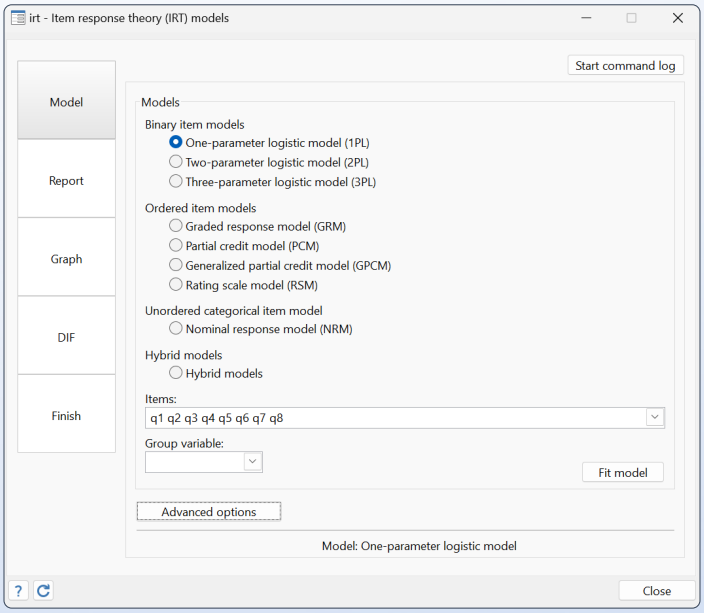


Explore the results

Sort items by difficulty



Use commands or the IRT Control Panel



stata.com/IRT

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