

Chapter 7
from

TOOLS in APPLIED ECONOMICS
Course: International Economics
Code: 102387- Group: 04 and 08
Universitat Autònoma de Barcelona

Rosella Nicolini

First edition: December 2011

This edition: July 2017

Chapter 7

Indicators of competitiveness

The information we compile to compute the GDP from the demand side allows for getting some complementary insights about the evolution of the competitiveness of a country.

The most natural (and intuitive) indicator refers to the trade account, namely the difference between exports and imports (X-M). A positive trade accounts implies that a country is quite competitive in the international markets. This situation entails some positive benefits: the GDP (hence the available income) increases and the exchange rate of the country is expected to appreciate. Another easy way to check the status of competitiveness is by looking at the **terms of trade** of a country. The terms of trade is the ratio between the prices of exports and the price of imports. It measures the quantity of foreign goods can be purchased with one unit of domestic output (Burda, 2005).

On the trading side, the competitiveness of a country identifies with the share of export in in the international countries.

7.1 Prices and trade

The level of prices across countries affects the trade directions. A country usually records high export flows when the price of the good and services it offers on the international markets is lower than that of the direct competitors. When talking about prices in the international markets, we are not only referring to the nominal value of a good (or service) but also the exchange rate that allows it to pass from a currency or another. The relationship between prices, exchange rates and international trade is quite complex. A country whose currency is particularly depreciated on the international markets can enjoy some technical benefits to be able to export at quite constant rates even if the internal prices (namely inflation) are increasing. Of course, the same country would be in serious trouble on the import side given that the price of imported goods and services is progressively increasing too.

In economics, one usually refers to the concept of **purchasing power parity** when asserting that the real exchange rate is constant. This idea implies that the price level of a same good (in different) countries is equalized across these countries when converted into the same currency. Let us consider the price of a worldwide good (the BIG-MAC, for instance);

the PPP would be expressed as follows:

$$\text{Absolute } PPP_{\text{€}/\$} \implies e = \frac{P(\text{€})}{P(\$)};$$

where e is the spot exchange rate between $\$/\text{€}$; $P(\text{€})$ is the price of the BIG-MAC in € and $P(\$)$ is the price of the BIG-MAC in $\$$.

As a consequence of the PPP, we are able to compute the **real exchange rate** (between two currencies): it is the cost of foreign goods in terms of domestic goods:

$$e_{\text{real}} = e \frac{P_{\text{abroad}}}{P_{\text{home}}}.$$

To the same extent, if we want to use an index to express the potential competitiveness of a country with respect to a group of countries as an area (for instance, a US company looking at the competitiveness in the EURO zone) we need to compute the **effective exchange rate**. This rate is an index consisting of a weighted average of a country's exchange rate with respect to a selected sample of trading partners.

The *nominal effective exchange rate* (**TCE**) is a weighted average of a sample of bilateral exchange rates selected according to a specific criteria, once we transformed the individual exchange rate values into an index (e_I):

$$TCE = \sum_{i=1}^j w_i e_{Ii};$$

where w_i is the relative weight of currency i in the group of j currencies $\left(\sum_{i=1}^j w_i = 1 \right)$.

In the same vein, the **real effective exchange rate** (**TCER**) (still referred to the previous sample of j countries) is obtained as a TCE corrected by the difference between the home and foreign prices:

$$TCER = \frac{TCE * P^*}{P};$$

where P is the price index of the home country while P^* is the price index for the group of j -countries we take as reference. If the value of TCER increases, the competitiveness of the country betters because either the currency depreciates or the inflation is lower than abroad. Similarly, a decrease of TCER implies an appreciation of the currency (or an inflation higher than that of the partners) and, therefore, the competitiveness of the country drops (Serrano, 2004).

7.2 Other indicators of trade competitiveness

There is a quite abundant bunch of indicators to study the international competitiveness of a country. Among them the most common ones are:

- Contribution of exports to GDP: it is the quota of exports in the national GDP

$$Exp_part = \frac{X}{GDP}.$$

- Export (import) share: it measures the relative position of a country as a client and a provider in international trade for a i -sector:

$$Exp_share_i = \left(\frac{X_i}{M_i} \right) 100; \quad Imp_share_i = \left(\frac{M_i}{X_i} \right) 100.$$

- Degree of openness to trade: it measures the importance of international trade in the GDP formation

$$OpTrade = \left(\frac{M + X}{GDP} \right) 100.$$

This index can take value greater than 100 when we are considering the so called *small open economies*. These economies are particularly active in the trading activities; trade is one of the principal source of revenue of the local population.

- Quota of export in the national trade flows at country level: it measures the importance of exports of in the total national trade flows:

$$Quo_Exp = \left(\frac{X}{M + X} \right) 100.$$

This indicator allows to depict the main features of the trade composition of a country: when the value of this index is larger than 50, the export flows from this country i are bigger than the import ones.

7.3 Empirical Evidence & Activity

Data from WTO statistics provide interesting evidence about international trade flows. Let us focus on a selected sample of countries in 2015. The following table includes some indicators:

	$\left(\frac{Export_i}{WorldExport}\right)$	$\left(\frac{Import_i}{WorldImport}\right)$	$\frac{100X_i}{(X_i+M_i)}$	<i>Trade Balance (mill\$)</i>	$\frac{Trade\ Balance_i}{GDP_i}$
EU (28)	32.7%	31.8%	50.3	71,225	
China	13.8%	10.0%	57.5	592,998	8,5 %
USA	9.1%	13.8%	39.5	-803,031	-4.5%*
Germany	8.1%	6.3%	55.9	279,444	9.2%
World (mil. \$)	16,482,000	16,725,000			
Source: WTO					*estimated

A few comments:

- EU countries are the most involved in the international trade flows because of the dynamics of the intercomunitarian flows,
- China records an important trade surplus due to the large size of export flows,
- Germany records the highest level of trade balance over national GDP.

Questions:

- The total value of world export is different from the total value of world imports: why?
- Does any of the previous countries qualifies as *small open economy*?

If you feel like to replicate the previous results or discuss new findings, raw data are available at: <http://stat.wto.org/StatisticalProgram/WSDBStatProgramHome.aspx?Language=E>