

“Beyond separate policy choices: facing the challenge of going systemic”

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I would like to start my intervention by expressing my gratitude to the organizers, and in particular to my distinguish friend Dr. Attila Chikan, for inviting me to share with you some thoughts about competitiveness at this important meeting. I would also like to congratulate them particularly for the selection of the title selected for this gathering, which manages to capture, in my view, two important issues in a single sentence; the pursuance of competitiveness and the influence exercised on it by the connections macro and micro level policies. I will try to treat these two issues separately at first to get them together towards the end of my presentation.

It can be said that, in one way or another, the capacity to compete of a given country and the search of the engines to strengthen such capacity has been always at the centre of the interest of professional economists and, under slightly different formats, also of that of historians, anthropologists and politicians. However, it can also be argue, according to the OECD and the “white papers” produce by many governments of developed countries, that the drive towards the analysis and study of competitiveness as we now it today has received its present and singular status some decade and a half ago, at the beginning of the nineties. Competitiveness has, therefore, the beauty and the attractiveness of being, at the same time, an old and a new subject.

Why am I saying that? Well, because countries have, after all always competed with each other for resources in the forms of raw materials, labor force, skills, technology or markets and investments. The widely divergent paths of social and economic change across peoples and societies represent one of the central puzzles of human history. If we all descend from the same hunting and gathering bands; why do some regions of the world grow and prosper faster, successfully mastering technologies and dealing with their environmental problems while others leave it for later – if ever? Why were they more competitive than the others? In other words, why was the Inca emperor Atahualpa conquered by the military forces of Charles I of Spain rather than being himself the one who traveled and conquered other empires? (Diamond, 1997)

Uncertainty and controversy still pervade these questions in spite of the time spent by historians, anthropologists and social scientists to discuss and explain them in the light of various theories and a complete answer to the precedent issues exceeds its frame both in scope and depth our discussions.

I would simply say here that some consider that, in addressing those questions, the development of war and transportation technologies figure prominently as proximate causes. But these, in turn, rest on more fundamental ones, such as the development of capabilities to domesticate plants and other wild species for the organization of food production, leading to the emergence of densely populated and stratified societies. Certainly, geographical and environmental characteristics as well as the capacity to address them were also a deep determinant of societies' fate. Conscious or unconscious policy choices and institutional arrangements based on the mastering of writing capabilities to articulate societies' decision-making system seem to have played a central role to the achievement of distinctive levels of progress among societies and their capacity to compete (Diamond, 2000)

Were this exceptionally complex issue to be captured in a couple of words in order to zero-in on the driving forces behind the competitive capacity of different societies along human history, *technology* and *institutions* would be my preferred ones.

I wanted to start with this historical reference to underline the background of the subject we discuss at this gathering and the reason why I rated it important. The study of competitiveness is very relevant for the understanding of economic dynamics as well as for that of history and politics. Governments have always tried to improve their national competitive position and economists have long debated the best way to boost competitiveness. There is a wealth of economic thought in the matter that would simply take too long to be quoted in the context of these remarks. I would only refer here to the very interesting account on the subject published in 1995 by Reinert in "Structural Change and Economic Dynamics".

However this wealthy historical background should not mislead our perceptions. In spite of this longstanding tradition it would be wrong to assume the current competitiveness concerns as a simple sort of "old wine in new bottles". The present drive on competitiveness clearly responds to a very actual and growing policy need in developing countries; emerging economies and in major developed countries alike. In the words of my dear friend, the late professor Sanjaya Lall, the novelty lies today in the speed at which international competition is changing and the suddenness with which it is affecting economies the world over.

This novelty explains once more why your deliberations today and tomorrow deserve the rating of "important". In a world where the economic space is shrinking every day due to new communication technologies; radical technical changes drive competition away from low costs to rapid product development and global value chains and global production networks conditioned competitiveness in a number of technologically advanced sectors "competitiveness analysis" should help to bring together a number of macro and micro level policy decisions to help governments and civil society to assemble a national strategy to acquire the skills, knowledge, information and technology necessary to face the challenges of the global economy.

To my understanding, such “competitiveness analysis” would have to encompass a myriad of economic and non-economic factors and a large range of influences and interactions that affect the countries capacity to compete internationally. It would have to define what competitiveness means, identified and, whenever feasible, measure the factors affecting it and their interactions, and provide a rationale explanation for their determinants in order to draw up some strategies. Given the amount and work to be done it is not surprising that different analysts use different ways to define competitiveness and therefore that to devise policies to promote competitiveness at the national has not been easy.

I have seen that many of the speakers will tackle the issue of the definition of competitiveness and therefore decided to shorten my intervention on the subject but I wanted to mention that in all definitions the relationship between competitiveness and productivity proves very relevant. I prefer to focus myself in the structural aspects of that relationship rather than on the macroeconomic analysis of competitiveness or the analysis of exchange rate fluctuations. It is on that domain where I can share some experiences with you today and where my initial historical reference matters, with institutions and technology playing its role.

I am sure it is easier for some to see the point on technology but, perhaps, an additional historical example will help me to strengthen my point on institutions. Let’s take the case of 16th and 17th century Spanish and British empires, which were faced – as well as many other European states at the time - with the same pressing need to increase revenues to confront the rising costs of warfare. They were in the same region, under similar political systems, and subject to common ideological influences. Yet, they followed very different paths to confront that challenge.

To deal with the increasing costs of war, Great Britain developed during the 18th century a platform of financial strength based in four institutions: the revenue services system, the parliament, the national debt, and the central bank (the so-called “quadrangle of power” by Ferguson, 2001) Spain did not evolve in the same manner, resorting instead to confiscations, new taxes and other, ad-hoc, compulsive instruments. These institutional developments coupled with improvements in war and communication technologies were indeed a solid foundation to explain the advantage taken by the British Empire over the Spanish one by the 18th century.

Let me now share with you the attempts I have made to understand and measure, to the extend possible, the factors affecting the structural capacity to compete and its interactions as well as the determinants and its influence.

In 2002, we publish for the first time a Competitive industrial performance index, developed jointly by UNIDO and Oxford University and whose architect was the late professor Sanjaya Lall. Such index covers 155 countries over 1980-2000 and aims to benchmark industrial competitiveness by comparing exports per capita and manufactured value added per capita as well as the level of medium and high technology incorporated in the industrial process. It also benchmarks five leading or structural factors (or drivers)

that greatly influence competitive industrial performance, like skills, technological effort, inward FDI, technology licensing and modern infrastructure. Countries performance in the index tends to be stable showing how difficult it is to modify structural factor of competitiveness at any level of the ranking. My country, Argentina was in the position 33 in 1980, 34 in 1990 and 37 in 2000. Japan was number 5, 4 and 6 respectively while India was number 38 in 1980, 36 in 1990 and 40 in 2000. Brazil for example, slightly deteriorated its position from the post number 24 in 1980 to the post number 31 in 2000.

However for a group of high performing countries important movements in the scale are observed. Our host country move from the position 30 in 1980 to 24 in 1990 and 20 in 2000. Ireland progress show even more dramatically form the ranking number 19 in 1980 to number 2 in 2000. Korea moves from the position number 23 in 1980 to number 10 in 2000 and Mexico in the best Latin American performer moving from the post 31 to the number 26 between 1980 and 2000. In spite of its enormous population China managed to move from the position number 30 in 1980 to the number 24 in 2000.

There is a strong statistical correlation between the performance of the countries in the index and the growth rate they experienced during the same period and, although productivity has not been included in the set of industry-specific indicators underlying the index for reasons of data availability, the CIP index score is positively and systematically correlated with average labor productivity for the whole manufacturing sector across a relatively small set of developing countries, where such comparison could be made.

To sort out this problem of comparable data availability on productivity for developing countries while at UNIDO I proposed and get implemented a project on “Trends and Policies of Productivity in Developing countries” developed by Anders Isaksson, Thiam Hee NG and Ghislain Robyn. Mr. Isaksson further develops a database on productivity using a homogenous methodology for an ample group of developing countries. Such database is going through a number of presentations, starting tomorrow in Japan and will be ready for its use pretty soon.

Mr. Anders Isaksson from UNIDO leads such efforts. He used several different **methods** to measure TFP growth including:

- **Growth Accounting** (Hicks and Harrod neutral),
- **Dynamic Growth Accounting** (which corrects for some endogeneity issues in the standard growth accounting approach),
- **Pooled regression analysis** (all countries together without controlling for country-specifics)
- **Panel regression** (using the fixed-effects estimator to control for the same country specific effects ignored in the Pooled version) [Pooled and Panel are done for subgroups of countries as well, e.g. based on geographic distribution]
- **Stochastic Frontier Analysis** (like Panel regression but here a production frontier is estimated; I use both random and fixed effects)
- **Data Envelopment Analysis** (DEA, used in UNIDO) and finally what we call

- **Long-Memory DEA** (the difference between DEA and LMDEA is that the latter does not allow the frontier to move inwards, which means that technology can only progress or have zero change but it cannot regress - it makes a lot of sense but it depends a little on the way one thinks of technology, in any case this is largely an overlooked issue).

For TFP level he use the method developed by Caves, Christensen and Diewert (1982) which is a method that delivers relative productivity levels; the main advantage of this method over simpler calculations is that it's base-country independent. This implies that whatever country you use as benchmark the TFP ranking will remain the same.

Countries coverage: it differs according to various ways of measuring labor input (L). Let me provide a rough guide. For instance, in the case of L=labor force it covers **112 countries**. The problem with the standard measure of L is that it does not **correct for unemployment** and thus it measures potential TFP rather than actual TFP. As we are interested in actual performance we have corrected L for unemployment. Since data for unemployment cover fewer than 112 countries, the number of countries drops to **55-60**. The best measure of L also **corrects for utilization rates**, which means number of hours worked as opposed to number of people working. If 1,000 people work half-time the correct measure would then actually be 500. Data on hours worked is sparse so that we are left with **30-40 countries** here. **Time period: 1960-2000**.

Other things worth mentioning: The database also contains TFP figures accounting for schooling and health as additional inputs. Soon Land (an important input in poor developing countries since they are mainly agro-based) will be added as well. It also allows for varying returns to scale, 4 different ways of computing capital input, different ways of turning raw labor into efficient labor, and much more. Last but not least, during this summer manufacturing TFP will be added.

Mr. Sercovich, forthcoming member of Professor Nelson team at Columbia and with whom I have co-authored some publications has been the driven force behind the resurgence of the UNIDO Industrial development report. He dedicated the last edition to evaluate the components and characteristics of the catching up processes and produced a very useful report on the matter published in 2005.

In it he analyze 135 countries and 29 explanatory variables over the relative short time frame 1992-2002 drawing in a background paper of Fagerberg and Srholec (2005) Using factor analysis (designed to detect underlying structures in large amount of data) the report carries a revision of the 29 variables. When the analysis is completed five principal factors are found, together explaining 76.7% of the variance in income levels

The factors are knowledge (R&D innovation, scientific publications, ICT infrastructure, ISO certifications and education); inward openness (Correlation between imports and FDI); financial system (market capitalization, country risk and access to credit);

governance and political system (human rights, functioning of the legal system, protection of property rights, political rights, political constraints, extent of corruption)

These factors contribute to explain each region's level of development, relative to the world average. As expected the stock of knowledge seems to be a major source of difference in income levels across regions in 2002. For example, the level of knowledge stock in developed countries accounts for about half of the total difference between their GDP per capita and the overall sample average (in u\$s approx. 7900) In other regions like Latin America, Eastern Europe and the Commonwealth of Independent States deficits in complementary assets (financial system, governance) hinders their capacity to take advantage from their relative good stock of knowledge

I sincerely believe it is necessary to continue and deepen the efforts at measuring these aspects in order to improve and help build a stronger lobby in favor of competitiveness, showing the increasing importance of cross factor and sector analysis.