

## PSC 405 - Exam 2

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1. Consider the data file `housevote.dta` on the course website (<http://www.rochester.edu/College/faculty/mperess/lm2012/housevote.dta>). The variable `incshare` is the share of the incumbent president's party in U.S. House elections. `growth`, `unem`, and `inflat` are the growth, unemployment, and inflation rates in the year leading up to the election. `repincpres` is a dummy variable equal to one if the incumbent president is a Republican. `midterm` is a dummy indicating the election is a midterm election. `year` is the election year.  $t$  is a time index.
- (a) Estimate a regression models with `incshare` as the dependent variable and `growth`, `unem`, `inflat`, and `midterm` are independent variables. Interpret the results.
- (b) Correct for time series dependence in the above regression by re-estimating the model with Newey-West standard errors.
- (c) Fit an appropriate ARMA model. Present results indicating that your ARMA model fits the data well.
- (d) Some have suggested that Democrats are punished more heavily for high unemployment while Republicans are punished more heavily for high inflation. Test this using a model with interaction terms between growth, unemployment, and inflation, and whether the incumbent president in a Republican.

2. Consider the data file `house_expanded.dta` available on the course web site ([http://www.rochester.edu/College/faculty/mperess/lm2012/house\\_expanded.dta](http://www.rochester.edu/College/faculty/mperess/lm2012/house_expanded.dta)). This file contains data collected by Gary Jacobson in order to study the impact of spending by congressional candidates in congressional races. The data set covers races from 1992 to 2000 and includes races where an incumbent faces a challenger. Gary Jacobson has argued that challenger spending is more effective than incumbent spending. Here, we will investigate this claim.

The data set contains the following variables,

`inc_2p_share` – the vote share of the incumbent house candidate

`inc_2p_share_m1` – the lagged vote share of the incumbent house candidate

`state_cd` – a state and congressional district indicator

`year` – the year of the election

`inc_fresh` – a variable indicating whether the incumbent is a freshman, with 0 indicating that the incumbent is not a freshman, 1 indicating that the incumbent is a freshman election in the previous general election, 2 indicating that the incumbent is a freshman elected in a special election more than 1 year earlier, and 3 indicating that the incumbent is a freshman elected during a special election during this election year.

`ch_pr_office` – a dummy variable indicating that the challenger held prior elected office

`ch_stateleg` – a dummy variable indicating that the challenger was previously a state legislator

`ch_formerhouse` – a dummy variable indicating that the challenger previously served in the U.S. House

(Note that if either `ch_stateleg=1` or `ch_formerhouse=1`, then `ch_pr_office=1` and that if `ch_formerhouse=1`, then `ch_stateleg` is coded as 0).

`inc_exp` – expenditures by the incumbent in millions of dollars

ch\_exp – expenditures by the challenger in millions of dollars

inc\_exp\_m1 – expenditures by the incumbent in the previous election

ch\_exp\_m1 – expenditures by the challenger in the previous election

- (i) Report the results of a regression where `inc_2p_share` is the dependent variable and `inc_exp` and `ch_exp` are the independent variables. Interpret the results.
- (ii) Create dummy variables for the three types of freshman status. Report the results of a regression controlling for quality (including `ch_pr_office`, `ch_stateleg`, `ch_formerhouse`, and the three dummy variables you created). Interpret the results of the regression and interpret the differences between this regression and the previous one.
- (iii) Now, consider incumbent and challenger spending in log-form, including the same controls as before. Interpret the coefficients on incumbent and challenger spending.
- (iv) Would it make sense to cluster the standard errors by congressional district? How do the results change when the standard errors clustered by congressional district?
- (v) Donald Green and Jonathan Krasno have argued against Jacobson's claim that challenger spending is more effective than incumbent spending. They proposed using lagged incumbent and challenger spending as instruments for current incumbent and challenger spending. Are these reasonable instruments? Continue to use the expenditure variables in log-form.
- (vi) Report the results of the first-stage regressions with Green and Krasno's instruments using the same controls as earlier and interpret the results? What do these regressions suggest about the reasonableness of the instruments?
- (vii) Report and interpret the results of the 2SLS regression?
- (viii) Would it make sense to include district and year fixed effects? Report the results of such a regression (using OLS and the same controls as earlier).

(ix) Considering the regression you just performed in (viii), would it make sense to cluster by congressional district? How do the results change when the standard errors clustered by congressional district?

(x) Would it make sense to cluster by state?