Readme: Data and Programs for "Adaptive Correspondence Experiments"

Hadar Avivi, Patrick Kline, Evan Rose, and Christopher Walters
January 2020

AEA Data Repository and Code Project ID: openicpsr-130482

This readme file provides instructions to replicate our estimates and figures. The project directory includes two folders:
1) logit: This folder includes the data and the MATLAB programs used to run the mixed logit model on Nunley et al. (2015) data. The data was provided by the authors. A copy of a cleaned version of the data is provided as part of this archive (file logit/Nunley.csv). For more information about the variables and the cleaning procedure please see the replication files of Kline and Walters (forthcoming).
2) auditor: This folder stores the MATLAB programs that simulate the auditor's problem and the Python program that generates the figures.

Instructions to replicate the table and figures
1) Estimate the mixed logit model
    a. Run the MATLAB program logit/estimate_logit.m on Nunley et al (2015) correspondence experiment data. This program replicates the estimates from of Table 1. In row 30 you should choose the model. There are two possible models:
        i. censored_norm_restrict – estimates the model of Table 1 column (1) where $\rho = 0$
        ii. censored_norm - estimates the full model of Table 1 column (2)

2) Simulate the auditor's problem
    a. The main file is auditor/run_auditor_simulation.m. To simulate the data, you should change the variable data_set in row 27 to "simulation" and run the program. Doing so first generates the data "simulated_beta_censored_norm_pairs0_w_x". In folder auditor we also provide the data we generated. If you want to start with that data change the data_set variable in row 27 to "simulated_beta_censored_norm_pairs0_w_x". Running this program generates for every kappa, c parameters, number of initial pair, and n (number of applications sent) two sets of results:
        i. new_policy_hist_* - a csv file with all the unique histories and the optimal strategy
        ii. new_policy_firms_* - a csv file with the optimal strategy for every job.
    b. To replicate the figures in the paper the main code is auditor/auditor_figures.py.
        i. First, we need to convert the jobs csv files (files new_policy_firms_*) to aggregate gzip files for every kappa, c and number of initial pairs (aggregating over n, the number of initial pairs). To run this part, change the variable create_zip in row 304 to 1.
        ii. Second, we create a csv file with descriptive statistics for every type of auditor (for every number of initial pairs). This part of the program also saves the information in a dictionary that is used when generating the

figures. To run this part, change the value of the variable create_stats in row 305 to 1.

      1. **In the replication package we provide the final csv stats we generated.** The files are auditor/results/policy/ c_kappa_pairs0_wx1_init_pairs_*.csv where * is the number of initial pairs. If you want to start with our stats files, change the value of variable stats_to_dict in row 306 to 1 and the values of create_zip and create_stats to 0.

  iii. Lastly, to generate the figures change the value of the variable figures in row 307 to 1. Make sure to have or stats_to_dict=1 or create_stats=1when running the program.

      1. Parts (i) and (ii) generate figures 3 and 4 in the paper and use as an input the stats dictionary

      2. Part (iii) generates figure 5 in the paper and uses the relevant gzip file. **In the replication package we provide the gzip file that replicates that figure (file auditor/results/temp/ pairs0_wx1_initpairs0_kappa0.13_c0.11.csv.gz).**

      3. Part (iv) generates the policy function figures – figures 1, 2 and A1. These functions use the new_policy_hist_* csv files. **In the replication package we provide in folder auditor/results/policy the files we generated and that replicate the figures in the paper.**

References

Kline, Patrick M, and Christopher R Walters. Forthcoming. "Reasonable doubt: Experimental detection of job-level employment discrimination." *Econometrica*.

Nunley, John M, Adam Pugh, Nicholas Romero, and R Alan Seals. 2015. "Racial discrimination in the labor market for recent college graduates: Evidence from a field experiment." *The BE Journal of Economic Analysis & Policy*, 15(3): 1093–1125.