

Empirical exercise 7 – Part in Stata

1. Load the data

This file demonstrates how the IV analysis could be carried out in Stata. All the computations carried out in the sections below correspond to the computations in the respective sections carried out in MATLAB. In this respect, the MATLAB code demonstrates the mechanics behind the computations carried out in Stata. Load the data in .dta format to the memory.

```
clear all
use "C:\Users\username\Desktop\exerciseseven.dta"
```

2. Compute summary statistics

```
pwcorr cigarcons cigarprice cigartax, sig
```

3. An endogenous variable and an instrumental variable

ivregress carries out IV regression. (cigarprice = cigartax) indicates that cigarprice is instrumented with cigartax.

```
regress cigarprice cigartax, robust
predict pcigarprice, xb
regress cigarcons pcigarprice, robust
ivregress 2sls cigarcons (cigarprice = cigartax), robust
```

4. A warning

```
regress cigarprice cigartax, robust
predict pcigarprice, xb
regress cigarcons pcigarprice, robust
```

5. Testing the relevance of the instrument

```
regress cigarprice cigartax income, robust
```

6. Testing the exogeneity of the instrument and failing to do so

```
ivregress 2sls cigarcons (cigarprice = cigartax), robust
predict residualszero, residuals
regress residualszero cigartax
```

7. Testing the endogeneity of *cigarprice*

```
regress cigarcons cigarprice, robust
ivregress 2sls cigarcons (cigarprice = cigartax), robust
estat endogenous
regress cigarprice cigartax, robust
predict residualse, residuals
regress cigarcons cigarprice residualse, robust
```

8. Augment the instrumental variable regression with an exogenous variable

```
pwcorr cigartax income, sig
ivregress 2sls cigarcons (cigarprice = cigartax) income, robust
```

9. An endogenous variable and two instrumental variables

```
ivregress 2sls cigarcons (cigarprice = cigartax cigartaxspecific) income, robust
ivregress 2sls cigarcons (cigarprice = cigartax) income, robust
```

10. Testing the relevance of the two instruments

```
regress income cigarprice cigartax cigartaxspecific, robust
regress income, robust
F test
```

11. Testing the exogeneity of the two instruments

```
ivregress 2sls cigarcons (cigarprice = cigartax cigartaxspecific) income, robust
predict residuals, residuals
regress residuals cigartax cigartaxspecific
test cigartax cigartaxspecific
display "overidentification statistic:" e(N)*e(r2)
display "p-value:" chiprob(1,e(N)*e(r2))
```