

## Developing Trade Consultants

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# Instrumental Variables Models in Stata

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# Overview

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- } Stata has a built in command for instrumental variables regression, as well as a user-developed extension with a number of desirable features:
  - } `ivregress`
  - } `ivreg2`
  
- } Always use the first option to check the first stage regression results, and ensure that the F-test is satisfied.
  
- } Always try to overidentify your model (i.e., include at least one more instrument than potentially endogenous variable) and test the exclusion restriction using Hansen/Sargan.

# Ivregress and Ivreg2

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- } These two commands produce the same output, although the input format is a little different.
- } Ivreg2 automatically provides additional diagnostic statistics, and is usually preferable.
- } *Ivregress 2sls indepvar depvar1 depvar2 (endogvar1 endogvar2 = iv1 iv2 iv3...) ..., first options*
- } *Ivreg2 indepvar depvar1 depvar2 (endogvar1 endogvar2 = iv1 iv2 iv3...) ..., first options*
- } Specifying the gmm option with either command results in more efficient estimates for overidentified models, but no difference for just-identified models.

# Panel data models

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- } Stata has built in panel data models using instrumental variables, as well as user-built extensions:
  - } `Xtivreg, re and fe`
  - } `Xtivreg2, re and fe`
  
- } The general format, including the use of parentheses for the instruments, is as for `ivregress` and `ivreg2`.
  
- } `Xtivreg2` contains additional diagnostic statistics, and is generally preferable. Results using the two commands are identical.