Optimal Spatial Policies, Geography and Sorting

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This document contains the instructions for reproducing the results in "Optimal Spatial Policies, Geography and Sorting".

1 Software

Programs were implemented using STATA 14 and MATLAB 17 .

2 Datasets

We use publicly available ACS, CPS and BEA data available at: *https://ipums.org and https://www.bea.gov/data.* We the following additional datasets in the folder \datasets:

- **replication/datasets/**Saiz.dta is from Saiz (2010)
- **replication/datasets/**MSA13_to_MSA07.dta and **replication/datasets/**MSAold_to_MSA07_2 are crosswalks tables between different MSA definitions.
- **replication/datasets/**DPI.csv is from Dunbar (2009)

3 Stata Codes

The datasets used by the main Matlab code are prepared by the following STATA do files in the folder **replication/stata**:

- The first do file (**Build_all_datasets.do**) extracts relevant data from publicly available census data and the datasets listed above.
  - The resulting datasets are **ACS_based.dta**, **CPS_based.dta**, **BEA_based.dta** and **ACS_nontraded.dta**. They are saved in **replication/datasets/ .**
- The second do file (**Combine_datasets.do**) combines these datasets and exports three datasets to Matlab.
  - The resulting datasets are **dataset_2skills.out**, **dataset_NT.out and dataset_names.csv.** They are saved in **replication/to_matlab/** .

4 Matlab Codes

4.1 Datasets

The matlab codes load the Stata-generated datasets described above, stored in **replication/to_matlab/.** To compute trade-related moments, it also uses:

- **replication/to_matlab/dist_MSA.out** storing the distance between MSAs,
- **replication/to_matlab/msa_est_112513.mat** from Allen and Arkolakis (2014) used to convert distances into trade costs.

4.2 Codes and Functions

The folder **replication/matlab/** contains the following codes:

- batch_results.m and figures_tables.m,

which call the following intermediary functions and scripts:

- replication_calibration.m, get_tradeflows.m, fct_find_optimum.m, Cons_routine.m, Obj_routine.m and replication_calibration_wedges.m
- csv2mat_numeric.m (this code @Solomon Hsiang, http://www.fight-entropy.com/2010/05/data-transfer-from-matlab-to-stata-and.html).

4.3 Replication

To reproduce the paper results:

1. Run the MATLAB program **replication/matlab/batch_results.m**.
    - It finds the optimal allocation for various parameter assumptions and saves the corresponding dataset in the folder: **replication/matlab/matlab_results /**.
2. Run the MATLAB program **replication/matlab/figures_tables.m**.
    - It produces the figures and tables of the paper, and saves them in **replication/matlab/matlab_results/**. Figures are saved in .jpg format.
    - The welfare numbers reported in paper are saved in Excel format under Welfare_Numbers.xls.

References

Allen, T. and C. Arkolakis (2014). Trade and the topography of the spatial economy. *Quarterly Journal of Economics 1085*, 1139.

Dunbar, A. E. (2009). Metropolitan area disposable personal income: Methodology and results for 2001-2007.

Saiz, A. (2010). The geographic determinants of housing supply. *The Quarterly Journal of Economics 125*(3), 1253–1296.