Empirical Exercise 7: Traditional gravity vs. Poisson Pseudo Maximum Likelihood gravity

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

Due date and time: **October 22, 11:59pm**

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 7 a useful reference: `lec07.do` in the online lecture folder `https://econweb.ucsd.edu/muendler/teach/21f/435/lec07`.

   Please submit three products to `canvas.ucsd.edu` by the due time: (i) a file with results titled *ee07.pdf*, (ii) a log file titled *ee07.log*, and (iii) a Stata code file titled *ee07.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) Construct one single data file for trade in goods and services. Use the ITPD-E data by USITC, do not remove self trade, keep only the years 2000 and 2015, and aggregate the trade flows to the source country (exporter), destination country (importer), and year level (over all industries).

    (b) Use the gravity data by CEPII at the source country (origin), destination country, and year level, keep only the years 2000 and 2015, and extract the following variables: population-weighted distance, contiguity (shared border), common official language, the FTA indicator by the WTO, an indicator whether the source country is a WTO member, and an indicator whether the destination country is a WTO member.

    (c) Combine (merge) the single ITPD-E trade data for goods and services with the CEPII gravity data at the source country, destination country, and year level. (Make sure your log file reports the merge results.)

    (d) For gravity specifications with self trade, prepare the sample so that all gravity variables take the appropriate value when source and destination country are the same (zero except in the case of distance).

2. Regressions.

    • Estimate traditional gravity models, using log-linear ordinary least squares (OLS) regressions. Estimate the same specifications as in the four regressions from Lecture 7 (which were based on Poisson

Pseudo Maximum Likelihood, PPML).

Hint: You may find the command `reghdfe` useful (with the option `noabsorb` for OLS regressions without fixed effects but pairwise clustering).

3. Interpretation.

- In one or two sentences, compare your findings under the OLS estimator of log trade with the findings from Lecture 7 using the PPML estimator.