GPEC 435 — Fall 2020

Topics in International Trade

Empirical Exercise 3: Plot gravity for services

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Instructor:	Marc-Andreas Muendler	muendler@ucsd.edu
Teaching Assistant:	Jacob Orchard	jdorchard@ucsd.edu

Due date and time: **October 15, 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/20f/435/gen`.

You may find the code from lecture a useful reference: `lec03upd.do` in the online lecture folder `https://econweb.ucsd.edu/muendler/teach/20f/435/lec03`. **Note the update** from `lec03.do` to `lec03upd.do`.

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.
   (a) 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).
   (b) From the ITPD-E data, compute production as $Y_s = \sum_d X_{sd} = X_{s\cdot}$, including self trade ($s = d$ in the sum), for every source country. Compute market size as $X_d = \sum_s X_{sd} = X_{\cdot d}$, including self trade ($d = s$ in the sum), for every destination country.
   (c) Use the gravity data by CEPII the source country (exporter), destination country (importer), and year level and extract the variable for population-weighted distance.
   (d) Combine (merge) the ITPD-E trade and CEPII gravity data at the source country (exporter), destination country (importer), and year level. (Make sure your log file reports the merge results.)
2. Graphs.
   (a) 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.
   (b) 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).