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# Competitiveness—the engine that boosts economic growth and revives the economy

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Competitiveness is a concept that shows up in all aspects of human life, both at the micro level, in personal, social, and professional life, and at the macro level, linked to organizational and national competitiveness with long-term effects on global competitiveness. In this paper, we aim to address competitiveness in Romania in the current context, before and after the COVID-19 pandemic, highlighting its role in reviving the economy. While until the onset of the pandemic Romania's competitiveness performance was growing, more recently, because of the global health crisis, it dropped a few places, according to the Global Competitiveness Index report. In order to have a clear picture of the degree of competitiveness in Romania, we have presented a series of statistical data for the most relevant macroeconomic indicators for our study for the 2017–2022 timeframe: the global competitiveness index, the minimum wage, labor productivity, the evolution of real labor productivity per employed person, the economic growth rate, the unemployment rate, the inflation rate, the European innovation index, gross domestic expenditure on research and development, export of goods and services as a share of GDP, etc. The methodology used involves the use of quantitative techniques, performing an econometric analysis, and correlating how the most important macroeconomic indicators can influence the degree of competitiveness at both the national and international level. For the post-pandemic timeframe, the analysis switches focus, just as the economic reality did, looking at energy costs and energy use as determinants of competitiveness. Since notions like circular economy and sustainable development correlate being energy-efficient with being competitive, however, at the same time, the high cost of investments necessary for individual businesses and countries to switch from polluting energies to clean energies impedes or at the very least heavily impacts their ability to compete with entities that don't make that same switch, it becomes apparent that the energy market impacts competitiveness metrics. Competitiveness promotes valuable contributors and underpins performance at group and company level, and the effects from the micro level will propagate, with an emission effect, to the entire national economy with obvious implications at the international level, through real growth in macroeconomic indicators, increased labor productivity, increased economic performance (market share, export share, return on capital), raising living standards and economic and social wellbeing (life expectancy index, human development index, poverty rate), education (skills, knowledge, abilities, managerial and marketing skills, corporate culture), competitive potential

(innovation, R&D, promotion), and in raising the Global Competitiveness Index by focusing on factors of production, efficiency, and innovation, etc.

#### KEYWORDS

competitiveness, economic growth, energy crisis, medical crisis, labor market

## 1 Introduction

All individuals in an economy tackle competitiveness as a challenge, considering it an essential condition for efficiency and standing out in a certain market, be it local, national, or international. When viewed through the lens of competitiveness, Romania's economy is not in a favorable position compared to the economies of the other EU member states; however, when looking at statistical data for a longer timeframe, collected both at the national and at the European level, a case can be made that Romania has taken important steps in terms of improving its competitive environment and meeting some competitiveness index targets.

A focus on competitiveness among individuals, economic agents, nations, and economies is significant inasmuch as its comprehension and implementation, as opposed to a zero-sum game, creates only winners. By framing competitiveness as an individual pursuit, in which everyone strives to be effective at their job, gives their best according to their intellectual and professional skills and abilities, takes responsibility for their deeds and actions, engages in constructive and beneficial competition for all, promotes values, and sustains performance at the group and company level, these individual behaviors will spread, as a result of a spillover effect, to the entire economy, society, and world. This will be evidenced by an increase in real macroeconomic indicators, labor productivity, economic performance (market share, export share, return on investment), the standard of living and economic and social wellbeing (life expectancy index, human development index, poverty rate), education (skills, knowledge, abilities, managerial and marketing skills, corporate culture), and competitive potential (innovation, research-d), among others.

Competitiveness and economic growth are intimately intertwined, mutually reinforcing each other; therefore, increased competitiveness leads to increased economic growth, which in turn can increase competitiveness. Competitiveness is the engine of economic growth because it motivates businesses to boost their productivity, allocate resources to innovation, research, and development, and enhance the quality of their products. Competitiveness refers to the capacity of a country or company to generate goods and services that can compete on the global market, whereas economic growth refers to the increase in the quantity of goods and services produced over time. Competition between enterprises will, on the one hand, drive firms to produce more and better-quality items, which will benefit consumer economic agents, while on the other hand, it will generate larger profits, firms will grow their market share, and be able to attract more clients. The rise in turnover at the microeconomic level and the gross domestic product at the macroeconomic level will, over time, lead to an increase in investment, which will generate an increase in aggregate supply, resulting in a rise in employment and, consequently, a rise in the standard of living and social and economic welfare. Moreover, competitiveness is essential for attracting international investment and expanding exports, both of which can further drive economic growth. When a nation is competitive, it is more likely to attract foreign investment, which can provide enterprises with capital, technology, and knowledge to enhance

their competitiveness and productivity. This can result in increasing exports, which can contribute to economic expansion. To increase economic growth, it would be beneficial to focus on competitiveness-enhancing measures, such as investments in education, infrastructure, innovation, and trade liberalization.

Competitiveness is a significant driving force for development and improving organizational performance, both at the macroeconomic level of analysis when researching topics related to a national economy's performance, and when the research is done at the microeconomic level, particularly when looking at individual companies, be they private, public, or joint. While for an individual microeconomic entity being competitive means striving to increase sales and define or consolidate brand awareness, thus increasing profits and becoming sustainable in the long run, this becomes the very engine that drives a national economy forward. Hence, a need for careful and detailed analysis of competitiveness and its interconnections with other essential, defining, and relevant elements specific to competitive economic activities, translated into research done both by scholars and by industry professionals.

Policymakers are also interested in promoting competitiveness, thus, a working group for competitiveness and economic growth has been established at the level of the Council of Europe. Its purpose is to prepare legislation and the principles for its application, to provide information about the European market and industry, and to serve as a forum for the exchange of information regarding national initiatives pertaining to competitiveness and economic growth, while also preparing the Competitiveness Council (Council of the EU, 2022).

## 2 Literature review

Competitiveness and economic growth are frequently viewed as closely intertwined ideas, however there are also arguments for a different view, namely, that competitiveness can occur at the expense of economic growth and *vice versa* (Porter, 1990; Reich, 1990; Krugman, 1994). In this regard, it is important to note the following: 1) some argue that competitiveness focuses on short-term gains, whereas economic growth requires long-term investments (innovation, education, and infrastructure), so policies that encourage competitiveness may boost productivity in the short term but may not lead to sustainable economic growth in the long term; 2) competitiveness can divert resources from other areas (social assistance, environmental protection, and public goods), and this can limit the resources available for investments that promote economic growth (education, research and development, as well as infrastructure); 3) competitiveness can have distributive effects, which means that benefits may not be shared equally among different groups in society, which can have negative effects on economic growth; and d) if a country's competitiveness is too high, it may not be able to attract foreign investment, and there may be a tradeoff between policies that promote domestic competitiveness and policies aiming at trade

balance and forgoing protectionism, and that tradeoff would have a negative impact on global economic growth.

There is no definition of competitiveness that is universally acknowledged in the specialized literature. Competitiveness is the capability of an individual or organization to gain competitive advantages over its rivals, and it can be applied to any field of endeavor. From an economic standpoint, competitiveness reflects the result of a series of interactions between internal and external factors, which yield benefits and competitive advantages to both companies and their own economies through the quantitative and qualitative increase of some indicators, such as productivity, efficiency, gross domestic product, real wages, wellbeing, and quality of life, etc. According to the World Economic Forum (WEF, 2017, p. 11), competitiveness is “the combination of institutions, policies, and factors that determine a country’s competitiveness and productivity level”. A relatively recent addition to the less than abundant body of research showing the impact that competitiveness has on macroeconomic performance, has been the Global Competitiveness Index, developed by the World Economic Forum, based on twelve pillars of competitiveness. The research team (Foster et al., 2017; Virjan, 2019; Lestari and Caroline, 2021) states that the defined concept of competitiveness, as measured by the GCI, includes static and dynamic competitiveness that can explain the potential for economic growth, while Sala-I-Martin et al. (2016) emphasizes the importance of adequately evaluating an economy’s developmental stage in order to accurately set the scale for some of the components of GCI, grouping the twelve pillars into four subindexes.

Porter (1990), Porter and Ketels (2003) asserts that a country’s competitiveness is contingent on the industry’s capacity to be productive, innovative, and creative, as well as constantly adapted to the quantitative and qualitative demands of the market. He uses the term comparative advantage instead of competitiveness. Productivity, which is evaluated by the value of goods and services produced per unit of human capital and natural resources, is the true metric of competitiveness. A nation’s productivity will enable it to maintain high salaries, a strong currency, attractive returns on capital, and a certain level of living.

Endeavouring to contribute to a substantiation of the elusive nature of competitiveness, Aiginger (2006), Aiginger and Vogel. (2015) differentiate between input and output competitiveness and develop indicators for both. Costs, structure, and capabilities (competitiveness drivers) as well as economic, social, and ecological performance are used to rank nations (performance pillars). Using econometrics and principal components, the individual drivers are used to explain outcome competitiveness. Providing a set of indicators to measure “low-road” and “high-road” competitiveness results in significant new policy findings. Defining competitiveness as a country’s or nation’s capacity to achieve objectives beyond GDP modifies the policy conclusions drawn from the pursuit of competitiveness. In comparison to “high-road strategies” based on skills, innovation, and supporting institutions, cost-cutting measures are inferior. For high-income nations, ecological ambition and social investment are not costs, but rather enablers of competitiveness.

Delgado et al. (2012) define fundamental competitiveness as the projected level of production per person of working age that is supported by a country’s total business climate. Focusing on output per prospective worker, a larger measure of national productivity than output per existing worker, illustrates the dual importance of

workforce participation and output per worker in shaping the quality of living of a country. Their theory emphasizes three broad and interdependent determinants of fundamental competitiveness: social infrastructure and political institutions, monetary and fiscal policy, and the microeconomic environment. The authors of this model estimate this framework utilizing different data sets encompassing over 130 nations throughout the period of 2001–2008 and numerous data sources and discover that each of the three drivers has a positive and significant effect on production per worker. Even after correcting for historical legacies, the microeconomic environment has a positive influence on prospective worker production. Within this framework, the paper proposes a new notion, global investment attractiveness, which is the relative cost of factor inputs to a country’s competitiveness. In addition to providing valuable insight into the economic trajectory of certain nations, the research provides a unique way for estimating a theoretically based and empirically confirmed measure of national competitiveness.

Terzic (2021) explores the significance of competitiveness and innovation in stimulating economic growth in certain European countries, including Romania, and concludes that economic growth is influenced by competitiveness and innovation, who in turn are heavily reliant on macroeconomic stability, solid developed institutions, a strong financial system, an improving business environment, and ability to innovate.

Gama et al. (2020) try to establish a link between economic growth and competitiveness, based on data taken from the World Economic Forum (WEF, 2020) whereby the twelve pillars are grouped into three subindexes, namely, basic requirements, efficiency enhancers and innovation and sophistication factors; their model sets efficiency enhancers and innovation and sophistication factors as dependent on the evolution of basic requirements in previous periods, suggesting that an economy’s level of activity is a function of the current and delayed growth rate of basic requirements. The study carried out for 105 countries highlights the fact that the level of economic activity of the analyzed countries is in a positive relationship with the competitiveness measures; it additionally concludes that the current and lagged rate of the basic requirements are the main determinants of a country’s level of activity.

Research carried out on a sample of Member States in Central and Eastern Europe by Korez-Vide and Tominc (2016) explores and analyzes a country’s competitiveness and entrepreneurship as determinants of economic growth. The analysis shows that economic growth, measured by GDP *per capita* growth rates, and a country’s global competitiveness, measured by the growth rates of the World Economic Forum (WEF) Global Competitiveness Index, are positively related; however, no significant relationship was found between GDP *per capita* growth and the growth of quality of early-stage entrepreneurship indices, thus indicating that entrepreneurship promotes economic growth only as part of a wider favorable business environment.

A study setting out to explore the relationship between competitiveness and economic growth done for Romania’s 42 counties (Simionescu, 2016), narrowed by the premise that the national competitiveness is not driven innovation and investments in human capital, makes an empirical assessment of the impact of occupation and unemployment in Romanian counties

on economic growth. The approach based on panel vector-autoregressive models (VAR panel) indicated a negative impact of the occupation and the activity rate in 42 counties in Romania on economic growth during 2006–2014; this finding is not only at odds with previous research (Jordan et al., 2014), but is also an apparent theoretical paradox, that real economic growth was achieved with high unemployment rates. The contradictory findings might be explained by issues in the labor market aggravated by the global economic crisis of 2008, such as higher unemployment rate, higher undeclared/underground employment, and potentially lower productivity of human capital due to both accelerated emigration process and skills erosion during the labor market adjustments made because of diminishing production.

Another interesting approach to the subject, originating from the reality of the great economic crisis of the first decade of the 21st century, is that of Cordero (2008), which looks at competitiveness, income distribution and economic growth in a relatively small economy. In keeping with the 1980s spirit of the post-Keynesian economic perspective, Cordero (2002) shows that for a small economy international competitiveness is a more relevant determinant of demand and effective growth, while also explaining a negative association between outward-oriented policies and income distribution in the long-run. The paper also advocates that this pattern can be broken with an institutional framework that encourages productivity growth when international competitiveness decreases, the model being able to generate endogenous growth.

An analysis focusing on competitiveness at a sector level, specifically tourism (Pablo-Romero et al., 2016) reviews theories related to competitiveness and the indicators used to measure it, and studies linking tourism and growth, with the aim of establishing the interconnections between both concepts. The study concludes that endowment with inherited tourism resources together with acquiring productive resources, and the conjunction between both, are the determinants of an economy's ability to produce and therefore to grow.

Three interrelated aspects are examined by da Cunha Resende and Torres, 2008: the National Innovation System, Trade Elasticities, and Economic Growth. Along the process, he discovers that disparities in the income elasticity of imports and exports between nations result in varying degrees of external growth limitations. Despite having undergone industrialization processes, numerous economies continue to encounter external growth restrictions. Using neo-Schumpeterian literature, the author wants to illustrate the causal linkages between the growth of a National Innovation System, the variations in the income elasticity of imports and exports, an economy's competitiveness, and its external vulnerability.

Zagoršková et al. (2018) focuses on competitiveness at the national level and the impact of competitiveness on economic growth at the European level and finds significant differences in competitiveness among the member states of the European Union, according to the index of global competitiveness, published by the World Economic Forum. In the examined sample, the positive relationship between the level of competitiveness and economic growth was not confirmed. It is shown that economic competitiveness has long been one of the key political priorities of the European Union, which can stimulate economic growth by

promoting digitization and individual and national welfare; thus, the EU can maintain its competitiveness due to a highly skilled and healthy workforce, strong social and economic security and minimizing inequality.

In a study carried out on a sample of 114 countries, the researchers (Kordalska and Olczyk, 2016) start their analysis from the widely accepted idea that the global competitiveness index is treated as a standard for measuring the competitiveness of countries, which is expected to be inextricably linked to economic growth, however, empirical analysis of this relationship are few and far between, and the economic literature is parsimonious when it comes to answering whether economic growth can be used to predict future global competitiveness or *vice versa*. The study assesses this relationship by means of a Granger causality test and confirms a strong unidirectional causality between the analyzed countries, i.e., GDP growth determines global competitiveness; but, somewhat surprisingly, the GCI fails to predict economic growth for most of the 114 countries analyzed, with the exception of a few large economies such as China, India, the United States and Russia.

Merdić and Hodžić (2022), analyzed how competitiveness impacts the exports of goods and services of European economies grouped in three subsets: CEFTA countries, the European Union and the European Monetary Union; their results show a positive and statistically significant impact of the Competitiveness Index (GCI) on the exports of European economies for EU and EMU economies, but the impact is missing in the case of CEFTA countries.

It is now widely accepted that innovation is one of the most important factors in the growth of a nation's economy, and it has been embraced as a primary instrument for increasing value and attaining a durable advantage over competitors. Based on that premise, de Miranda et al. (2021) carried out a this research the purpose of which was to get an understanding of the effect that global competitiveness has on the worldwide innovation of nations. A multiple linear regression analysis was used to assess certain indices of 133 different countries. According to the findings, the degree to which a country is competitive on the global stage has a considerable and beneficial effect on its inventive capacity. Education and training at higher levels were the competitiveness factors that had the most significant impact on the innovative capacity of countries.

Those findings were in line with a previous empirical study carried out by Dima et al. (2018), in a research that analyzed the Global Competitiveness Index (GCI) in relation to a number of different indicators connected to the knowledge economy: research and development (R&D) expenditure (as a percentage of gross domestic product), percentage of population with tertiary education, lifelong learning, GDP *per capita*, and debt to equity using the Pearson coefficient and panel-data regression models. The results brought to light the significant part that education and innovation play as key predictors of the level of economic convergence and competitiveness within the EU. According to the findings of the empirical study, two of the most significant factors that contribute to a nation's level of competitiveness are its level of educational outcomes and its level of innovation.

In a study evaluating the World Economic Forum's Global Competitiveness Index, Lall (2001) defines "competitiveness" in



economics as the ability and economic performance of a nation to sell and deliver products and services in a specific market relative to other nations in the same market. The World Economic Forum's "Global Competitiveness Index" ranks 137 countries based on their capacity to sustain equitable economic growth. The assessment of competitiveness utilized twelve indicators, including innovation, infrastructure, and macroeconomics. The relationship between innovation and the willingness to adopt new technologies has a significant influence in the nation's overall performance, economic resiliency, and robust labor market. The author identifies two main contemporary concerns, namely, the unregulated growth of capital markets and the continued expansion of private debt in developing nations. He observes that other developing nations, such as India, have excelled in innovation, but have been unable to capitalize on their progress due to the lack of a population and corporations willing to adopt new technologies. The author emphasizes that measuring the economy's competitiveness should incorporate factors such as the wide distribution of economic gains, environmental sustainability, and intergenerational equity for young people and future generations, thereby achieving a resilient economy and prosperity for all.

## 3 Analysis of competitiveness in Romania before and after the pandemic

### 3.1 Materials and methods

The methodology used involves the use of quantitative techniques, performing an econometric analysis, and correlating how the most important macroeconomic indicators can influence the degree of competitiveness at both national and international level.

While the crisis of 2008 left its mark on all activities in the economy, and, after 2 years of decreases and imbalances manifested both at the micro and macroeconomic level, a need for a relaunch of economic activity was apparent, so was Romania's engagement on the path to increase performance in terms of competitiveness during 2010–2018. This section of our paper focuses on descriptive statistics that highlight the global competitiveness index and several influencing factors, such as the minimum wage, labor productivity, the growth rate of per person real labor productivity, the employment rate, the economic growth rate, the unemployment rate, the inflation rate, the European innovation index, the gross expenditure on research and development, the export of goods and services as a share of GDP, etc.

Based on the literature regarding cost-driven competitiveness and Romania's uniquely high wage growth rate we also performed an econometric analysis to test our hypothesis that there is a positive correlation between the global competitiveness index (GCI) and the minimum wage (SM).

Before the pandemic crisis, competitiveness was influenced by a number of economic factors, including productivity, wages, export of goods and services, innovation and development index, and other factors. However, with the pandemic, the outbreak of war, and the energy crisis, we aimed to verify our hypothesis that the structure of competitiveness cannot be identical and determined by the same indicators, given the rise in energy prices and the onset of the energy

crisis. Thus, in the econometric analysis, we used a panel data model using the econometric software Eviews 8. All variables were gathered from the Eurostat database, and we studied the competitiveness index for 2019, using the competitiveness index at the national level in 2018 as a control variable.

The GCI (national competitiveness index) was the dependent variable in a regression equation, whereas the other variables were independent: GCI(-1) the national competitiveness index from the preceding period; access to electricity (the population's access to electricity), IMPORTS TO GDP (the proportion of imports to GDP), PSI (the political stability index), and QUALITY OF ROADS (the infrastructure quality index).

### 3.2 Competitiveness in Romania during 2010–2018

When the World Economic Forum issued the Global Competitiveness Index 2017–2018 (WEF, 2018), Romania was placed number 68 out of 137 nations, with a Competitiveness Index of 4.3 on a scale from 1 to 7. This ranking was the outcome of the World Economic Forum weighing more than one hundred unique economic indicators (see Table 1). As compared to the result of the previous year, this one revealed Romania to have fallen six places, and 2 years previously to that, the country was ranked 53 and had a GCI of 4.32. Countries such as Bulgaria (ranked 49th), Estonia, the Czech Republic, Lithuania, Latvia, Poland, and Russia were all ranked higher than Romania. On the other hand, Switzerland and the United States of America tied for first place with an index of 5.9, followed by Singapore, the Netherlands, and Germany with an index of 5.7, followed by Hong Kong 7, the United Kingdom, Japan, and Finland with an index of 5.5. etc.

Out of the three subindexes of GCI, Romania's best performance was recorded for the subindex "Basic requirements", at 4.6, wherein the lowest scored pillars were the first and the second, Institutions and Infrastructure respectively (lack of highways, poor development of national roads and railways); managing director for Eastern Europe and the Caucasus (EEC) at the European Bank for Reconstruction and Development (EBRD) Matteo Patrone warned that "the Romanian infrastructure gap has become a serious obstacle to the convergence process and steps have to be taken" (Tudor, 2018). Within the "Efficiency Enhancers" sub-index, Romania's best performance is for the ninth pillar, Technological readiness, indicating the existence of IT specialists, then the 10th pillar, Market size, showing opportunities for potential investors, while the lowest scored pillar is the eighth, Financial market development, which points towards a lack of financial education both in schools and in the people's everyday life. The low scores for pillars in the third subindex, "Innovation and sophistication factors" are not surprising for Romania's emerging economy, where low investment in research-development -innovation makes it hard to innovate.

Pârvan (2018) noted that between 2010 and 2016 Romania had been the only European country to have decreasing performances regarding the capitalization of resources, so much so that by 2017 Romania's consumption of material resources per euro produced as measured by GDP was three times the European average. Moreover, it had been downgraded in other

TABLE 1 The global competitiveness index for Romania 2017–2018.

Basic requirements	Efficiency enhancers	Innovation and sophistication factors
Rank 72, score 4.6	Rank 58, score 4.3	Rank 107, Score 3.3
1st pillar: Institutions	5th pillar: Higher education and training	11th pillar: Business sophistication
Rank 86, score 3.7	Rank 70, score 4.4	Rank 116, score 3.5
2nd pillar: Infrastructure	6th pillar: Goods market efficiency	12th pillar: Innovation
Rank 83, score 3.8	Rank 92, score 4.1	Rank 96, score 3.1
3rd pillar: Macroeconomic environment	7th pillar: Labor market efficiency	
Rank 38, score 5.2	Rank 89, score 4.0	
4th pillar: Health and primary education	8th pillar: Financial market development	
Rank 92, score 5.5	Rank 88, score 3.7	
	9th pillar: Technological readiness	
	Rank 51, score 4.8	
	10th pillar: Market size	
	Rank 41, score 4.6	

Source: World Economic Forum, 2017, The Global Competitiveness Index 2017–2018.

international rankings as well: dropped five places in a global ranking regarding the ability to develop and retain talents, dropped two places in the Global Tourism Competitiveness Report, Romania's capital city, Bucharest, dropped sixteen positions in the Global Urban Competitiveness Report, ranking at 188th place out of 200 cities, and consistently ranking 34th out of 35 countries evaluated for the Euro Health Consumer Index.

Labor productivity, in addition to the growth rate of the real productivity of labor per employed person, is an essential indicator for determining a country's level of competitiveness. Throughout the years 2010–2016, Romania had the highest rate of real labor productivity growth per employed person, propelling the country to the top spot among Western European nations. However, after that point, the rate began to decline and by 2018 it had reached 3.9%.

When looking at the relationship between the evolution of labor productivity, the minimum wage, and the total labor cost it becomes apparent that wage increases were not based on the increase in labor productivity, as the growth rate of the total labor costs exceeded the rate of labor productivity growth; the wage increases, particularly in the public sector (healthcare +31.76%, education +19.85%, public administration and defense +12.07% etc.) (INS, 2019) were not found to be correlated with the increase in labor productivity; double-digit salary increases are uncommon, particularly in developing nations; the rise in labor expenses was likely to be reflected in the pricing of products and services and damage the buying power of consumers, thus causing an increase in both the inflation rate and the general price index.

The minimum wage grew annually, reaching 2,080 lei at the start of 2019. While its absolute value was the lowest compared to other EU Member States, its percentage rise of 195% over the preceding decade was the greatest. This increase had both positive and negative effects; increasing the minimum wage strains the business environment, particularly for small and medium-sized enterprises, promotes the growth of the shadow economy

through the use of unregistered and thus untaxed workers, particularly those whose output is below the minimum wage, and raises labor costs for businesses, causing them to lay off some workers, all of which have implications for declining competitiveness.

The increase in the minimum wage has had a positive impact on disposable income and it has reduced income inequality (Gini Coefficient dropped from 37.4% in 2015 to and 34.7 in APERC (2016) and further to 33.1 in 2017—European Commission, 2019), is likely to have positively impacted long-term growth potential, by stimulating consumption and aggregate demand and thus short-run economic growth; it also had a positive impact on the employment of young people on the labor market (according to statistical data the increase of the minimum wage by 1% led to an increase of the employment rate among young people by about 2%). Over the course of the previous 10 years, Romania had relied on the “low-cost” workforce, and had it continued in that race to the bottom it was likely to lose, since at any point production could be relocated to countries where labor is much cheaper, the tax system and fiscal duties are lax enough to encourage foreign investment, and where there is more macroeconomic stability.

Romania's legal framework for public policy to monitor and prop up national competitiveness was established by Government Decree no. 775/2015, later amended by GD no 640/2018; they render the National Competitiveness Strategy (NSC, 2015) 2015–2020 and identify ten economically competitive sectors: tourism and ecotourism, textiles and leather, wood and furniture, creative industries, automotive and components, information and communication technology, food and beverage processing, health and pharmaceuticals, energy and environment management, bio-economy, biopharmaceuticals and biotechnologies. These sectors can be supplemented by other economic sectors identified in complementary strategic documents such as the Governmental Strategy for SME Growth and the Improvement of the Romanian

**TABLE 2** Macroeconomic indicators with impact on competitiveness.

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Labor productivity	100	102.8	110.3	115.2	118.2	124.3	131.8	137.5	142.7
Evolution of the real labor productivity per employed person	5.3	5.4	5.4	5.6	5.4	5.2	6.0	4.3	3.9
Minimum wage	670	700	750	800	850	1,050	1,250	1,450	1900
Inflation rate (%)	6.1	5.8	3.3	4	1.1	-0.6	-1.5	1.3	4.6
Unemployment rate (%)	7.3	7.4	7	7.3	6.7	4.2	3.8	3.3	2.9
Economic growth rate (%)	-1.1	2.3	0.6	3.5	3.1	3.9	4.8	6.9	4.2
European Innovation Index	47	47	40	40	32	30	32	33	-
Gross domestic expenditure for R&D (% of GDP) and EU-28	0.45	0.49	0.48	0.38	0.38	0.48	0.48	-	-
	1.83	1.87	1.91	1.92	1.94	1.95	1.93	-	-
Exports of goods and services (% of GDP) and EU-28	32.6	37	37.5	39.7	41.2	41.0	41.3	41.4	-
	38.4	41.1	42.3	42.4	42.8	43.4	43.2	44.6	-

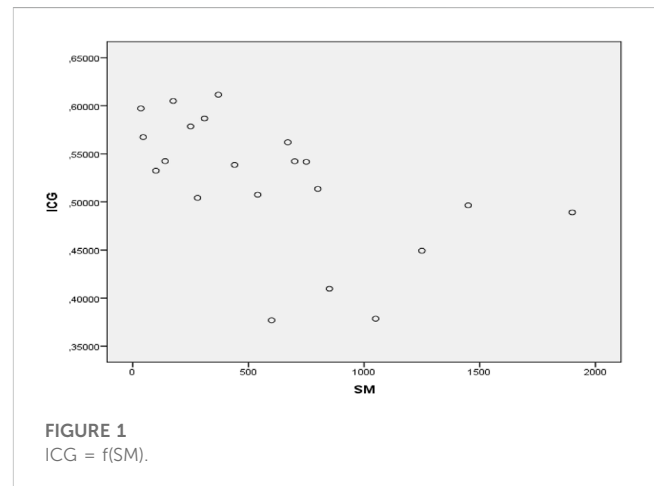
Source: Eurostat, Word Bank, European Innovation Scoreboard, INS, 2010–2018.

Business Environment, which identifies sectors likely to bolster the competitiveness of SMEs are identified, and the Strategy for the National Defense Industry which emphasizes the need to enhance competitiveness of the national defense industry at regional, European and NATO levels.

To increase the capacity of firms’ research and innovation economy, the government has implemented a number of policy measures, including providing SMEs with high-quality services designed to facilitate innovation, supporting knowledge-based start-ups, developing and launching new products, and developing incentives for collaboration between large businesses, SMEs, and universities. Table 2 shows that the European innovation index for Romania decreased by 14 points between 2010 and 2017, categorizing it as a “modest innovator” and the nation with the lowest percentage of SMEs offering innovations in goods (65% below the EU average), placing it 25th among the EU-28.

In the analyzed pre-COVID period, Romania was similarly towards the bottom of the rankings (26th out of 28 member states) in terms of R&D spending; for instance, in 2016 gross domestic R&D expenditures amounted for 0.48% of GDP, which was around four times lower than the EU-28 average (see Table 2). Although in most Member States, R&D funding were allocated to the commercial sector, with the exception of Estonia, Greece, Cyprus, Latvia, and Lithuania, which channeled money to higher education, almost half (43%) of R&D expenditure in Romania was conducted by the government (Dogaru, 2015; Cao et al., 2022).

The export of goods and services is also a relevant economic indicator when examining competitiveness; accordingly, an additional public policy document could have been construed as part of the national competitiveness legal framework, namely, a strategy meant to improve Romania’s export performance, the National Export Strategy (NES, 2014) for 2014–2020, targeting four strategic perspectives: the development approach (investment, clusters and regional development); the sectoral approach (facilities, supply adjustment, external promotion, branding); the beneficiaries/exporters approach (customer segmentation, quality, innovation and R & D, skills,



Mean	Std. Deviation	N	
.5205133	.06893806	21	
605.00	491.805	21	
		ICG	SM
Pearson Correlation	ICG	1,000	-.547
	SM	-.547	1,000
Sig. (1-tailed)	ICG		.005
	SM	.005	
N	ICG	21	.21
	SM	21	21

financing); the institutional approach (strengthening the institutional ability to expand exports and ensure NES management). The statistical data in Table 2 doesn’t show a

Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin-watson
1	.547 <sup>a</sup>	.300	.263	.05919697	1.508

Model	Sum of squares	df	Mean square	F	Sig. (b)
Regression	.028	1	.028	8.124	.010
Residual	.067	19	.004		
Total	.095	20			

a. Dependent Variable: ICG.  
 b. Predictors: (Constant), SM.

significant impact of the strategy to improving exports, an increase of only 0.02 percentage points of exports' share of GDP from the strategy's inception, in 2014, until the end of the investigated pre-pandemic timeframe; moreover, for that same period, the gap between values for Romania and average values for EU-28 actually increased from 1.6 percentage points to 3.2 percentage points.

### 3.3 Econometric analysis - the influence of the minimum wage on the economy on the competitiveness of Romania, before the pandemic

We have considered an econometric model whereby the Global Competitiveness Index is the dependent variable, abbreviated as ICG, and the independent variable is the minimum wage, abbreviated as SM; we used statistical data collected for 2010–2018 timeframe and discussed in the previous section of the paper.

The findings of data processing indicate a somewhat strong negative correlation between the two variables. At a significance level of 5%, the linear correlation coefficient Person is statistically significant (Figure 1).

The determination coefficient is 0.300, which indicates that 30% of the variation in the dependent variable (ICG) is explained by the change in the independent variable, namely, the effect of the minimum wage on the economy. At a significance level of 5%, the Durbin Watson test indicates that the non-self-correlation error assumption is verified.

Model Summary<sup>b</sup>

Model	Unstandardized coefficients		Standardized coefficients	t	Sig	95,0% confidence interval for B	
	B	Std. Error	Beta			Lower bound	Upper bound
(Constant)	.567	.021		27.275	.000	.523	.610
SM	- 0.0000767	.000	-.547	-2.850	.010	.000	.000

a. Dependent Variable: ICG.

ANOVA<sup>a</sup>  
 Coefficients<sup>a</sup>

The model parameters are statistically significant at a significance level of 5%. The value of parameter B1 is 0.567; this is the ICG modification that is not caused by the independent variable shown earlier. The value of parameter B2 is -0.0000767, which indicates that the ICG will drop by an average of 0.0000767 for every 1 RON rise in the minimum wage.

At a 5% level of significance, the above two graphs (Histogram of Standardized Residuals—Figure 2, and PP Plot of Standardized Residuals—Figure 3) and the Kolmogorov Smirnov Test verify the normality of errors hypothesis (standardized errors were used). There is an inverse median correlation between ICG and SM, such that 30% of the variance in ICG can be attributed to the impact of SM; hence, the model parameters are statistically significant at the 5% significance level.

### 3.4 Competitiveness before and after the pandemic crisis

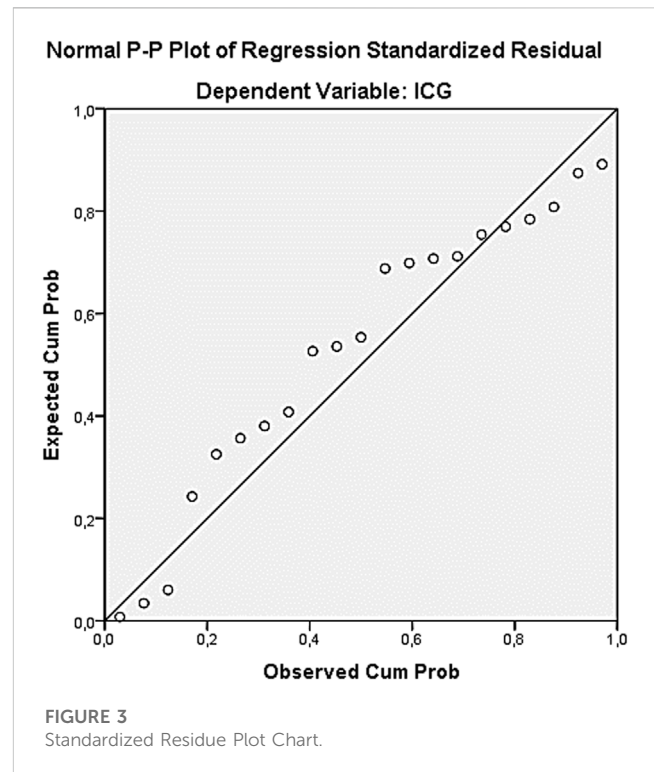
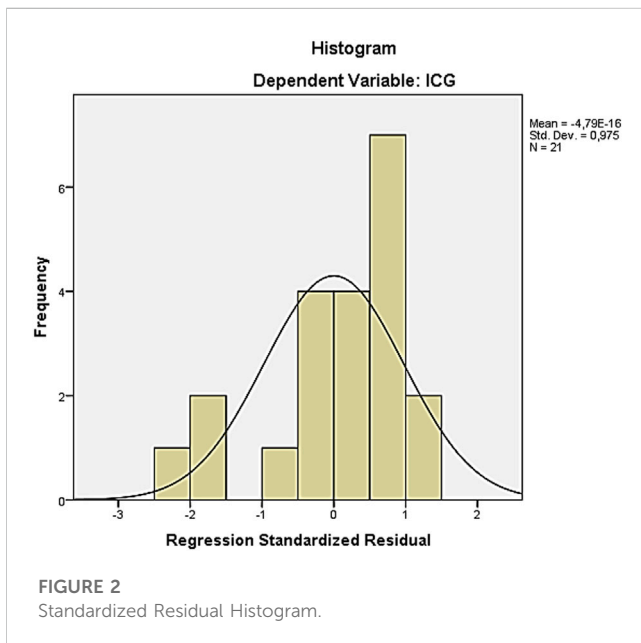
The medical crisis caused by the COVID-19 pandemic has caused an economic crisis that has generated other macroeconomic imbalances, overlapping with the energy crisis, geopolitical crisis, ecological crisis, and social crisis. The price increases for most market goods, particularly energy prices and the price of natural gas and other non-renewable and non-recoverable resources, are an important source of concern and impact the behavior and actions of all entities involved in economic activity, be they individuals, businesses, national public agencies, governments, and international organizations alike. While during the pandemic businesses generally faced losses, decreased revenues, and high costs, the post-pandemic recovery came with another shock, namely, higher energy bills, generating a negative impact on the entire economy at the national, European, and international level. After wholesale energy prices fell sharply in 2019, in 2020 the trend suddenly reversed, and prices increased by 200% compared to 2019, due to the high demand for gas worldwide, but also the decrease in the volume of natural gas from Russia. The increase in gas and electricity prices has impacted industrial activity and SMEs, affecting production and revenues, national and international supply chains, energy-intensive industries, and the transport and mobility sector, which



One-Sample Kolmogorov-Smirnov Test.

		Standardized residual
N		21
Normal Parameters <sup>a,b</sup>	Mean	0E-7
	Std. Deviation	.97467943
	Absolute	.169
Most Extreme Differences	Positive	.103
	Negative	-.169
Kolmogorov-Smirnov Z		.773
Asymp. Sig. (2-tailed)		.588

a. Test distribution is Normal.  
 b. Calculated from data.



in turn has caused a supply decrease of raw materials and components for various industries, especially the food industry.

With energy being an input in all types of economic activity, when high production costs force businesses to curtail their scope and lower their activity level, or, in worst case scenarios, when average total cost exceeds the price, to exit the market altogether, and also when rising prices and inflation also impact the buyers, not just the businesses, this creates a new context that underpins a perspective change for competitiveness, not just in terms of measuring it but also in terms of understanding what drives it.

The energy crisis, caused by multiple influencing factors, has thus influenced competitiveness, not only at a microeconomic level for individual actors on specific markets but also at the macroeconomic level for the economy as a whole—aspects regarding the availability of, access to, and eco-efficiency of energy all factor into businesses’ decision-making and their ability to prevail over their competitors.

Notions like circular economy and sustainable development, promoted by the European Union through encouraging policies

meant to bolster them, correlate being energy-efficient with being competitive, regardless of whether that efficiency regards use of classic sources (coal, oil, and gas) that are considered polluting through carbon dioxide emissions, and having an important impact on climate change, as well as use of those sources considered clean, such as nuclear, solar, wind, or water energy.

While currently the European Union states are affected not only by the economic reverberations of economic stagnation and decline due to the COVID-19 pandemic but also by the military conflict between the Russian Federation and Ukraine, they have also embraced legislative changes to limit the use of classic energy resources such as coal, oil, and gas and promote replacing them with less polluting energy sources, considered clean energies. Proponents of these measures view the transition to a clean, green, ecologically based economy as the best insurance policy against energy shocks and production and consumption crises. However, the high cost of investments necessary for individual businesses and countries to switch from polluting energies to clean energies impedes or at the very least heavily impacts their ability to compete with entities not bound to make that same switch, thus making it apparent that the energy market impacts competitiveness metrics.

Companies that, following the onset of the pandemic, invested in acquiring and using production facilities based on clean energy now have a competitive advantage over traditional ones in terms of access to energy and avoiding environmental sanctions related to pollution. However, this competitive edge came at the cost of high outlays of money spent on new green energy systems such as energy capture systems with photovoltaic panels, investments in micro-hydro-plants, windmills, micro-nuclear plants, etc., investments with very high initial costs that had a fulminant start and then a similarly rapid interruption due to a lack of long-term strategy and policies appropriate to the context and infrastructure.

TABLE 3 The global competitiveness report 2018–2019, Romania.

2018/2019 component index	Score	Rank/140	Score	Rank/141
1st pillar: Institutions	58.1	46	58.1	52
2nd pillar: Infrastructure	71.2	55	71.7	55
3rd pillar: ICT adoption	67.1	36	72.0	32
4th pillar: Macroeconomic stability	89.2	53	89.7	56
5th pillar: Health	79.8	72	77.2	83
6th pillar: Skills	61.8	69	62.5	72
7th pillar: Product market	57.3	56	55.4	64
8th pillar: Labor market	60.7	56	61.6	57
9th pillar: Financial system	51.9	101	57.0	86
10th pillar: Market size	64.7	41	65.2	41
11th pillar: Business dynamism	60.1	64	59.7	72
12th pillar: Innovation capability	39.6	57	42.3	55

Source: WEF, the global competitiveness report, 2019 (pp.478–481), 2018 (pp.493–495).

Transitioning from an economy based on the intensive use of classic fuels with high carbon dioxide emissions to one based on alternative, less polluting sources requires considering the transition costs, which can be high and have a major influence on competitiveness. The correlation between competitiveness and energy availability, and the mutual influences of these two variables, are likely to be different depending on the economic sector analyzed: the extractive industry, the processing industry, the energy industry, transport, agriculture, and tourism. For each of these sectors, the competitive advantage based on energy availability (either in terms of type or in terms of costs) will come at different costs and will confer diverging benefits.

For both Romania and other European countries, the rural ecotourism and rural entrepreneurship sector is a good example of how to improve competitiveness by investing in clean energy and using local material and intangible resources. This sector has the potential to add a lot of value to the economy, but it only makes up a small part of GDP right now. Soare et al. (2017) point out the fact that in this sector, access to electricity becomes a particularly important element in evaluating competitiveness and consequently eventuating as a determinant of economic development and sustainable economic development.

According to the latest Global Competitiveness Report published by the World Economic Forum, Romania's GCI ranking improved from 52nd place in 2018 to 51st place in 2019 (see Table 3) (WEF, 2018; WEF, 2019; WEF, 2020).

Even though the use of ICT, the size of the market, higher education, and vocational training could be seen as strengths for Romania, the country still has problems in areas like infrastructure, innovation, and institutions. In terms of transportation and energy infrastructure, Romania is still behind other EU countries. To make the country more competitive, we need to improve the quality of roads, railways, ports, and airports. Regarding innovation, Romania lags behind in terms of spending on research and development and patent applications, which limits its ability to create and market new products and services. The institutional environment is inefficient, opaque, and prone to corruption,

and a lack of trust in public institutions and the judicial system has discouraged investment and limited economic growth.

Romania needs to invest in infrastructure, encourage innovation, strengthen its institutional environment, and improve communication between the government, the private sector, and civil society in order to find and fix the country's competitiveness gaps. This will make the country more competitive and improve its GCI ranking.

### 3.5 Econometric analysis—the influence of the price of energy, the import of goods and services in GDP, the quality of the infrastructure and the index of political stability on competitiveness

In the econometric study, we used a panel data model using the econometric software Eviews 8 as our primary tool. All of the variables were taken from the Eurostat database, and the competitiveness index is being evaluated for the year 2019, with the competitiveness index at the national level in 2018 serving as a control variable. We used a regression equation, in which the GCI (national competitiveness index) is the dependent variable, while the other variables are the determinant variables: GCI(-1), which stands for the national competitiveness index in the preceding period; ACCESS TO ELECTRICITY, which refers to the population's access to electricity; IMPORTS TO GDP, which stands for the proportion of imports in GDP; PSI, which stands for the political stability index; and QUALITY OF ROADS (the infrastructure quality index).

The regression equation is the following:

$$\begin{aligned} \text{GCI}_{it} = & C(1) + C(2)*\text{GCI}(-1)_{i(t-1)} \\ & + C(3)*\text{ACCESS TO ELECTRICITY}_{it} \\ & + C(4)*\text{IMPORTS TO GDP}_{it} + C(5)*\text{PSI}_{it} \\ & + C(6)*\text{QUALITY OF ROADS}_{it} + u_{it} \end{aligned}$$

TABLE 4 Results of econometric analysis.

Variable	Coefficient	Std. Error	t-Statistic	Prob
COMPETITIVENESS(-1)	0.940255	0.013908	67.60332	0.0000
ACCESS TO ELECTRICITY	0.007727	0.005056	1.528253	0.1290
IMPORTS to GDP	-0.000331	0.003152	-0.104986	0.9166
PSI	0.243116	0.132000	1.841782	0.0679
QUALITY of ROADS	0.462839	0.118607	3.902287	0.0002
C	1.592161	0.569348	2.796463	0.0060
R-squared	0.994560	Mean dependent var		61.02500
Adjusted R-squared	0.994344	S.D. dependent var		12.40483
S.E. of regression	0.932911	Akaike info criterion		2.743375
Sum squared resid	109.6606	Schwarz criterion		2.874411
Log likelihood	-175.0627	Hannan-Quinn criter		2.796622
F-statistic	4607.168	Durbin-Watson stat		0.000000
Prob(F-statistic)	0.000000			

Respectively

$$\begin{aligned} \text{GCI}_{it} = & 1,592 + 0.940 \cdot \text{GCI}(-1)_{i(t-1)} \\ & + 0.007 \cdot \text{ACCESS TO ELECTRICITY}_{it} \\ & + 0.0003 \cdot \text{IMPORTS TO GDP}_{it} + 0.243 \text{PSI}_{it} \\ & + 0.462 \cdot \text{QUALITY OF ROADS}_{it} + \mathbf{u}_{it} \end{aligned}$$

where  $i$  = country (Romania);  $t$  = year  $t$  (2005–2021) = year ( $t = \overline{1, 16}$ );  $\mathbf{u}_{it}$  represents random error for country  $i$ , year  $t$

C(1) stands for the model's constant, often known as the intercept. C(2), C(3), C(4), C(5), and C(6) are the elasticity coefficients of the dependent variable, which show how it responds to changes in the independent variables. All of the coefficients of the independent variables that were considered are statistically significant, which indicates that these variables are representative and have power to explain the variation in the dependent variable. Our findings, which are based on the panel model, show that the model is valid, coherent, and autoregressive during the time period that was examined, after the necessary adjustments were made in the Eviews 8 program. In addition, it was found that the model was valid after the adjustments were made [Table 4](#).

As hypothesized, econometric analysis reveals that the competitiveness index has a very prominent self-regressive pattern. Consequently, it is observable that the lag value of this indicator is statistically significant at a significance level of 1%. The competitive index of the current year is favorably impacted by the competitiveness index of the previous year, and the fact that Romania achieved a ranking in the GCI in 2019.

The index of political stability has a direct proportionate and statistically significant association with the degree of competitive agency at a degree of relevance of 1%, thus a rise of 1% of this level indicates an estimated increase of 0.24 percentage points in the competitiveness rate. The degree of political stability influences the degree of competitiveness since economic actors will gain trust in public authorities and be inspired to invest, diversify and improve

their production structure, produce profit, and clearly boost global competition as a result.

The infrastructure quality index is another independent variable that has a positive and statistically significant link with the degree of competitiveness, such that a 1% rise in this index leads in an estimated 0.46 percentage point gain in competitiveness. This variable is significant because it may positively affect economic development by boosting productivity, decreasing transportation costs, attracting foreign investments, streamlining the economic circuit overall, and improving the standard of living.

Our regression model reveals that there is no clear empirical evidence linking access to electricity with competitiveness. The relationship is positive, but the correlation coefficient is weak (0.007), indicating that, to the degree that competitiveness is dependent on fuel price and access to power, the impacts of the energy crisis or the increase in the price of power have long-term implications on economic activity, but our timescale is quite brief. As for the link between competitiveness and the import to GDP ratio, it is negative, and the correlation coefficient is extremely weak, indicating that there is no clear empirical evidence between the two variables.

All coefficients are statistically representative at a confidence level of approximately 95%. The R-squared coefficient is 99.4%, indicating that the model is valid/representative and that the selected variables explain the behavior of the independent variable, the Durbin-Watson test statistic (Durbin - Watson stat) is 0.00—indicating that there is no autocorrelation of the errors, and the F-statistic coefficient suggests that the selected variables are significantly associated with the independent variable and the chosen model is valid.

## 4 Discussion

We came up with the regression model based on the current economic and political state of the world, including the recovery from the pandemic, the war between Russia and Ukraine, and the

energy crisis. We also took into account the fact that the degree of competitiveness is affected not only by economic factors but also by a number of other factors that can affect competitiveness and economic growth. Because of this, our model also includes non-economic factors like the index of political stability. Even if the correlation between these independent factors and the dependent variable is not very high, the association is positive and statistically significant at the 1% level of significance.

We expected a stronger relationship between the degree of competitiveness and access to electricity because the price of electricity went up a lot during the pandemic. The relationship is positive, but the correlation is very weak, so we can't say that the energy crisis had a big effect on the degree of competitiveness. It is to be expected that a sudden increase in fixed and material costs will negatively impact companies' profits, both due to cost increases and potential revenue decreases, thus jeopardizing future production of goods and services and future economic growth. Investments in infrastructure, education, and innovation are prerequisites for achieving a certain level of competitiveness and economic development, which in turn secures a particular level of economic and social wellbeing.

The analysis of the composite indices is based on a small amount of data, so even though the correlation factors are statistically significant, the direction is only one-way. A multidirectional relationship would be better to get more complete results and a better idea of how the constructs interact with each other.

It is also worth mentioning that regression models can't prove cause and effect and that there may be other factors that affect both the ICG score and the GDP growth rate, such as political stability, natural resources, and demographic factors. Because of this, regression analysis should be combined with other types of empirical and qualitative analysis to give a fuller picture of how competitiveness and economic growth are related.

## 5 Conclusion

The economic activity is changing and transforming continuously, since its end result, the final product, is supposed to address new, developing, and evolving needs manifested as market demand originating from a diverse and transforming consumer base. This principle has been underpinning industrial development with increasing output levels and fueling consumerism, engaging rising resource consumption, and generating waste and pollution. When trying to place competitiveness within this framing, it emerges as a type of inertia that creates a feeling of wellbeing and enthusiasm and that pushes us to create interesting and useful things for everyone by using renewable, reusable, and recoverable resources that do not pollute the environment and bring us joy and wellbeing. More does not mean better; more beautiful does not mean better quality; more comfortable does not translate to wellbeing; economic growth does not mean economic development; and the results of competition and economic activity should be looked at while balancing the results and satisfaction for the actors involved, producers as well as consumers, with a concern to not harm and protect the environment, the standard of living, health, quality of life, and life expectancy.

In practice, the competitiveness of a nation is not an end in itself, but a means to an end; some approaches to the theories of

competitiveness, such as the theory of competitive advantages, the theory of price competitiveness, the perspective of management strategies, and so on, are all valid; however, the ultimate goal must be to increase the real income of citizens and improve their quality of life; this is because the competitiveness of a nation is not an end in itself, but a means to an end.

The current study shows how the world is changing and how people need to be able to adapt on the spot to meet new challenges. For the timeframe preceding the outbreak of the pandemic crisis, we analyzed the relationship between competitiveness and a number of macroeconomic indicators, such as real GDP *per capita*, labor productivity, the minimum wage per economy, and exports of goods and services, and found a positive correlation between the global index of competitiveness and real GDP *per capita*, labor productivity, and exports of goods and services, and an inverse relationship with the minimum wage per economy, which was expected in the context of that period (2010–2018), a period of economic recovery after the financial crisis of 2008. In the current context, in a reality defined by the aftermath of a medical crisis caused by the COVID-19 virus and being in the midst of both a geopolitical and an energy crisis, a different approach to competitiveness from a different perspective becomes necessary. One cannot talk about competitiveness without considering investments in infrastructure (roads, bridges, railways, air, sea, and rivers), in research-development and innovation, in green technologies, in cheap energy by replacing classic energy sources with renewable energy, in human capital (i.e., preparing, acquiring skills, and constant improvement by the labor force), in the stimulation of local, regional, and national potential by harnessing even resources such as traditions and customs, in investing in projects to find alternative resources to replace the natural and exhaustible ones, etc. We are looking at a paradigm shift where the focus is, on the one hand, on developing green technologies, such as wind energy and solar panels, on alternative sourcing of resources derived from processing primary and natural ones, and, on the other hand, on education, on learning to manage our resources more efficiently, to recycle, to reuse, to recover intermediate goods, to make compost, to lower the environmental as well as material costs of consumption, to let go of the compulsion to stock up on perishable goods, and to take care of the natural, social, and community environment.

While cooperation rather than competition would be required for all responsible actors (public authorities, individuals, and private entities operating either at the national or international level) to pursue a cleaner and healthier environment, we cannot discard that plausible risk reviews that take into account real energy prices, input prices (material and labor costs), and local, regional, and national financial and economic climates will reveal different types of influences on competitiveness and an economic entity's adequacy to national and international markets.

The findings of the research indicate that the connection between economic growth and competitiveness can shift in response to a wide variety of factors, including those that are economic and non-economic, social and environmental, medical (such as a pandemic), political, geopolitical, and macroeconomic, and the list could go on. What nations need to do is direct their attention and investments toward those policies that promote the expansion of culture and education, guarantee political stability,

modernize and develop infrastructure, invest in research and development, innovate products and services that do not pollute the environment, have employment policies that are sound, and guarantee wellbeing and quality of life.

The degree to which political unrest, violence, or disruption of operations and production, distribution, and marketing activities can be expected is a significant factor in determining the level of competitiveness in an economy. This is because political stability creates an environment in which economic agents can operate without the threat of political unrest, violence, or disruption. A politically stable environment, by which we mean the stability of the government, the efficacy of law enforcement, the low incidence of terrorism, and the low probability of violent demonstrations, helps to attract domestic and foreign investments and increases the population's confidence in justice and public administration. This, in turn, determines the increase in the degree to which economic agents become involved in the context of economic growth and development.

Countries with a high index of political stability tend to be more competitive than those with a lower index. This is because political stability can improve the environment for doing business and create opportunities to produce more and better goods domestically, both of which can translate into greater competitiveness on the global market. Countries with a lower index of political stability tend to have a lower standard of living overall.

Building up a nation's economy and making it more competitive requires significant investment in the country's infrastructure. Many countries have paid increased attention to investments in the modernization and development of infrastructure (railways, highways, ports, airports, communication networks) to increase their competitiveness, which has led to the creation of new jobs and an increase in the quality of life of citizens. Excellent infrastructure enhances productivity, decreases transport costs, enables the movement of products and services across regions and nations, and gives improved access to public transit systems, drinking water, and power. Inadequate infrastructure, which results in greater costs for transport and logistics, may be a barrier to attracting foreign investment and makes products and services less competitive on international markets. Bad infrastructure also contributes to increased expenses for moving people and goods.

Because the relationship between economic growth and competitiveness is intricate and nuanced, and depends on a number of factors (such as the particular policies and institutions that are in place, the level of economic

development, and the distributive effects of different policies), it is essential to adopt an all-encompassing strategy that takes into account not only economic growth and competitiveness, but also other social and environmental goals. The Global Competitiveness Index (GCI) for Romania has increased over the last several years, but the country still has opportunity for more development.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding authors.

## Author contributions

DV designed the research plan, analyzed the data, and wrote Sections 1, 3-5 of the manuscript. AC co-wrote Section 2 of the manuscript, analyzed the data, and revised the manuscript. CP collected and analyzed the data and revised the manuscript. AM co-wrote Sections 2, 4 of the manuscript, analyzed the data, and revised the manuscript. MS-P, DH, and CB analyzed the data and revised the manuscript. All authors have checked the final version of the manuscript and approved it for publication.

## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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