THE USV ANNALS OF ECONOMICS AND PUBLIC ADMINISTRATION | VOLUME 21, ISSUE 2(34), 2021

STATISTICAL ANALYSIS OF THE DYNAMICS OF ECONOMIC COMPETITIVENESS IN THE TWO EMERGING COUNTRIES, ROMANIA AND POLAND, IN THE PERIOD 2015-2020

Daniela Mihaela NEAMȚU
"Ştefan cel Mare" University of Suceava, Romania
dana.neamtu@usm.ro

Mihai COSTEA
"Ştefan cel Mare" University of Suceava, Romania
mihai.costea@usm.ro

Received 6 April 2021; Accepted 1 October 2021

Abstract:

The aim of this study is to identify impact factors on the comparative evolution of competitiveness by analyzing the two macroeconomic indicators Gross Domestic Product and Global Competitiveness Index in the two emerging countries - Romania and Poland, in 2015-2020, based on data provided by Eurostat and the National Institute of Statistics and Economic Studies, respectively by the global competitiveness reports. Gross Domestic Product (GDP) is the most complex indicator calculated in all European Union countries and expresses an appropriate comparability (according to National Accounts record system). If we consider the analysis of the gross domestic product per capita and the parity of purchasing power, we will be able to analyze comparatively both the size of the development of each country and the standard of living of the population, respectively the quality of life.

In this study, the GDP comparisons were performed after assessing the stage of economic evolution in each country. In the article we have introduced several graphs that help us to highlight the conclusions drawn from the analysis of the data we have. It is also analyzed the evolution of the Global Competitiveness Index (GCI), a comprehensive tool that measures the microeconomic and macroeconomic fundamentals of competitiveness. The GCI provides a detailed analysis of the productive potential of national economies.

Key words: GDP, competitiveness, influencing factors, GCI.

JEL classification: F15, F16, F18, P27.

1. INTRODUCTION

Competitiveness is a concept whose definition is not clear, nor has a model been developed to formalize its content. Competitiveness means the capacity of a country to ensure a socio-economic and political environment that supports creation of added value. Competitiveness is defined as a "*set of institutions, policies, and factors that determine a country's level of productivity*" (World Economic Forum). Productivity, in turn, determines the level of well-being of an economy at a given time as well as its potential for future growth.

In addition to the above definitions, there are others, slightly different in wording, in view of the fact that they use the term productivity more often. In this context, we believe that a competitive economy is, in fact, a productive economy, productivity in this sense leading to an increase in income and, implicitly, to an increase in the living standards of a country's population.

Thus, we aimed to provide answers to a series of interesting questions such as: Why did we choose Poland as a country of comparison? What is economic growth? What does competitiveness entail and what are the factors present in these countries? What are the similar elements that differentiate these economies? What is the optimal mix of factors that reduce the gaps between these economies and improve living standards?

According to the methodology of the World Economic Forum, the competitiveness of countries is analyzed using 12 pillars, which in turn are grouped into three sub-indices. "**Basic requirements**" which include: institutions, infrastructure, the macroeconomic environment, health and primary education. These are called "core factors" because these pillars are generally more prevalent in countries that are in an early stage of development. The "**Efficiency enhancers**" sub-index follows. In essence, markets are observed - whether it is the functioning of goods, labor or financial markets - but higher education and training are also taken into account, as well as technological availability.

The last two pillars refer to business sophistication and innovation. These elements are the prerogative of governments that understand to accelerate support for business and innovation. For this reason, we can say that the countries that have a higher score in these two chapters are countries that enjoy a more advanced economy and, implicitly, with a higher GDP per capita.

Basically, increasing competitiveness means increasing prosperity. The World Economic Forum believes that competitive economies are the most likely to grow more sustainably and more inclusive, which means that everyone in society is more likely to benefit from the effects of economic growth.

2. LITERATURE REVIEW

Studies on the competitiveness of nations began in the 1940s. The most representative work is the theory of trade flows which has its roots in the classical Ricardian theory of comparative advantage (Golub & Hsieh, 2000).

Competitive advantage is a phrase that has developed in connection with foreign trade and has established itself today as an element of quality of entrepreneurial culture. At first, the concept of competitive advantage was seen and theorized as a result of high-performing foreign trade, as a result of an absolute comparative advantage, or as a result of a relative comparative advantage.

The absolute comparative advantage, argued by Adam Smith, "*presupposes the international specialization of labor, which had as its effect the production of quality goods at low production costs, the export of which at high prices made possible imports of foreign products which, domestically, were they produced at very high costs*" (Schumacher, 2012).

Unlike Adam Smith, David Ricardo based the principle of relative comparative advantage according to which "*each country specializes in the production and export of those goods that it manufactures at relatively lower costs, sacrificing some chances, of course less, whose efficiency is relatively higher compared to other countries*" (Ruffin, 2002).

The theories of the 1950s and 1960s viewed the process of economic growth as a series of successive stages in a trend of societal evolution (Accinelli & Brida, 2007).

The late 1980s and early 1990s bring a new approach known as the new theory of economic growth. The most important work in this regard is "Increasing Returns and Long-Run Growth" of Paul M. Romer (1986). He focused his research on capital measuring.

The second extremely important current in the new theory of economic growth is closely related to the introduction of the concept of R&D. In endogenous economic growth models, R&D investments are considered to be a determinant of growth and productivity improvement, which is discussed in the section on determinants of economic growth.

3. RESEARCH METHODOLOGY

The criteria underlying this selection were the following: different socio-economic, cultural and political context, strategic development policies and strategies.

A representative technique of the qualitative analysis is the comparative analysis, between the two emerging countries Romania and Poland, which provided us with the reference framework in formulating the assessments regarding the degree of fulfillment of the competitiveness criteria, similarities and differences in the time horizon 2015 -2020 based on secondary data provided by Eurostat and the National Institute of Statistics and Economic Studies, Global Competitiveness Reports taken over and then processed, synthesized and analyzed using descriptive statistics.

According to the 2019 Report, in the top 10 most competitive countries in the world, Singapore won its position as world leader with a score of 84.8 points, followed by the United

States (83.7 points), Hong Kong (83.1 points), the Netherlands (82.4 points) and Switzerland (82.3 points) (Table 1).

Table 1. Top 10 states with advanced level of global competitiveness index

Country	2019		2018		2017-2018		2016-2017		2015-2016	
	Rank	Score 1	Rank	Score2	Rank	Score 3	Rank	Score 4	Rank	Score 5
Singapore	1	84.8	2	83.5	3	5.71	2	5.72	2	5.68
United States	2	83.7	1	85.6	2	5.85	3	5.70	3	5.61
Hong Kong	3	83.1	7	82.3	6	5.53	9	5.48	7	5.46
Netherlands	4	82.4	6	82.4	4	5.66	4	5.57	5	5.50
Switzerland	5	82.3	4	82.6	1	5.86	1	5.81	1	5.76
Japan	6	82.3	5	82.5	9	5.49	8	5.48	6	5.47
Germany	7	81.8	3	82.8	5	5.65	5	5.57	4	5.53
Sweden	8	81.2	9	81.7	7	5.52	6	5.53	9	5.43
United Kingdom	9	81.2	8	82.0	8	5.51	7	5.49	10	5.43
Denmark	10	81.2	10	80.6	-	-	-	-	-	-
Finland	-	-	-	-	10	5.49	10	5.44	8	5.45

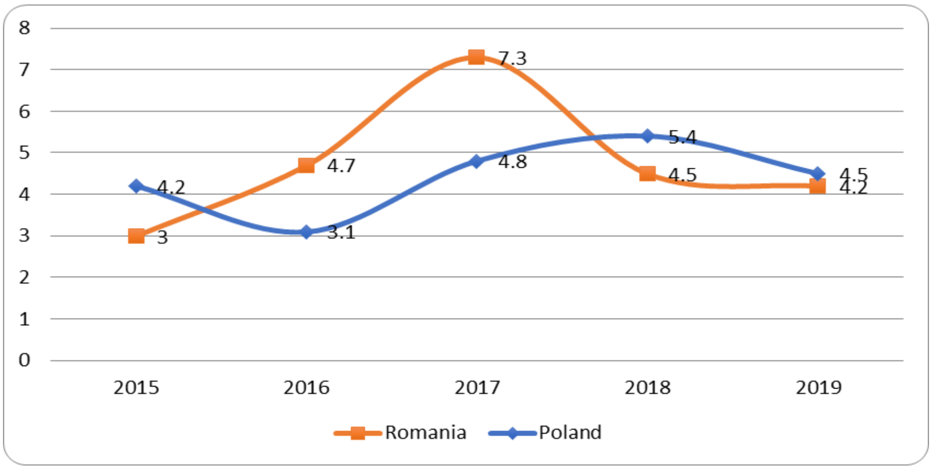
Source: http://www3.weforum.org - author's processing.

In the international ranking of the Global Competitiveness Index, in 2019 Romania ranked 51st, growing by one position compared to the previous year, while Poland remains on the same 37th place in the last two years of the analyzed period. Compared to the situation of the largest economies, the Romanian economy is far from performing, although Romania has received the status of a functioning market economy since 2004.

The global economic crisis was already visible in the EU-27 in 2008, amid a significant slowdown in GDP growth, this being followed by a decrease in real GDP of 4.3% in 2009. After a decrease observed in 2009 in all EU Member States (Romania registering a decrease of 5.5%), with the exception of Poland, economic growth resumed in 2010.

In Romania and Poland in the period 2015-2019 there was a level of GDP growth, with notable differences between the two countries in 2016 when Poland recorded a GDP growth of only 3.1% compared to Romania's growth of 4.7%, in 2017 Poland being again after Romania, with a percentage of 4.8% compared to 7.3%. In the next year, 2018, the growth difference between the two countries is reversed, highlighting the growth of Poland's GDP by 5.4% compared to 4.5% of Romania and in the last year of the analyzed period (2019) there is a convergence trend towards equalization, Poland decreasing up to 4.5% and Romania reaching the percentage of 4.2%. What is noteworthy is that the two countries have consistently recorded positive rates of change throughout the period shown in Chart 1.

[1]On a scale from 0 to 100, for 141 analyzed economies
[2]On a scale from 0 to 100, for 140 analyzed economies
[3]On a scale of 1 to 7, for 137 economies analyzed
[4]On a scale of 1 to 7, for 138 economies analyzed
[5]On a scale of 1 to 7, for 137 economies analyzed

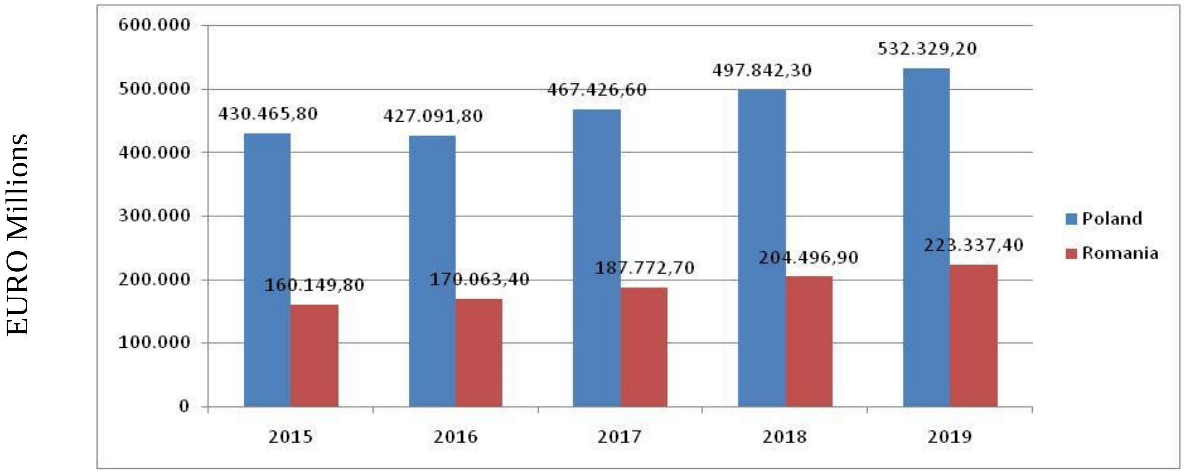


Unit of measure: percentage changes compared to the previous year.

Chart 1: Real GDP change rate for Poland and Romania, 2015-2019

Source: Eurostat (https://ec.europa.eu/eurostat/databrowser/view/NAIDA_10_GDP) – author`s processing

From the analysis of the data published by Eurostat it can be seen that Poland's GDP was constantly higher than that of Romania throughout the period analyzed in Chart 2:



Graph 2: GDP evolution, between 2015-2019 (current prices, million euros)

Source: EUROSTAT (https://ec.europa.eu/eurostat/databrowser/product/view/NAMA_10_GDP) own processing.

Thus, according to Chart 2, we notice that the two countries had an ascending trend in the period 2015-2019, Poland registering in 2019 a value of 532,329.20 million euros, Romania reaching the value of 223,337.40 million euros.

In order to assess the standard of living, the most appropriate is the use of GDP / capita which is expressed in PPS (purchasing power standard), this indicator being adjusted according to the size of the population of a state but also by the differences in regarding prices. The position of each state can be expressed by comparing it with the average of the 27 EU Member States, set at 100. When the index for a state is less than 100, the level of GDP per capita for that state is below the EU-27 average and conversely, if it is higher, then it is above the EU-27 average.

It should be noted that it is recommended to use this index, calculated from PPS figures and expressed in relation to EU27_2020 = 100, for cross-country comparisons rather than temporal comparisons.

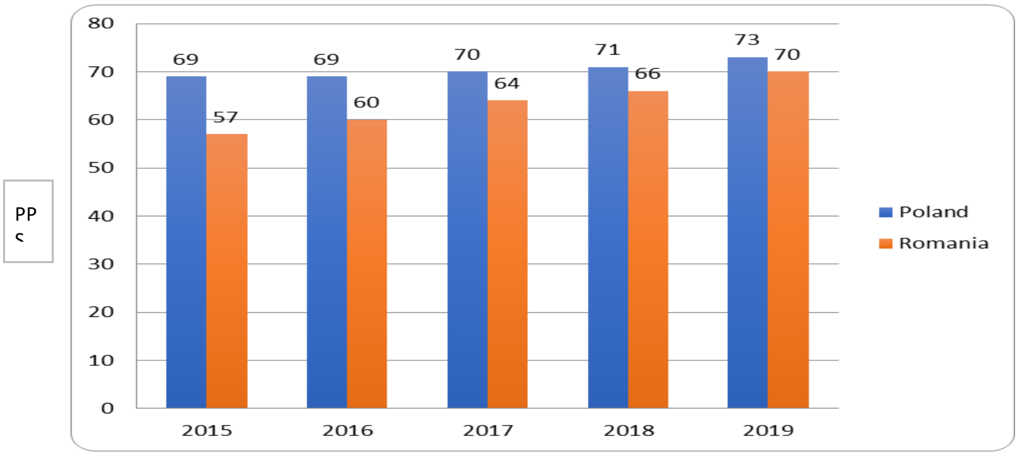


Chart 3: GDP per capita dynamics (in PPS)

Source: EUROSTAT author`s processing

https://ec.europa.eu/eurostat/databrowser/product/view/NAMA_10_GDP

From the study of the values presented in Graph 3 it is observed that Romania had an evolution close to that of Poland, even if at the beginning of the reference period there was a significant difference (12% PPS), towards the end of the analyzed time period managing to reduce the difference to only 3% PPS. Thus, in 2015, Poland had a GDP / capita of 69% PPS compared to Romania with a GDP / capita located at 57% PPS, in 2016 registering a GDP of 69% PPS compared to 60% PPS of Romania, in 2017 and 2018 the difference between the two countries continues to decrease, 70% PPS (Poland) to 64% PPS (Romania) respectively 71% PPS (Poland) to 66% PPS (Romania).

According to the data presented in the annual reports of the World Economic Forum in the period 2015 - 2019, Romania's economy was constantly behind Poland. The data extracted from the annual reports are presented in Chart 4 confirming the place occupied in the general world ranking. Thus in 2015 the two countries were at a distance of 12 places, Poland ranking 41st, ahead of Romania which was 53rd. In the following year (2016) the difference is accentuated by 26 positions, to the advantage of Poland, place that the neighboring country maintains constantly for the last three years of the period chosen for the study. Thus, in 2017, 2018 and 2019, Romania stabilizes around the 52nd place, following Poland, which is on the 37th position.

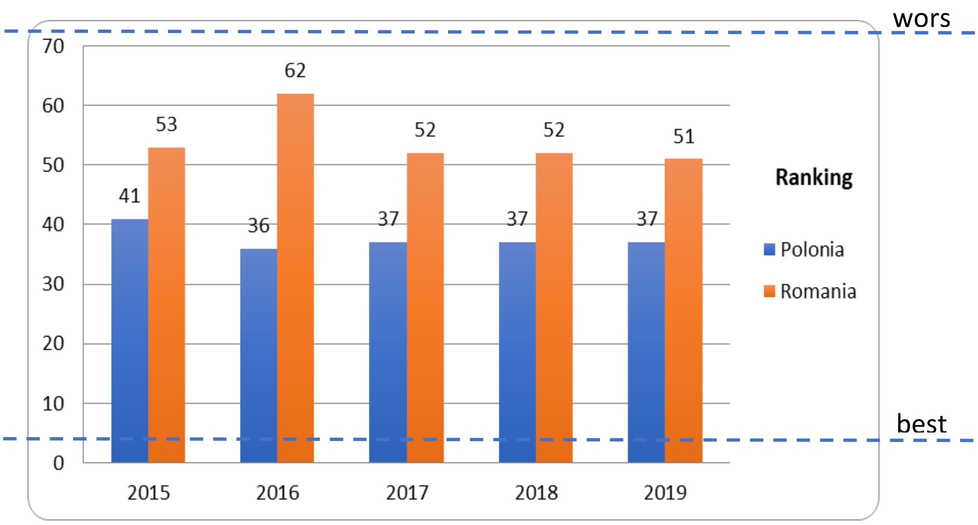


Chart 4: The positions of Poland and Romania in the competitiveness ranking, in the period 2015-2019

Source: WEF: http://www3.weforum.org - data extracted from annual global competitiveness reports – author`s processing

Graph 5 shows the scores obtained by Poland and Romania at the general level of competitiveness. It is observed that the two countries get close scores, with quite small differences, but overall Poland manages to reach a better level than our country.

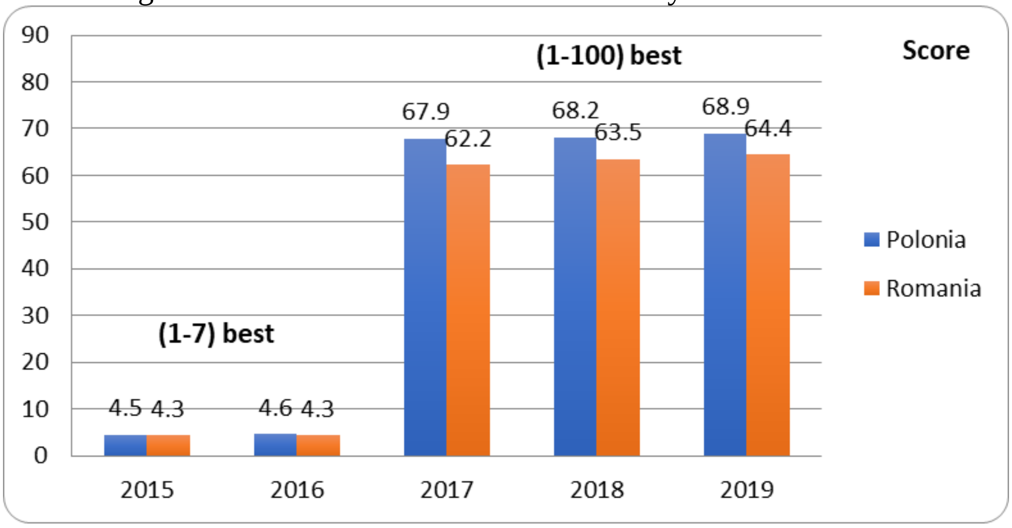


Chart 5: Romania and Poland scores in the general ranking of competitiveness - own processing

Source: WEF - Annual Global Competitiveness Reports 2015-2019

4. RESULTS AND DISCUSSIONS

Centralizing the results and observations extracted from the study, it is observed that although Romania obtains good scores in the analysis of the Institutions pillars, the Labor Market and ICT Adoption as a whole, Poland ranks ahead of Romania in terms of competitiveness.

The pillar called the macroeconomic environment places Poland in first place, and the two sub-pillars Inflation (Poland - 1.8%, Romania - 3%) and Debt Dynamics (Poland - 1st place, Romania - 59th place) in the case of Romania bring a ranking of 56.

THE SWOT ANALYSIS

Strengths	**Weaknesses**
- a general upward trend in economic and trade performance, highlighted by the constant improvement of the relative position in relation with other EU Member States and by the gradual increase of visibility on international markets - mundant labor force, with low costs and an acceptable level of initial education - natural Resources - energy resources - developed administrative capacity - high number of specialists in the field of ICT - existence of sectors with competitive potential (electronic equipment industries, automotive, ICT sector, clothing industry, food industry, furniture industry) and smart specialization (eg bioeconomy, information and communication technologies , energy and environment, ecotechnologies).	- strategies based on low costs products / low value-added industries -low degree of market sophistication -low level of computer literacy of the population and use of ICT at the level of enterprises and society - a slower pace of transformations than necessary for Romania to overcome the status of a less developed country in the rankings of EU Member States on important indicators of competitive position. Improving indicators does not often lead to better performance by comparison, due to significant delays in the development of supporting factors, in particular transport infrastructure, strengthening entrepreneurship. -degraded and insufficient infrastructure / reduced accessibility inside and outside the country -low performance in innovation (weak links

	between research units and the business environment, low level of RDI expenditure, very low percentage of employees in RDI in the active population) -reduced adaptability of the workforce and low level of lifelong learning -important segment of the population affected by poverty and social exclusion
Opportunities	**Threats**
-new sources of investment, including European Funds -FDI - In the current context of the energy crisis, there is an opportunity to develop a regional gas and electricity transmission hub. - Modernization of business models and systems in the context of market liberalization - Development of a business network based on an adequate infrastructure - Permanent improvements in agricultural work systems and technology - the opportunity to take advantage of the fact that the profit tax is still limited to 16% unlike other countries where taxation is more aggressive.	- prolonged periods of economic stagnation - the growing interest of big business to move their operations to countries with lower operating costs - the country image of Romania - The high level of the number of Romanian citizens who went abroad to work -climate change - Romania still bases its general business policies on the low cost of labor. In the long run, this strategy is unsustainable

Source: author`s elaboration

The SWOT analysis highlights some of opportunities and strengths that Romania can exploit to increase economic competitiveness. Some economic sectors such as energy or telecommunications could allow a wider and faster level of investment, which would stimulate horizontal development. We can take into account the growth of the ICT sector, that has huge potential in attracting foreign direct investment.

Emphasis is placed on broadband connectivity, high-speed Internet connections, being known as sources of benefits for convergence, a technological trend that can stimulate productivity growth and production growth in the economy. It is generally accepted that competition in the market is the best mechanism for stimulating the expansion of the broadband system, but also that in areas where broadband provision is inadequate, some public intervention is required.

The current energy context shows us that the future opportunities for economic development will involve adapting business models so that energy consumption is exponentially reduced. This means the use of the latest and most advanced work technologies, which will further involve lower operating costs, but also the total change of the paradigm in terms of the use of human labor. The widespread and horizontal introduction of ICT into productive processes can also be a good method of innovating traditional means and techniques of production and marketing.

5. CONCLUSIONS

In order to further strengthen competitiveness, we need to improve aspects that are weaknesses for the time being, namely: political instability, corruption, access to finance, government bureaucracy, inadequate infrastructure, tax regulations and inflation.

WEF notes that many of the difficulties facing advanced economies, especially in the periphery of the euro area, are closely linked to modest competitiveness, which limits long - term productivity growth. Efforts to stabilize fiscal and reduce the debt burden must therefore be complemented by reforms that ensure increased competitiveness and enhanced growth potential in the medium and long term.

A series of theoretical and practical conclusions can be drawn from the study. Thus, the usefulness and efficiency of the indicator GDP in the use for comparability of the level of development of the Member States of the European Union is highlighted.

The figures used highlighted the state of the economic situation in each country and show the future economic growth capacity of both the Member States and the European Union. The study by resources, the structure of expenditures and incomes shows the stage of evolution and, by comparing GDP per capita, the standard of living (quality of life) is also highlighted. Increasing competitiveness is still essential for improving living standards.

The above clearly identifies some development directions that should be followed by economic and social decision makers in Romania. Thus, important sectors such as health and education require significant attention in terms of both investment and operational efficiency, as well as the ICT sector or infrastructure development.

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