Stata provides an easy-to-use and comprehensive suite of tools for SEM—everything you need for fitting your model, evaluating model fit, and interpreting results. And all of this is integrated in a complete package for data management, graphics, and statistics.

**Easy model specification**
- Path diagram builder
- Intuitive command syntax

**Types of models**
- Path analysis
- Mediation analysis
- Confirmatory factor analysis
- Multiple indicators and multiple causes (MIMIC) models
- Latent growth curve models
- Hierarchical confirmatory factor models
- Multiple-group models
- Models with binary, ordinal, count, nominal, and survival-time outcomes
- Multilevel models
- And many more

**Interpretation**
- Direct, indirect, and total effects
- Standardized and unstandardized estimates

**Model fit**
- Model chi-squared

- RMSEA
- CFI
- TLI
- SRMR
- Likelihood-ratio and Wald tests
- Modification indices

**Estimation methods**
- Maximum likelihood
- Maximum likelihood with missing values, sometimes called FIML
- Asymptotic distribution free (ADF)

**Standard errors**
- Satorra–Bentler
- Robust–Huber/White/sandwich estimator
- Cluster–robust
- Bootstrap
- And more

**Survey data support**
- Sampling weights
- Stratification and poststratification
- Multistage cluster sampling
Use **sem** to fit linear models

Here we fit a two-factor CFA model with four measurements of depression and four measurements of post-traumatic stress disorder (PTSD). The results are the same whether we use the straightforward command syntax,

```
. sem (Depression -> d1 d2 d3 d4)
   (PTSD -> p1 p2 p3 p4)
```

or draw the path diagram,

```
Diagram of the CFA model:
```

![Path diagram of the CFA model](image)

Report model fit statistics

Many commands are available for evaluating the fit of our model. For instance,

```
. estat gof, stats(all)
```

Learn more about SEM and other Stata features at [stata.com/features](http://stata.com/features).

Use **gsem** to fit multilevel models and models with binary, ordinal, count, or survival-time outcomes

More complex models can be fit just as easily. We now fit a multilevel CFA model with binary measurements of mathematical ability for students nested in schools.

```
. gsem (MathAb SchQual[school] -> q1 q2 q3 q4), logit
```

![Path diagram of the multilevel CFA model](image)