

# Empirical Exercise 2: Changes of revealed comparative advantage over time

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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`

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: `lec02.do` in the online lecture folder <https://econweb.ucsd.edu/muendler/teach/21f/435/lec02>.

Please submit three products to [canvas.ucsd.edu](https://canvas.ucsd.edu) by the due time: (i) a file with results titled *ee02.pdf*, (ii) a log file titled *ee02.log*, and (iii) a Stata code file titled *ee02.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, remove self trade, and aggregate the trade flows to the exporter (source country), industry, and year level (over all destination countries).
- Compute for each source country  $s$ 's industry  $i$  at time  $t$  its absolute advantage as its share in the source country  $s$ 's total exports at time  $t$ :

$$EX_{sit} / (\sum_k EX_{skt}) = EX_{sit} / EX_{s.t}$$

for country-industry exports  $EX_{sit}$  and country exports  $EX_{s.t} \equiv \sum_k EX_{skt}$ .

- Compute for each source country  $s$ 's industry  $i$  at time  $t$  its revealed comparative advantage

$$RCA_{sit} \equiv \frac{EX_{sit} / EX_{s.t}}{EX_{.it} / EX_{.t}}$$

where  $EX_{sit}$  are exports.

### 2. Graph for the year 2016.

- To ascertain that revealed comparative advantage is meaningfully related to an industry's export success (absolute advantage), scatter plot absolute advantage (on the  $y$ -axis) against RCA (on the  $x$ -axis) and show the linear fit. *Hint*: Use the Stata command `scatter ... || lfit ...`. (Do not plot all years, the graph would become large.)

3. Report for the years 2005 and 2015.

- (a) To assess the decay rate of revealed comparative advantage over a decade, keep only the years 2005 and 2015. Compute log RCA as the natural logarithm of RCA, which is centered around zero (instead of one for RCA).
- (b) For the year 2005, compute the decadal change in log RCA to 2015 ( $\ln RCA_{si,2015} - \ln RCA_{si,2005}$ )
- (c) Run an ordinary least squares regression to project the decadal change on the level in  $\ln RCA_{si,2005}$ . State in one sentence what the regression coefficient on log RCA in 2005 means.
- (d) Conduct three versions of the regression: one without conditioning on any fixed effects, one conditional on source country fixed effects, and one conditional on industry fixed effects. State in one sentence what you find.
- (e) Report your preferred regression result in a small table. Interpret your result in one sentence.