README FILE: Stata and Matlab codes for “Estimating Dynamic Games of Electoral Competition to Evaluate Term Limits in U.S. Gubernatorial Elections,” by Holger Sieg and Chamna Yoon (2016)

Please contact chamna.yoon@gmail.com if you have any question.

There are two folders containing the Stata files and Matlab files.

1. Stata folder contains data files (.dta files) and codes (do-files) that produce table 1, table 2, and online appendix V. Please make sure the home directory is set to codes when running files.
2. Matlab folder contains Matlab codes and data files that produce figure 1 – 7 and table 3 – 6.

Stata:

To replicate the results please run table1.do, tabl2.do, and appendix.do. We now describe the contents of these files in more detail.

1. table1.do takes as input election1.dta and produces table 1 in the paper.
2. table2.do takes as input merged_data2.dta and produces table 2 in the paper.
3. appendix.do takes as inputs merged_data2.dta, election2.dta, and residual2.xlsx, and produces tables in online appendix V.
4. election_data_clean.do takes as input election1.dta, produces some additional variables, and outputs election2.dta.
5. gov_data_clean.do takes as input merged_data.dta, produces some additional variables, and outputs merged_data2.dta. It also outputs merged_election.dta by merging merged_data2.dta with election2.dta.
6. estimation_sample.do takes as inputs merged_data2.dta and election2.dta, and outputs datafile6.out that is used for the estimation of model using MATLAB codes. To account for business cycle and growth effects, we regress all policy outcomes on time dummy variables as well as state income, state population, fraction of old, and fraction of young.

7. weighting_matrix.do produces the diagonal weighting matrix used for second stage estimation using bootstrap methods.

Matlab:

To replicate the results please run main.m. We now describe the contents of the files in more detail.

1. The Matlab folder contains the following list of files.

Filename	Type
cch2.m	Matlab function
chf1.m	Matlab function
chfc2.m	Matlab function
chfc3.m	Matlab function
datafile6.out	Data input
draw_value_function.m	Matlab script
find_standard_ntl.m	Matlab script
find_standard_ttl.m	Matlab script
main.m	Matlab script
mycon.m	Matlab function
myfun_ntl2.m	Matlab function
myfun_ttl.m	Matlab function
nlls_snp.m	Matlab function
normal_fit_d.m	Matlab function
normal_fit_r.m	Matlab function
ntl_snp2.m	Matlab function
randpdf.m	Matlab function
residual2.xlsx	Data output
smm12.m	Matlab function

snp_fit.m	Matlab function
test1.mat	Data input
test2.mat	Data input
test3.mat	Data input
third_stage_snp2.m	Matlab script
v_diff_d.m	Matlab function
v_diff_r.m	Matlab function
v_func_snp.m	Matlab function
v_func_snp_ntl.m	Matlab function
v_func_snp3.m	Matlab function
v_snp_low.m	Matlab function
v_snp_r.m	Matlab function
v_snp_up.m	Matlab function

2. main.m conducts first stage estimation, solves model using second stage estimates, conducts third stage estimation, draws value functions, and conducts welfare analysis for the baseline model. This file produces figure 1-7 and table 3-6.
3. See comments in main.m to conduct second stage estimation. It may take several hours to finish.
4. See comments in main.m to get the results (in table 4 and 5) with different model specifications.
5. The computation is done using MATLAB 2016b and a workstation with Xeon 6 core processors. Simulation results can be slightly different depending on the MATLAB version and computer specs. In terms of model solution, the numerical differences are usually in the order of 1e-16. However, the differences in simulation results can be larger because a randomly drawn politician can be classified as a different type of governor even with small differences in election standards.