Instructions to replicate "Learning to Disclose: Disclosure Dynamics in the 1890s Streetcar Industry" by Thomas Bourveau, Matthias Breuer, and Robert Stoumbos

Initial set-up

Download "Replication_code_and_data_for_Learning_to_Disclose.zip" to a directory on your local computer and unzip the contents to that directory. Next, copy and paste that directory's file path into designated areas of the Stata scripts in the "Code" folder. Specifically, on the following lines of each of the Stata scripts, replace the text "TYPE YOUR DIRECTORY PATH HERE" in the global variable named "directory" with the file path of your directory (in quotes):

- Line 17 of 0.0_Creating_input_datasets_for_all_tests.do
- Line 10 of 0.1_Create_input_datasets_not_used_for_EM_Algo.do
- Line 21 of 1.0_MASTER_for_Tests_in_Stata.do
- Line 7 of 1.1_Stylized_Facts_Figures_4_5_IA1_IA2.do
- Line 7 of 1.2_Disclosure_Between_Thresholds_Table_4.do
- Line 7 of 1.3_Truthfulness_Tests_Table_3B.do
- Line 7 of 1.4_Price_Regression_Figure_7.do
- Line 6 of 1.5_Learning_Figure_8_Table_7.do
- Line 7 of 1.6_Capital_Raising_Tests_Tables_3A_9.do
- Line 7 of 1.7_Descriptives_Figures_3_IA3_Tables_2_3A.do
- Line 7 of 1.8_Capital_Raising_ROIC_and_Levelk_Table_10.do

Running the code

Next, run the Stata script "0.0_Creating_input_datasets_for_all_tests.do" in the "Code" folder. This script creates the datasets for the empirical analyses.

Once the Stata script finishes running, run the Matlab script "MASTER.m" in the folder "Code/EM_Algorithm_Code/HMM_Model". This script estimates the parameters of the structural model.[1] It can take several days to run.

Once the Matlab code has finished running, run the Stata script "1.0_MASTER_for_Tests_in_Stata.do" in the "Code" folder. This script runs all remaining empirical analyses.

Finding the results

Running these three scripts one after another produces all of the results for the paper and its internet appendix. Most of the paper's tables and figures can be found in the folder named

[1] The Matlab code incorporates code available online from Kevin Murphy, which accompanies his book on machine learning (Murphy 2012).

"Tables_and_Figures_in_Manuscript",[2] and all of the internet appendix figures can be found in the folder named "Tables_and_Figures_in_Internet_Appendix".

Results for three of the paper's tables—Tables 5, 6, and 8—are produced directly by the Matlab code and appear in a different folder: "Code/EM_Algorithm_Code/HMM_Model". Their results, in that folder, can be located as follows:

- Table 5's parameter estimates and standard errors can be located in Sheet1 of "parameter_estimates.xlsx". Note that GAMMA_1 in the spreadsheet is called α in the paper; and that GAMMA_2 through GAMMA_7 in the spreadsheet are called γ_1 through γ_6, respectively, in the paper.
- For Table 6, all results can be found in different sheets of "parameter_estimates.xlsx". Panel A's initial shares for each level-k can be found in Sheet3, panel B's transition matrix can be found in Sheet4, and panel C's subsequent shares can be found in Sheet2.
- Table 8's likelihood ratio tests can be found in "Likelihood_Ratio_Test_Stats.xlsx". The results can be matched as follows:

Label in Table 8 of the paper	Label in "Likelihood_Ratio_Test_Stats.xlsx"
$\beta=0$ and $\delta=0$	beta_and_delta_equal_zero
No Controls or Intercept	No_Controls
Unraveling Only	Unraveling_Only
Determined by $ROIC - E_{k,t}[ROIC]$	No_Logit_Except_Level_0
Constant Level-k	Stable_Beliefs

Bibliography

Murphy, K. P. 2012. *Machine learning: A probabilistic perspective*. MIT press.

[2] Table 1 does not appear in the folder because it consists of variable definitions. Tables 5, 6, and 8 do not appear in the folder, either; their results can be found elsewhere, as described in the next paragraph. Figures 1, 2, and 6 from the paper do not appear in the folder because none of them are produced by the code. Figure 1 shows an image of a streetcar, Figure 2 shows the first page of a newspaper supplement, and Figure 6 shows an illustration of level-k thinking.