**Panel Econometrics**

Assignment #5

By Chuxin Liu

**Question 1: Print out descriptive statistics (mean and standard deviation) of the raw variables and the created variables.**

Table 1: Summary Statistics

|  |  |  |
| --- | --- | --- |
|  | (1) |  |
|  | mean | sd |
| price | 68.69993 | 41.98626 |
| pop | 4537.113 | 4828.836 |
| pop16 | 3366.616 | 3641.847 |
| cpi | 73.59667 | 36.52933 |
| ndi | 7525.023 | 4747.859 |
| sales | 123.9509 | 30.99105 |
| pimin | 62.89928 | 38.32313 |
| lnc | 5.23227 | .6054225 |
| lnclag | 5.266399 | .5854589 |
| lnp | 4.498752 | .1517772 |
| lny | 9.150421 | .2099475 |
| lnpn | 4.410703 | .1511349 |
| *N* | 1380 |  |

Created variables: lnc lnclag lnp lny lnpn

**Question 2: Replicate the results of Table 8.1 and 8.2**

**Question 3: How many instruments does each of the two HT regressions use, and thus what are the degrees of freedom of the test for overidentification?**

Exogenous time-varying variables:

Endogenous time-varying variables:

Exogenous time-invariant variables:

Endogenous time-invariant variables:

HT uses instruments:

# of instruments: 4+5+4+2=15

# of degree of freedom of the test for overidentification: 4-1=3

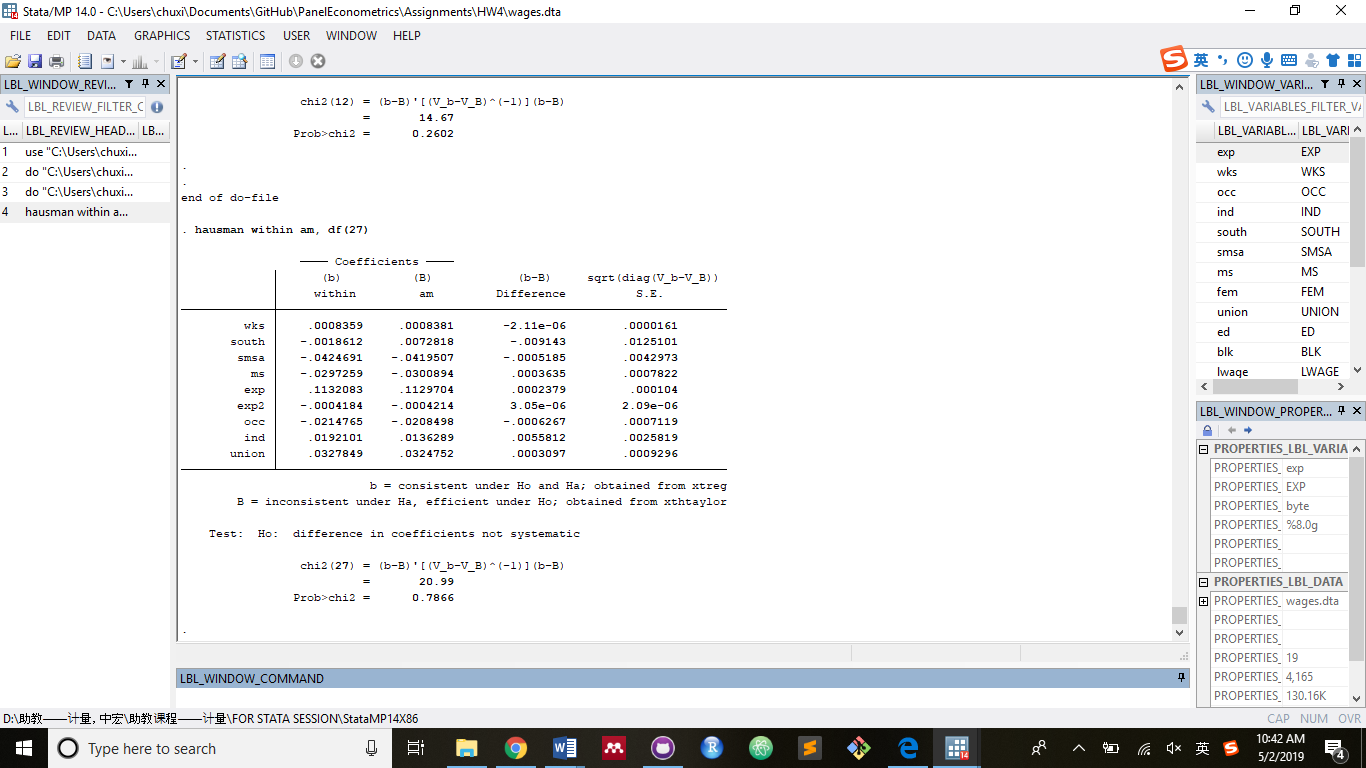
AM uses instruments: where

# of instruments: 4+5+4\*7+2=39

# of degree of freedom of the test for overidentification: 4\*7-1=27

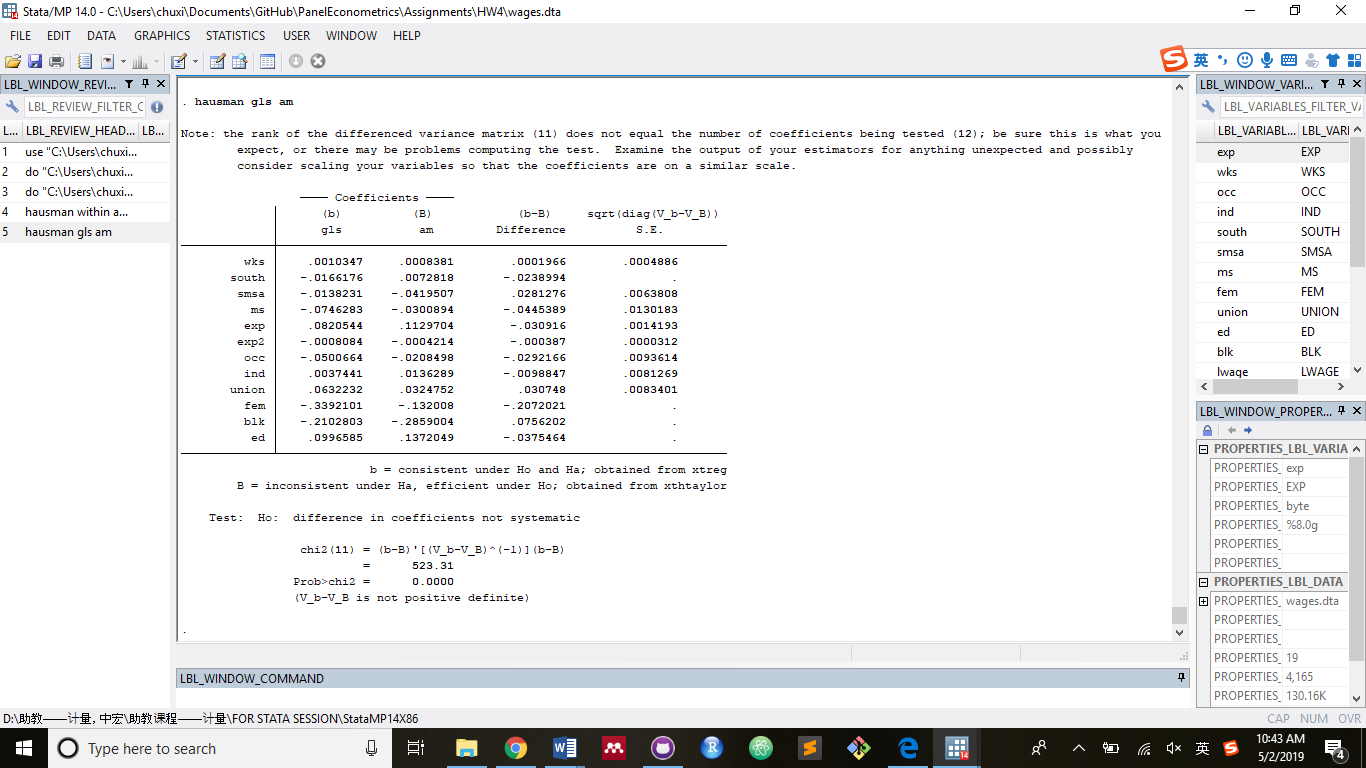
**Question 4: Compare the RE (or GLS), FE (or WE), and AM estimators: do the proper HT and Hausman tests to figure out your recommended estimator.**

1. FE vs. AM with df=27 (insignificant)



Insignificant test result suggests that AM or GLS will be more efficient than FE.

1. RE vs. AM (significant)



Significant result suggests that AM is more consistent than GLS.

**Appendix: STATA Codes**

