

MODELS OF MEASURING NATIONAL COMPETITIVENESS. A THEORETICAL APPROACH

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Abstract

The reason of this research is to analyse competitiveness by means of the prism theoretical approach. There are many models of measuring or determining the competitiveness developed by organizations or institutions. From thus models, in this paper are presented models of measuring competitiveness, established by: World Economic Forum and of Institute for Management Development.

Keywords: *competitiveness, World Economic Forum, global competitiveness index, Institute for Management Development.*

JEL classification: *F00, F12, D41, D49, O10.*

1. Introduction

The dynamics of technological development and economic progress have been and continues to be of interest in the evolution of competitiveness, an important component in the contemporary economy.

In order to improve the economic practice, we tried to analyze numerous definitions, as well as to research some methods to quantify this phenomenon, through indicators, characteristics or composition elements.

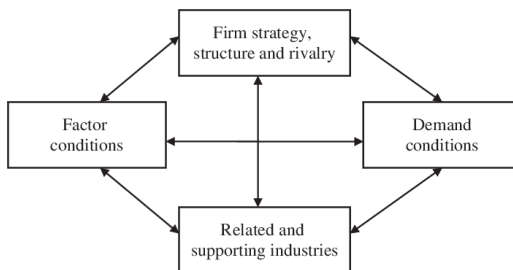
We can say that competitiveness in the comprehensive sense, is an overall phenomenon, indicating to the capacity of one country, compared to others, by economic, social and political environment that supports the increased creation of added value. Lucjan Orłowski (2001), stated that competitiveness is "the ability to sell". Scott Bruce R. (1985) gave a universal meaning: "the

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ability of countries to produce, distribute and sell goods and services in the world economy, and to make profits lead to an increase in the standard of living". But the approach to this notion has also allowed a point of view from the OECD / TEP (Organization for Economic Co-operation and Development / Austrian Employment Treaties, 1992): "competitiveness being the ability of a nation to produce goods and services capable of face international competition in the conditions of maintaining and amplifying the real internal income". However, as a continuity of previous researchers, Porter (1998) describe the importance of the performance of the national economy by introducing the new paradigm of "competitive advantage". A special approach to the concept of competitiveness can be found in Krugman (1994). He had a special opinion about the concept of competitiveness, calling it a dangerous obsession or in other words: "If competitiveness makes sense, it is simply another way of expressing productivity. It depends almost entirely on the willingness of a nation to raise its standard of living in order to increase its productivity. Increasing productivity is the main driver of competitiveness.

According to Porter (1990), economic prosperity cannot be related only by approaching the classical theory of economic development based on the availability and abundance of elements of production (like as: labor, nature and capital), but it depends on the interaction of factors. grouped in what was then called "Porter's Diamond".

Figure 1. Porter's diamond Model for the competitive advantages of nations



Source: (Porter, M. E. (1990). *New global strategies for competitive advantage. Planning Review.*)

According to Porter's (1990) diamond model, the determinants of national competitive advantage are:

- *Factor conditions* - basic factor conditions and advanced factor conditions;

- *Demand conditions* - the degree of sophistication of buyers, the size of the market and others;
- *The role of complementary and support industries* - In the supply chain by organizing and distributing activities in promoting competitiveness;
- *The strategy, structure and rivalry of companies* - how they are managed and determined to compete.

The objective proposed by Michael Porter's, in his paper Competitive Advantage of Nations (1998), is to determine the causes and factors that lead to international success for companies, specializing in certain branches, and later on nations.

The national advantages that result from this evolution, are generating in each country their own development matrix, due to the multitude of variables taken into account. This matrix is responsible for the development of national competitive advantages, namely through competition from certain sectors of activity. Thus, the competition of a nation is influenced by the level of competition on each actor participating in the national economy. For achieving and maintaining economic development a country must improve the level of national competitiveness and other relevant indicators (Herciu & Ogrean, 2015).

Over time, in addition to theoretically researching the concept of competitiveness, several researchers have also been concerned with identifying tools / models for measuring and determining competitiveness. Therefore, in order to measure competitiveness, rankings issued annually by international organizations are made, such as: World Economic Forum (WEF), International Institute for Management Development (IMD), Economic World Bank and others.

2. Model of the World Economic Forum (WEF)

The interest for measuring and determining the productivity and well-being of a nation has been of particular interest since the middle of the twentieth century. The World Economic Forum (WEF) has become a major player in global policy (Friesen, 2020).

Starting with the idea of Klaus Schwab in 1971, WEF has become a partner organization for business people. The purpose of the organization has changed over time, and since 1990 it has focused its interest on economic globalization.

According to the WEF (2019), “competitiveness is the set of institutions, policies and factors that determine a country’s level of

productivity. In turn, the level of productivity sets the sustainable level of prosperity that can be achieved by an economy. In other words, more competitive economies tend to be able to produce higher levels of income for their citizens. The level of productivity also determines the rates of return obtained by investments (physical, human and technological) in an economy". The WEF has provided a remarkable all-inclusive national competitiveness measurement index to calculate those elements, capturing the microeconomic and macroeconomic fundamentals of competitiveness.

The Global Competitiveness Index (GCI), identifies and determines the elements underlying the process of economic and human development.

Since 2001, the WEF has used the Competitiveness Growth Index developed by Jeffrey Sachs and John McArthur to determine the competitiveness of nations. However, the evolutions registered in the last years have highlighted more the diversity of the countries of the world and imposed an adjustment of the methodology, which we find in the WEF 2019 Report, the inclusion of over 103 measurement indicators and additional factors such as: health, skills, labor market, financial system, innovation capacity.

The 2019 Report denotes that globalization and the fourth industrial revolution established new opportunities, but also disturbances and polarizations between economies and societies. Also, the report shows to the future, focusing on the two representing issues of the next decade: 1- creating common prosperity and managing the development to a sustainable economy – and 2- raises the issue of their capacity with competitiveness and growth.

The global competitiveness index represents 12 pillars (WEF, 2019): Institutions; Infrastructure; ICT adoption; Macroeconomic stability; Health; Skills; Product market; Labor market; Financial system; Market size; Business dynamics; and the capacity for innovation.

Figure 2. Pillars of competitiveness according WEF 2019

WEF 2019 GCI			
Enabling Environment	Human Capital	Markets	Innovation Ecosystem
1. Institutions 2. Infrastructure 3. ICT adoption 4. Macroeconomic stability	5. Health 6. Skills	7. Product market 8. Labor market 9. Financial system 10. Market size	11. Business dynamism 12. Innovation capability

Source: http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

According to Figure 2., the pillars of a country's competitiveness look at several indicators resulting from the score, measured from 0-100, such as (WEF, 2019):

- **Category 1 - Enabling environmental indicators**

a) *Institutions*. The public or private institutional environment represented by the bodies that carry out social, cultural or administrative activities and ensure the proper functioning between the macro-, meso- and microeconomic environments in order to obtain income. Among the categories of indicators, according to WEF 2019, we identify: security, share capital, balance sheets and audits, performance in public sector, transparency, property rights, corporate governance, future orientation of government.

b) *Infrastructure* - the set of technical-material elements necessary for the development and economic development. Infrastructure is an essential component for a society and the creation of an efficient system. Among the relevant indicators we identify: transport infrastructure and utility infrastructure.

c) *Adaptation to ICT* - the calculation of this indicator is based on a series of sub-indicators, such as: number of mobile phone subscriptions, fiber internet subscriptions, internet users, etc.

d) *Macroeconomic stability* - the totality of macroeconomic indicators that determine the stability of the business environment, for example: inflation or national debt dynamics.

- **Category 2 - Human capital indicators**

e) *Health* - is an important factor for high quality of life and well-being. Therefore, hope for a healthy life is an important indicator of measurement.

f) *Skills* - is a category of indicators for measuring skills, such as: current workforce, future workforce or skills for the future workforce.

- **Category 3 - Market indicators**

g) *Product market* - is an increased focus on domestic competition and trade, to what extent they can be achieved.

h) *Labor market* - but the most important element is the human factor and its motivating stimuli. The labor market is conditioned by several factors that determine indicators of progress, such as flexibility, meritocracy and stimulation.

i) *Financial system* - denotes the importance of a financial sector for the supervision of economic activities in cases of risk, for example: system depth and stability.

j) *Market size* - this characteristic is the determinant of productivity, measures gross domestic product (GDP) and imports of goods and services. One thing is clear, the larger a market, the more it produces economies of scale, international markets have become a substitute for domestic markets, especially for small countries (Herciu, 2015).

- **Category 4 Indicators of innovation ecosystems**

k) *Business dynamics* - refers to indicators that measure administrative requirements in business, entrepreneurial culture. These important elements for the development of a healthy business environment.

l) *Innovation capacity* - this pillar aims to develop and improve the main determinants of macro-, meso- and microeconomic functioning. Among the indicators were identified: research and development indicators, marketing, etc.

Therefore, based to thus 12 pillars, WEF made annual rankings for a group of approximately 141 countries, from the perspective of the national competitiveness measurement score. Top 10 countries during the years 2017, 2018 and 2019 can be found in the table below.

Table 1: Top 10 countries according to WEF in the period 2017-2019

Year			
Top country	2017	2018	2019
1	Switzerland	USA	Singapore
2	USA	Singapore	USA
3	Singapore	Germany	Hong Kong SAR
4	Netherlands	Switzerland	Netherlands
5	Germany	Japan	Switzerland
6	Hong Kong SAR	Netherlands	Japan
7	Sweden	Hong Kong SAR	Germany
8	United Kingdom	United Kingdom	Sweden
9	Japan	Sweden	United Kingdom
10	Finland	Denmark	Denmark

Source: (adapted by the author after <https://www.weforum.org/>)

The 2019 edition involves 141 economies, that representing 99% of world GDP - and notes that, a decade after the global financial crisis, most economies are still fixed in a cycle of low productivity growth.

However, some of the best performers according to the table above seem to benefit from global trade tensions by diverting trade, including Singapore (1st place) the best country in 2019.

In conclusion, GCI promotes a holistic representation of the elements that are crucial to increasing productivity and competitiveness of the nation.

3. Model of the The Institute for Management Development (IMD)

According to the Institute for Management Development (IMD) of the IMD World Competitiveness Center, competitiveness refers to determining how countries, regions and companies manage their skills to achieve long-term growth, create jobs and increase well-being. Therefore, competitiveness is a path to progress and does not result in winners and losers, in other words when two countries compete, both are or become better.

IMD Director Arturo Bris, says in early 2020 (IMD, 2020): “The benefits of small economies in the current crisis come from their ability to fight a pandemic and their economic competitiveness. In part, they may be fueled by the fact that it is easy to find social unity”.

The approach used by IMD to check the competitiveness of countries has been adapted over the last two decades in order to take into account the evolution of the global economy and new studies. It also maintains the comparability of outcomes from year to year and may stress the progression of one economy's success in relation to others' competitiveness. Thus, all analysis and comparison criteria are grouped into sub-factors.

The global competitiveness ranking began to be established in 1989 based on 235 variables, and in 2019 reaching about 340 variables chosen as a economic, financial, national and regional sources and input from the business community, government agencies and academia are the product of extensive study. When new ideas, studies and data become available, variables are periodically checked and revised, and as the global economy changes, they include unemployment, GDP and government expenditure on health and education, as well as "soft" data from an executive opinion poll covering issues such as social stability, globalization.

IMD develops the World Competitiveness Yearbook (WCY, 2019), grouping in 4 important elements: economic performance, government efficiency, business efficiency and infrastructure. According to WCY 2019, the factors listed above are determinants in 5 subfactors. (Table 2).

Table 2. Pillars of competitiveness according to IMD

Pillars of competitiveness	Economic performance	Government efficiency	Business efficiency	Infrastructure
Sub index of competitiveness	Domestic economy	Public finance	Productivity and efficiency	Basic Infrastructure
	International trade	Fiscal policy	Labor Market	Technological Infrastructure
	International investment	Institutional framework	Finance	Scientific Infrastructure
	Employment	Business legislation	Management Practices	Health and Environment
	Prices	Societal framework	Attitudes and values	Education

Source: (IMD World Competitiveness Yearbook, 2019)

In an article published on the official IMD website in June 2020, it was revealed top countries in the ranking in 2020 and what are the factors that resulted in it (IMD, 2020). We can see the top 10 countries from 2017-2020 in the table below.

Table 3. Top 10 countries according to IMD in the period 2017-2020

Year				
Top country	2017	2018	2019	2020
1	Hong Kong	USA	Singapore	Singapore
2	Switzerland	Hong Kong	Hong Kong	Denmark
3	Singapore	Singapore	USA	Switzerland
4	USA	Netherlands	Switzerland	Netherlands
5	Netherlands	Switzerland	UAE	Hong Kong
6	Irland	Denmark	Netherlands	Sweden
7	Denmark	UAE	Irland	Norway
8	Luxembourg	Norway	Denmark	Canada
9	Sweden	Sweden	Sweden	UAE
10	UAE	Canada	Qatar	USA

Source: (<https://www.imd.org/>)

According to Table 3., Singapore is the most competitive country for the second year is the first in the top of countries. The factors behind Singapore's prosperity are: strong economic performance, resulting from international trade and investment measures, labor and the labor market. In addition, fair performance in both its education system and technology infrastructure - telecommunications, the speed of internet expansion and high-tech exports - also play key roles. Denmark ranks 2nd in terms of investment and international productivity and has won Europe in terms of economic performance. Switzerland has gradually climbed the podium from 5 to 4 position during 2018-2019 and now in 2020 is on the 3rd place.

The news of 2020, in terms of establishing the IMD ranking, are the new criteria that indicate the importance of accomplishing the UN Sustainable Development Goals. They provide an insight into the position of the economy in terms of the various sustainable goals to be achieved in 10 years, for

example: education and the environment, inclusion and empowerment and health.

In conclusion, based on this analysis, we note that competitiveness is both an instrument and an objective of economic policy. It provides the appropriate framework for measuring and quantifying a country's progress in measuring national well-being.

4. Conclusions

The world is an interconnected ecosystem, and with all members of the global society, certain consequences and interdependencies can be measured. Performance is calculated not only in terms of immediate outcomes, but it takes time to make significant success.

In conclusion, I presented two of the most important models for measuring competitiveness through the indicators and the also a complex comparative annual report.

We note that the two models presented the WEF model and the IMD model, relate mostly the same results.

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