Features Concerning Competitive Performance Measurement

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ABSTRACT

Innovation and competitiveness are the main vectors of social-economic progress of every country. Starting from this general context and considering the particular context wherein Romania is, which strongly impose the growth of economic competitiveness for realize the convergence to EU countries, in this item we propose to put in evidence the kinds of competitive performance measurement. For this, we'll study from economic development point, competitiveness index contained in Global Competitiveness Report of World Economy Forum (WEF). We'll also comparatively show features linked to the index elaborated by the Institute of Management Development (IMD) in Global Competitiveness Report.

Keywords: competitiveness, innovation, creativity, competitiveness indices

1. INTRODUCTION

Many politicians make clear remarks about national competitiveness. Such remarks aren't new. What is new, is intensity and spread, response to globalization, fast economic change, economic distance decay and liberalization spread.

The view over competitiveness brought to a large industry, aiming to politicians, analysts and enterprising men. It has a different output, varying from studies of productivity or cost to specific activities and institutional analysis from national strategy documents, group studies and so on. Its well-known product is however, competitiveness index, a composed indicator that classifies the countries in rapport to selected criteria and measuring national competitive courage.

While competitiveness indices have become essential in political speeches from many developed countries, there is surprisingly less known about the foundation of their economies, how sturdy they are relied on theory and they are build in practice. Academy economists mostly ignored competitiveness "industry" and disclaimed its output: the products of the schools of businesses relied on weak or inexistent economic foundations.

Every competitiveness index must start from a measure of national competitiveness performance (variable depending on analysis) bordered by activities which imply the competition with other countries. Bordering of activities in this kind isn't easy.

Numerous economic activities clearly imply competition between nations (such as tradable industry activities, agriculture or service' ones). Others are indirectly fit in competition as inputs in trade activities (for example, parts of infrastructure, of financial or transport services, or the price of a terrain) but there is difficult to separate the relevant elements for competitiveness.

Even others don't trouble trade activities' competitiveness too (as home helping, shareholders, entertainment staff, or restorers) though ones, troubling life quality, can influence the place of investments which trouble the competitiveness.

However the theory suggests that a competitiveness index must make the difference between relevant activities and those irrelevant, this is very difficult in practice. No easy solution shows them while the aim is to measure national competitiveness as a whole.

2. COMPETITIVENESS INDICES

In the followings, we'll study, from the perspective of economic development, competitiveness index contained in Global Competitiveness Report of World Economy Forum (WEF). We'll also comparatively show features linked to the index elaborated by the

Institute of Management Development (IMD) in Global Competitiveness Report. WEF Report is published by an outstanding academic press organism (Oxford University Press) and smoothed by prominent academicians from Harward: Jeffrey Sachs and Michael Porter. IMD Report wholly remains a product of business school and doesn't stay as a claim of academic consideration.
The last WEF report contains two competitiveness indices:

- Current Competitiveness Index (CCI)
- Growth Competitiveness Index (GCI)

For ease the analysis we'll base on this set of indices which make clear range differences between countries. The difference between the two indices is as how it follows: CCI "aims to identify the factors which are on the base of productivity and hence current economic performance, measured by GDP per inhabitant" and GCI "desires to measure the factors which contribute to the further growth of an economy measured by the change rate of GDP per inhabitant".
Income level, in WEF model, depends on capital reserves (including human capital) and on "current technology level". This growth depends on the additions to capital and technology reserves.

Current Competitiveness Index (CCI)

CCI is WEF measure of microeconomic base of the competitiveness between countries. It consists of two components:

- Microeconomic business environment quality
- Complexity wherewith companies or subsidiaries relied on international competition.

Both are relied on Porter's work (1990) about national competitive advantage, the former deriving from his famous `diamond of competitiveness".
Business environment quality measures the quality of firm inputs gained from outside while strategy complexity measures internal variable within firms.
There are 64 variables making up CCI on which 49 comprise the business environment and 15, company operations and strategy.
There are two sets of (connected) problems with the calculation of CCI. The first set is about the measures used to capture the determinants supposed to determine current competitiveness. The second relates to its underlying analytical framework. .
Economic model based on CCI. The main product per capita of the big nations is proportional to the size of capital per inhabitant:

$$y = A * k$$

where:

A – represents technology level added with a simple number which measures average productivity of a capital unit.

k – the dimension of national capital per inhabitant.

Income level is then determined by capital size and technology level. WEF largely defines "capital stock" and "technology level". Unlike physical capital pushed into equipments, buildings and physical infrastructure, capital stock includes education level, manpower's skills and attitudes and managers' skillfulness.
Also, parts of the "capital" stock within an economy, are interventions set and the practices of regulation government activities. Social capital (bigger trusting levels and the presence of networks) also contribute to the quality of the reserves of cluster of capital. Technology includes not only technological knowledge pushed into scientific and technical institutions of a nation but also firm-based technology. Technology is put in every activity that a firm operates like strategies that firms use for concur.
Therefore, technologies can be also viewed as a stock of: knowledge, capacities, institute and company strategies.
When it is for calculate CCI, however WEF doesn't use measures stocks for physical, human, technological or strategic capital. While there are well-known inherent problems for quantifying such stocks for countries, several attempts were made for win them.
There are evaluations of the stock of physical capital for several countries and they are largely used for productivity and growth analysis. There

are also evaluations of human capital stock and R&D stocks (though data belong only to some developed countries).
Therefore there is no way to measure the stocks of "technological capacities" in all firms from an economy. There is even difficult to conceive what "stocks" of social capital, linked systems or regulation practices (i.e. government politic having effect over the businesses) can have sense in quantitative terms or how enterprise practices can be aggregated in a national "stock" of business strategy.
This doesn't impeach WEF to classify the countries in rapport with the 64 variables for microeconomic competitiveness. All these fluxes except one (for patents) are better relied on quality in business viewing then on strong data. The measures are those interesting.
For instance, physical capital is approximated by a variable set for "availability of capital" on its turn, based on qualitative measures of "financial market complexity", "access to market stock", "availability of risk capital" and of other the like. None of this says anything about capital stock. WEF doesn't use even available data at current investment rates. It is a measure of investment rate but this appears in its turn, with other 21 variables in a "financial index" which is a determinant of GCI.
Therefore, there is unusual that "capital availability" catches better the differences between countries in the investment skill or considers human capital other critical determinant of competitiveness. This is caught in CCI by qualitative response to two questions: if "local public schools are of high quality" and "business schools are locally available". As a flux of measures, these are a transfiguration of the literature linked to human capital.

2.1. Growth Competitiveness Index (GCI)

There are three subindices making up GCI: the economic creativity index, the finance index and the international index.

1. **the economic creativity index** consists of variables for current technological effort and technology imports;

2. **The finance index** has variables for financial market sophistication and accessibility, interest rates, financial supervision and so on. The current state of the capital market;

3. **The international index** measures import barriers exchange rate alignment and volatility and capital account liberalization.

Economic creativity index (ECI) is a new entrant to the WEF stable of indices. But the attempt to measure innovation under a separate index was in fact introduced in 1999, when it was called the "Capacity for Innovation" (CAP). However, CAP did not form part of the final competitiveness index in 1999. In the following year, WEF replaced CAP by the (very different) ECI, which plays a prominent role in GCI.
The premises of this index were that patents were a good indicator of innovative capacity and that domestic innovative capacity was the most important technological variable in competitiveness.
Both premises are questionable. Patents are only a rough proxy for commercially relevant innovation, and do not capture the minor, incremental technological effort that accounts for the bulk of productivity increase in most economies. Domestic innovation is a misleading indicator of competitive (technological) capabilities because it ignores the inflow and use of foreign innovation. Technology diffuses today with growing rapidity, especially within multinational corporations setting up integrated production systems spanning the world.
This does not mean that local technological capabilities are irrelevant since the ability to use new technologies efficiently entails significant technological effort. But such effort may not generally result in patentable (i.e. frontier) technologies. R&D expenditures perhaps together with stocks of technical manpower would be better indicators of competitive technological capability. But the innovation index uses R&D as an explanatory rather than dependent variable in the analysis of innovative capacity.
Apart from R&D spending, the innovation index used the following independent variables: per capita income, R&D staff, economic "openness", strength of intellectual property regimes, share in GDP of secondary and tertiary

education spending, share of R&D funded by industry and the share funded by universities.

The rationale for some of these variables and the causal links between them are difficult to understand. For instance, the use of per capita GDP as an explanatory variable for innovation is strange. The causation is normally taken by the other way around; in some cases, incomes are highly correlated with all technological and skill measures. Variables such R&D staff, R7D spending and skills are also highly intercorrelated. The obvious problems that arise from multiple regression analysis are ignored the coefficients yielded by multiple regressions are used to assign wrights to the variables in the index.

The share of total R7D funded by private industry is supposed to measure the strength of local "innovation clusters" while the share of university R&D is meant to measure the strength of linkage between research and industry.

Both are strange measures. The share of business-financed R&D has nothing to do with its geographical or industrial clustering. The share of university-funded R&D has little to do with how closely universities link with industry in technology creation. In most countries, the governments largely determine R&D budgets. In developing countries, a high share of R&D emanating from universities may actually indicate low links between academia and industry. The measure of skills ((the share of GDP spent on secondary and tertiary education) does not reflect the availability of skilled manpower: enrollment or graduation rates at higher levels, particularly of technical staff, would be better indicators.

Both qualitative and patent measures if innovation ability, are positively related to incomes (and so to competitiveness). While the correlations with income are wholly expected, the causal link with competitiveness is tenuous. It is not clear that frontier innovation is a good measure of relevant technological effort in "follower" countries in the developing and even developed world. The appropriate variable would be a combination of technology import and technological effort. WEF ignores this problem and proceeds to generalize about links between frontier innovation and incomes.

3. CONCLUSIONS

National competitiveness has taken a hold on the government and corporate imagination though professional economists tend to be skeptical of the concept and its applications. Economists are also skeptical of attempts to quantify competitiveness. Here the skepticism seems more justified, though there is a strong case for constructing indices that reliably and objectively benchmark national performance. While many institutions make such indices, the task is more difficult than may appear.

Our examination of the WEF index shows that it suffers from several analytical, methodological and quantitative weakness. Moreover, its presentation conceals these weaknesses, giving a misleading impression of precision, robustness and sophistication. At the general level, the WEF index has two problems. The first is its underlying assumption that markets are efficient and that policy intervention, where necessary, must be "market friendly".

This removes from consideration a large, important set of issues, particularly in developing countries, where market failures call for selective responses. The assumption of efficient markets also goes against its stress on innovation, which is prone to many market failures.

The second is that its broad definition "competitiveness" diverts it from its legitimate focus on direct competition between countries, taking it into areas where competitiveness analysis is both unwarranted and has little analytical advantage**.**

The strong point of WEF analysis is its emphasis on the micro-economy as the vital determinant of competitive performance. WEF is correct that getting the macroeconomic situation right, while necessary, cannot by itself lead to sustained growth in countries with serious structural deficiencies.

Many development economists have argued that the economic structure has to be changed and improved and that the classic Washington consensus is inadequate to this task. Many have also argued that there is a large and positive role for government in doing this – by improving markets, remedying market failures and strengthening institutions.

How interventionist the government should be, remains controversial, but it is wrong to assume,

as the WEF apparently does, that the case against targeted policies is firmly established. The weaknesses of these approaches are epitomized by its trite conclusions on how least developed countries can cope with globalization.

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