

Econ 313, Fall 2020

HW #5

due October 12

This assignment asks you to extend the empirical work from one (or more) of your earlier assignments to a more sophisticated estimator. You have three choices and need only complete one of the three. Because of the end of semester crunch, I am trying out an experimental grading system to give you flexibility to complete only part of the assignment:

i) the first estimator that you run will be graded in the usual way (0-100%). It is thus possible to get a perfect score by only completing one of the estimators.

ii) if you satisfactorily complete a second estimator, then you will automatically get half of the points that you lost from i) back. Satisfactory completion entails successfully running the estimator and interpreting the results.

iii) if you satisfactorily complete all three estimators, then you will receive a perfect score on this assignment.

1. **Multinomial logit** (moderate difficulty).

In HW#1 you learned how to estimate probit and logit models where your dependent variable is binary. Now suppose that instead of being binary, your dependent variable can take a small number (but at least two) of discrete values. A multinomial logit allows you to obtain estimated probabilities that each observation takes each of these values. The Stata package `mlogit` will show you how to run it.

a. Modify your data (most likely from HW#1) to obtain a dependent variable that is discrete, but not binary (*e.g.* 0=red, 1=green, 2=purple).

b. Run a multinomial logit regression. Ideally your specification will parallel that from an earlier homework assignment as much as possible. Report your results.

c. Discuss your results. Your answer should articulate what the multinomial logit allows you to do that other specifications (including logit and panel models) do not.

2. **Panel logit** (easy).

In HW #3, you learned how to estimate panel models which exploit both cross sectional and time-series variation. A Panel logit model allows you to run a panel specification when your dependent variable is binary. The **xtlogit** command will make all your hopes and dreams come true.

- a. Modify your panel data (most likely from HW#3) to obtain a dependent variable that is binary.
- b. Run a multinomial logit regression. Ideally your specification will parallel that from an earlier homework assignment as much as possible. Report your results.
- c. Discuss your results. Your answer should articulate what the panel logit allows you to do that other specifications (including logit and panel models) do not.

3. **Panel VARs** (hard). Inessa Love provides some [Stata code for Panel VARs](#). The site also includes documentation to help you run the code. Note that this is an .ado file that allows users to expand Stata's capabilities. To run it, you will need to add the file, pvar.ado, to the Stata directory.

- a. If necessary, modify your data (most likely from HW#2) to obtain a panel with a large enough T (at least 20) to run a panel VAR.
- b. Run a panel VAR. Ideally your specification will parallel that from an earlier homework assignment as much as possible. Report your results.
- c. Discuss your results. Your answer should articulate what the panel VAR allows you to do that other specifications do not.