“A Model of Market Power in Customer Markets” by Somaini and Einav

This folder contains Matlab files with Matlab code and Wolfram Mathematica Notebooks. We hope that researchers interested in using/extending the model find them useful. Please e-mail us with any questions (paulosomaini@gmail.com or leinav@stanford.edu).

Algebraic details:

- WelfareAnalysis.nb (Wolfram Mathematica Notebook)

Algebra leading to the results in Section IV (Eq 15-20).

- Theorem1.nb (Wolfram Mathematica Notebook)

Detailed Proof of Theorem 1

- StaticMultiproduct.nb (Wolfram Mathematica Notebook)

Algebra leading to the results in Section VII (Eq 37-41).

- ToMatlab.m (Wolfram Mathematica Package)

Package to write matlab expressions in Mathematica.

Code:

- SingleProduct.m (Matlab Function)

Solves the equilibrium in parallel strategies of the single product case (Theorem 1). The equilibrium is obtained by the method of undetermined coefficients. Type 'help SingleProduct' in Matlab for more detailed information.

- bestRespAsymg.m (Matlab Function)

Finds the best response of a firm to a set of linear competitors' strategies in the general multi-product case (Appendix E). Type 'help bestRespAsymg' in Matlab for more detailed information.

- findMPNEg.m (Matlab Function)

Finds the Markov Perfect Nash Equilibrium in linear strategies for the general multi-product case (Appendix E). The equilibrium is obtained through iteration of best responses. The function calls bestRespAsymg.m in each iteration. Type 'help findMPNEg' in Matlab for more detailed information.

- mergerpass.m and mergerpass_serial.m (Matlab Functions)

Computes the post-merger MPNE in linear strategies for a grid of values for the dynamic parameters. We consider a merger from N single product firms to N-2 single product firms and one merged entity (Section VII). The function calls bestRespAsymg.m for each element in the grid. mergerpass.m uses the parallel computing feature in Matlab, while mergerpass_serial.m does not. Type 'help mergerpass' or 'help mergerpass_serial' in Matlab for more detailed information.

- exec_mergerpass1.m (Matlab Script)

Creates the grid of parameters described in the paper and computes the pre, and post merger equilibrium (pre: calls SingleProduct.m, post: calls

mergerpass.m). It saves the results in mergerpass1.mat. Type 'help exec_mergerpass1' in Matlab for more detailed information.

- mergerpass1.mat (Matlab Data)

File generated by exec_mergerpass1.m

- AddWelfare.m (Matlab Script)

Adds to the results in mergerpass1.mat the welfare computations. Type 'help AddWelfare' in Matlab for more detailed information.

Reproduction of results in the paper:

- plot5in1.m (Matlab Function)

Generates a figure similar to Figure 1 in the paper: the equilibrum in the case of single product firms (N=J). Type 'help plots5in1' for more details.

- Table1_Regression.m (Matlab Script)

Generates Table 1 in the paper. See notes in Table 1. It outputs a file 'Table1_Regression.csv' with the regression results.

- Table2_Regressions.m (Matlab Script)

Generates Table 2 in the paper. See notes in Table 2. It outputs a file 'Table2_Regressions.csv' with the regression results. It loads the file mergerpass1.mat created by exec_mergerpass1.m

- Figures2and3.m (Matlab Script)

Generates Figures 2 and 3 in the paper. See notes in the Figures. It outputs Figure 2: 'rangePrices.bmp', Figure 3(a): 'rangeeffCW.bmp' and Figure 3(b): 'rangeeffTC.bmp'. It loads the file mergerpass1.mat created by exec_mergerpass1.m