

Empirical Exercise 3: Plot gravity for services

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Due date and time: October 8, 5pm

Inputs and products

Please use Stata (any version) for your work. You may call any other software from within Stata (including Python, R, Perl, and system-level commands). Please base your analysis on the following files

ITPD-E by USITC `itpd.dta`
Gravity data by CEPII `cepii-gravdata.dta`

in the online data folder at <https://econweb.ucsd.edu/muendler/teach/21f/435/gen>.

You may find the code from lecture a useful reference: `lec03.do` in the online lecture folder <https://econweb.ucsd.edu/muendler/teach/21f/435/lec03>.

Please submit three products to canvas.ucsd.edu by the due time: (i) a file with results titled `ee03.pdf`, (ii) a log file titled `ee03.log`, and (iii) a Stata code file titled `ee03.do` (which may call other software). **Your log file must exhaustively document the steps from the above input files to the output of results.**

Tasks

1. Preliminaries.

- Use the ITPD-E data by USITC, keep *only services industries*, do not remove self trade, and aggregate the trade flows to the source country (exporter), destination country (importer), and year level (over all industries).
- From the ITPD-E data, compute production as $Y_s = \sum_d X_{sd} = X_{s.}$, including self trade ($s = d$ in the sum), for every source country. Compute market size as $X_d = \sum_s X_{sd} = X_{.d}$, including self trade ($d = s$ in the sum), for every destination country.
- Use the gravity data by CEPII at the source country (origin), destination country, and year level and extract the variable for population-weighted distance.
- Combine (merge) the ITPD-E trade and CEPII gravity data at the source country, destination country, and year level. (Make sure your log file reports the merge results.)

2. Graphs.

- Graph in a scatter plot log imports IM_d against log market size X_d , for service in 2000-2002 and 2014-2016, excluding self trade. In your graphs, show a linear fit. In one (1) sentence, compare your findings to those on total trade flows in lecture.
- Graph in a scatter plot log market penetration X_{sd}/X_d against log production Y_s , for service in 2015, including self trade. In your graph, show a linear fit for all data points, including self trade. In one (1) sentence, compare your findings to those on total trade flows in lecture.

- (c) Graph in a scatter plot the log bilateral trade index $B_{sd} = \sqrt{(X_{sd}X_{ds})/(X_{dd}X_{ss})}$ against (log) distance (km), for service in 2001 and 2015, excluding self trade. In one (1) sentence, compare your findings to those on total trade flows in lecture. *Hint:* To compute the bilateral trade index, you may find it useful to create two temporary data sets, one with the trade flows from s to d , and one with the reverse trade flows from d to s , and to then merge the two temporary data sets one-to-one (making sure that the country identities are flipped for the reverse trade flows).