Assessing and Measuring Macroeconomic Imbalances in the EU
From a Macro to a Micro foundation

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The ongoing debate on ‘competitiveness’ is increasingly singling out macro indicators as proxies able to measure it, among which:

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- Unit Labor Costs (ULC)
- Export shares
- Current Account (in % of GDP)

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*Are we looking for the lost keys only where there is light?*
The REER can be calculated using as denominator consumer prices, the GDP deflator, the ULC or export prices: it is well known that these four different measures would yield four different rankings across countries in the euro area, and four different trends over time within a country.

ULC are derived from sector or economy-wide data, in which aggregate labor productivity is calculated as the ratio of nominal value added to a deflator, and then this is divided by the number of workers. One problem is in the aggregation: because of unknown firm-specific weights, the average productivity so calculated does not represent the productivity of the average firm.

Moreover, the recorded increase in ULC for some euro-area countries is due exclusively to an increase in the price deflator used to calculate labour productivity (Kumar and Felipe, 2011): the latter is not necessarily an adverse finding for ‘competitiveness’, as prices can increase due to changes in the product mix towards higher quality / value-added goods.
In a world characterized by global value chains, the exports of a country do not necessarily reflect the ‘competitiveness’ of the country itself, but rather of the factors of production (not necessarily national) located in that country.

For every I.Pod produced in China and exported at a gross value of 148$, only 4$ constitute Chinese value added. What do ‘Chinese’ exports mean in this context?
If the policy target is a country’s financial stability, the time horizon is clearly the short to medium term, while in terms of indicators it is enough, at least for the Euro area, to measure the country’s CA, as a synthetic proxy of a country’s public and private debt evolution.
In the underlying econometric model, the CA is significantly correlated to the sovereign spread, while neither the fiscal balance (public debt) nor households lending (a proxy of private debt) have a significant correlation when they are introduced alone, nor when they are introduced jointly together with the CA: it is their sum, as summarised by the CA position, that matters for financial markets.

Even more interesting, one could use the estimated values of the CA, as fitted from a standard econometric model, to actually predict the quarterly evolution of sovereign spreads for the GIPS (Altomonte and Merler, 2011).
A more general, longer term concept of competitiveness is the one related to the idea of sustainable growth. In this case, competitiveness is related to the ability of firms in a given country - not the country itself - to mobilize and efficiently employ (also outside the country’s borders) the productive resources required to offer those goods and services for which other goods and services can be obtained (domestically or internationally) at favorable rates of substitution (or terms of trade).

In this sense, Paul Krugman’s idea of competitiveness being ‘a poetic way of saying productivity’ (Pop Internationalism, 2006) is probably right.

Clearly, this definition of competitiveness mostly revolves around the individual firms’ characteristics, leaving the macro variables on the background, and thus requires a novel set of (micro) indicators.
A growing empirical literature has shown that firms react (very) differently to shocks depending upon their specific features, such as size, productivity, trade exposure and entry/exit barriers.

As a result, the same change in macro conditions across countries would generate a different effect on competitiveness depending upon the prevailing distribution of firms’ characteristics. Also, certain country characteristics matter more than others in affecting competitiveness, because they affect more than others the underlying firm distribution.

For example, Barba Navaretti et al. (2010) show that if Italian firms would have the same size distribution as German firms (keeping constant their sector specialization), the value of Italian exports would increase by some 25%; the same exercise for Spain would yield an increase of some 10%.

Di Mauro et al. (2009) find that European countries that are large (e.g. Germany) or easily accessible to international competitors (e.g. Netherlands) tend to be more competitive (in terms of productivity of their firms) than others (e.g. Portugal or Spain), because these characteristics allow for a tougher competitive environment and stronger selection of the fittest firms.
Firm-level data on a given performance index (e.g. productivity or size) are typically distributed as shown in the graph below (a distribution proxied by a ‘Pareto’ distribution) versus a standard normal distribution (e.g. Mayer and Ottaviano, 2007).

Hence, rather than having many firms centered around an ‘average’ performance, with few firms very bad and few very good, in reality within a given industry or country there are many relatively ‘bad’ firms, but also a number of (less numerous) particularly good ones.
The latter evidence poses both a statistical and an economic problem to policy-makers.

From a statistical point of view, if performance indicators are derived as averages over the available individual observations, the resulting average performance measure risks of being biased because of improper weighting, thus delivering a distorted picture on the real underlying competitive position of a given industry or country. This is for example the problem we encounter with aggregate measures of ULC.

From an economic point of view, assume that the ability to compete successfully entails reaching a given performance threshold, as in the Graph. Policies aimed at raising the average performance index could be successfull, but the latter would not be reflected in a significant change of the competitive position of the industry/country, as the number of firms above the cut-off would remain largely unchanged.
An example of firm-level data use across time

- In this Italian industry average productivity before (1997) and after (2004) the introduction of the euro drops, but in all likelihood the external competitiveness of the industry is increasing, as the right-hand tail of very productive firms becomes larger, while the initially relatively less productive firms are gradually losing out.

- Policy aimed at competitiveness should concentrate on improving the performance of the right hand tail of firms; policies aimed at social cohesion should deal with the exiting firms => there is no ‘average’ policy for the industry.

![Firm-level Productivity - Machinery industry in Italy](image-url)
An example of firm-level data use across countries

- Aggregate productivity measures are weighted averages of individual firms’ productivity. This example (Altomonte, 2010) explores whether total improvements in productivity of a country (blue / red bars) are due to improvements of productivity within firms, or to the reallocation of workers in line with the most efficient firms (between and cross terms).

- Comparing a policy which creates the same amount of jobs in France and Sweden, the effects on aggregate productivity will be lower in France, to the extent that the newly created jobs are concentrated in the relatively less productive firms, thus with a relative smaller impact on growth.

- The latter analysis allows e.g. to assess in terms of competitiveness the call for wage mechanisms more in line with productivity advocated in the Euro Plus Pact.
Conclusions

When looking at competitiveness from a sustainable growth perspective, the concept of individual firm performance becomes crucial, as most of the action determining aggregate outcomes is driven by few large and very efficient firms.

As a result, the issue of fostering competitiveness in the long run boils down to the dynamic problem of further improving the performance transition of already (relatively) strong firms.

This transition of course involves a lot of churning with weaker firms leaving the market and stronger ones climbing up the efficiency and size ladders, and thus requires (as the EU correctly points out) a combination of distinctive policies for competitiveness and for cohesion.

Without understanding the dynamic implications of this process it is very difficult to assess where a country’s competitiveness is heading to.
References

Materials of this presentation are derived from:

8. The EFIGE project (www.efige.org)