

Garcia-Jimeno, Camilo (2015). "The Political Economy of Moral Conflict: An Empirical Study of Learning and Law Enforcement under Prohibition." *Econometrica*

## Readme File Structural Estimation Replication

This file describes replication instructions for tables in the Main Draft.

Description of Files:

### Dataset for structural estimation:

#### 1. "structural\_dataset.mat".

Variable names:

**A:** [Share Pop 5-14, Share Pop 15-24, Share Pop 25-44, Share Pop 45-64, Share Pop 65+]

**A\_bar:** Time average of A

**A\_o:** 1911 value of A

**A\_bar15-44:** Time average of Share Pop 15-44

**BIG (BIGG):** Matrix to compute partial sums

**Cityid:** City Identifiers

**DIST:** Matrix of geodesic distances between each pair of cities

**E:** [Share Pop Native White, Share Pop Foreign White, Share Pop Black]

**E\_bar:** Time average of E

**E\_o:** 1911 value of E

**EPSILON:** Matrix of infinitesimal variations to compute likelihood score

**L:** [Vector of 1s, Dry Legislation Dummy, Enforcement Law Dummy, Prohibition Field Seat Dummy, Prohibition Field Providence RI Dummy, Prohibition Field Washington DC Dummy, Prohibition Field Jacksonville FL Dummy, Prohibition Field Detroit MI Dummy, Prohibition Field Chicago IL Dummy, Prohibition Field Kansas City KS Dummy, Prohibition Field San Francisco CA Dummy, Prohibition Field Los Angeles CA Dummy, Prohibition Field Seattle WA Dummy]

**P:** Prohibition Dummy

**Q:** Homicide Rate

**R:** [Share Pop Baptist, Share Pop Orthodox, Share Pop Evangelical, Share Pop Jewish, Share Pop Mormon, Share Pop Lutheran, Share Pop Methodist, Share Pop Catholic, Share Pop Presbyterian]

**R\_bar:** Time average of R

**R\_o:** 1911 value of R

**X\_char:** [AL, CA, CO, CT, DC, DE, GA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, NE, NJ, NY, OH, OR, PA, RI, TN, TX, UT, VA, WA, WI, Border Dummy, South Dummy, State Capital dummy]

**YUP:** Years under Prohibition

**cities (citiess):** Number of cities

**d:** Drunkenness Arrest Rate

**LargeD:** Dummy for Boston, MA and Chicago, IL

**ln\_pop\_bar:** Log of average population

**ln\_pop\_o**: Log of 1911 population  
**logQ**: Log of Homicide Rate (per 100,000)  
**logQ\_30-36**: Log of Homicide Rate 1930-1936  
**p\_detrend**: Police expenditure share detrended  
**p\_detrend\_rescale**: Police expenditure share de-trended and rescaled by standard deviation  
**p\_rescale\_30\_36**: Police expenditure share 1930-1936 and rescaled by standard deviation  
**pop**: Population  
**t**: Time: 1911=1, 1912=2,...  
**x0**: Best initial vector for optimization  
**years** (yearss): Number of years in sample

Code for Structural Estimation:

1. "Main\_file.m": Main m file that calls all other m files
2. "density\_varrho\_N.m": Computes the density of unobserved heterogeneity during No Prohibition
3. "density\_varrho\_P.m": Computes the density of unobserved heterogeneity during Prohibition
4. "estimates.m": Computes belief sequences, residuals, and likelihood
5. "g\_epsilon.m": Computes error from crime equation
6. "g\_varrho.m": Computes median voter's type from police enforcement equation
7. "jacob.m": Computes the jacobian for the likelihood
8. "K\_t.m": Computes the alcohol supply equation
9. "nested.m": calls the optimization
10. "public\_beliefs.m": Computes the sequences of beliefs
11. "coeff\_table.m": Computes the coefficient estimates for Table 3 in the paper
12. "param\_table.m": Computes the parameter estimates for Table 4 in the paper
13. "score.m": Computes infinitesimal variation in the likelihood for each parameter to compute the score
14. "update\_z.m": Computes the E-step of the EM algorithm by updating the latent class probabilities of each observation
15. "supply.m": Produces the best fit for the alcohol supply recovery equation
16. "fit.m": Produces data and model fit moments and time series
17. "outofsample.m": Simulates outcome sequences for the 1930-1936 period
18. "counterfactual\_seq.m": Runs the counterfactual simulations
19. "social\_welfare.m": Computes social welfare for welfare calculation exercises

To replicate Table 1:

In *Stata*, open the dataset “All cities Reduced Form.dta” and the do-file “Summary Statistics.do” and run the file.

To replicate Tables 2, 3, 4, and 5:

1. In *Matlab*, make sure the dataset “structural\_dataset.mat” and all .m files described above are in the active folder.

2. Open the file “Main\_file.m” and under Model Choices set the variable neighbors=0. Run the file.

To replicate the estimation of the model with neighborhood learning discussed in Section 5:

1. In *Matlab*, make sure the dataset “structural\_dataset.mat” and all .m files described above are in the active folder.

2. Open the file “Main\_file.m” and under Model Choices set the variable neighbors=1. Run the file.

To replicate the Likelihood ratio test discussed in section 5.3:

1. In *Matlab*, make sure the datasets “p\_FINAL.mat” and “p\_NEIGH.mat” are in the active folder.

2. Open the file “vuong\_LR.m” and run the file.