

ABOUT COMPETITIVENESS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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ABSTRACT

In the context of population and consumption of natural resources growth, sustainable development is a development model aimed at a balance between economic growth, quality of life and environmental preservation in the medium and long term, without increasing consumption of natural resources beyond the capacity of the Earth. A distinctive feature of the European model of development is represented by the junction between the objective of increasing competitiveness and social and environmental objectives, which leads to deeper relationships between sustainable development and competitiveness. In this paper, we address the issue of competitiveness and sustainable development from two points of view: (1) a theoretical one, researching the area of competitiveness theory considering the development of the concept and current research tendencies and (2) a practical one: identifying how firm competitiveness (measured through return on assets and return on equity) affects socio-economic sustainable development in Romania (measured through the socio-economic sustainability index), considering data over the last 10 years. Although our study underlines an increasing interest on this topic in the research area, there is no common approach with different definitions, factors, models and methodologies developed and employed. Since sustainability and competitiveness are interconnected, an extensive vision of competitiveness should be available for both the economy and the society. Our findings are the basis of developing new theoretical models, justified by the need of a sustainable economy's development to increase the competitiveness of public and private sectors, in order to attract financial resources necessary for financing the growth of economic entities.

KEYWORDS: *competitiveness, economic growth, factors, indicators, sustainable development.*

JEL CLASSIFICATION: *Q56.*

1. INTRODUCTION

The European Commission has shown increasing interest in the issue of sustainable development, not only in the context of environmental policies but, more recently, in the context of all policy decisions, be they economic, social or environmental. In this sense, competitiveness represents a key issue in the context of knowledge based economy and considering the need to identify competitive factors that are the basis of European policies' design.

This creates a need for research initiatives to develop the concept of competitiveness, with much of the research focusing on how sustainable development and competitiveness interact (Balkyte & Tvaronavičiene, 2010).

In this respect, we focused this paper on researching the area of competitiveness theory, considering the development of the concept and current research tendencies, in order to provide the basis of

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developing new theoretical models describing the relationships between competitiveness, economic growth and sustainable development, as well as analyzing the influence of firm competitiveness (in terms of financial performance) on the socio-economic development (headline indicator of sustainable development) of Romania, during the past 10 years, based on previous national and international studies and their results.

Thus, we started with an analysis of the competitiveness and sustainable development theoretical concept tendencies, taking into the account the existing literature and political documents, with a specific focus on competitiveness in the context of sustainable development (section 2).

Section 3 covers the research framework and hypotheses, critically analyzing the current methodological approaches for both sustainable development and competitiveness, section 4 presents the methodology and the results, while in section 5 we present our findings and conclusions, which may contribute for further research.

2. LITERATURE REVIEW

Currently, competitiveness and sustainability have become catch words in the discourse on global prosperity and development strategies. The relationship between the two concepts has been studied extensively by academics, policy practitioners and international organizations.

Over the past few decades, the interest has increased mainly as a consequence of influential public works, the most popular document being the report *Our Common Future* (1987) which defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (Brundtland & WCED, 1987).

The definition captures several dimensions of development that surpass economic growth in order to include the tangible and the intangible necessities of life. Although initially the concept only focused on the environmental aspects of development (Dryzeck, 1997), it further evolved in including both an economic and a social dimension.

Thus, economics became the dominating issue of human relations with economic growth, defined by increasing production, as the main priority (Douthwaite, 1992). The concept of sustainable development is the result of the growing awareness of the global links between mounting environmental problems, socio-economic issues to do with poverty and inequality and concerns about a healthy future for humanity, strongly linking environmental and socio-economic issues (Hopwood et al., 2005).

In terms of measurement, sustainable development has seen different approaches that have evolved from the analysis conditioning an optimal long-term consumption, which take into account technological progress and population growth, to the analysis of compatibility between economic and environmental development conditioning that will not affect future generations' actions.

If in the 70s, the debate created by Meadows et al. (1972) focused on non-renewable natural resource stock boundaries and the environmental impact of economic growth, environmental quality and economic growth were seen as divergent from, in the 80s, the forefront of the debate has taken to reconcile the two dimensions.

In recent years, economic and ecological literature has focused on issues such as:

- (a) how and how much of the natural resources should be exploited;
- (b) the impact of human activities upon the environment (pollution, waste etc.);
- (c) the concept of long-term sustainable development, aiming intergenerational equity through integrating economic development, social dimension and the environment.

Moreover, international organizations (UNECE, OECD, Eurostat) have been preoccupied with creating a framework for sustainability assessment, developing indicators and composite indicators in this respect. The World Business Council for Sustainable Development (WBCSD, 1997), the Global Reporting Initiative (GRI, 2002) and development of standards (OECD, 2002) were the foundation for sustainability reporting. In 2004, Azapagic developed such a framework for,

compatible to GRI and in 2005, Krajnc and Glavic developed a standardized set of sustainability indicators for companies. The need to develop SD indicators is underlined by Lancker and Nijkamp (2000), who consider that a given indicator does not say anything about sustainability, unless a reference value such as thresholds is given to it. The most comprehensive study on this subject is that of Singh et al. (2009) who summarize the existing assessment methodologies for sustainability. No matter the perspective, there is a common agreement that indicators are a useful tool in providing information on a country's performance in fields such as environment, economy, society or technological development.

When discussing competitiveness, the literature reveals a variation in perspective in defining, understanding, and measuring techniques. Perspectives from various disciplines reveal that competitiveness was a multi-faceted concept, which could be associated with three major groups of thought, as shown in table 1 below.

Table 1. Groups of thought in defining competitiveness

	Level	Author(s)
Definitions of competitiveness	Comparative advantage and/or price competitiveness perspective	Durand & Giorno, 1987; Fagerberg, 1988; Porter, 1990; Rugman & D'Cruz, 1993; Cartwright, 1993.
	A strategy and management perspective	Porter & Millar, 1985; Day & Wensley, 1988; Grant, 1991; Mahmoud <i>et al.</i> , 1992; Powell, 1992.
	A historical and socio-cultural perspective	Aaker, 1989; Franke <i>et al.</i> , 1991; Porter <i>et al.</i> , 2001.

Source: Created by the authors

These different groups of thought approached competitiveness as follows: economists emphasized country-specific economic characteristics of competitiveness; management and strategy researchers focused on the firm-specific characteristics; sociologists and political theorists underlined various social, political and cultural characteristics of competitiveness. Furthermore, each group suggested different indicators in explaining or measuring competitiveness. Recent literature proposes a different approach of the concept, at various levels, as shown in table 2.

Table 2. Recent approaches in defining competitiveness

	Level	Author(s)
Definitions of competitiveness	Firm level competitiveness	Edmonds, 2000; Snieska & Draksaite, 2007; Balzaravičienė & Pilinkienė, 2012.
	Sectors competitiveness	Peters, 2010; Balkytė & Tvaronavičienė, 2010.
	Regional competitiveness	Kitson, Martin & Tyler, 2004; Sepic, 2005; Snieska and Bruneckiene, 2009.
	National competitiveness	Boddy et al., 2005; Van Ark, 2006; Arslan & Tathdil, 2012.
	International competitiveness	Hickman, 1992; Faucheux & Nicolai, 2011.

Source: Created by the authors

Edmonds (2000) defines competitiveness from a firm's point of view as the ability to produce the right goods and services of the right quality at the right price, at the right time, thus meeting customers' needs more efficiently and more effectively than other firms do.

From a regional point of view, Snieška and Bruneckiene (2009) define regional competitiveness as the ability to use factors of competitiveness in order to make a competitive position and maintain it among other regions.

National competitiveness refers to a country's ability to create, produce, distribute and service products in the international trade while earning rising returns on its resources (Arslan & Tathdil, 2012).

Hickman (1992) defines international competitiveness as "the ability to sustain, in a global economy, an acceptable growth in the real standard of living of the population with an acceptably fair distribution, while efficiently providing employment for substantially all who can and wish to work and doing so without reducing the growth potential in the standards of living of future generations".

Evaluating competitiveness may mean a country's economic policy analysis or establishing international hierarchy based on a set of indicators (e.g. Growth Competitiveness Index - developed by the World Economic Forum).

On the other hand, competitive analysis may consist of analyzing economic sectors in order to identify and support activities that have potential comparative advantages.

The most commonly used methods of assessing the level of competitiveness in the specific literature are the following:

- (a) microeconomic competitiveness (Business Competitiveness Index - Porter et al., 2008) comprising 58 indicators, both internal to companies (e.g. nature of competitive advantage, business performance, customer orientation, innovativeness) and business environment indicators (e.g. costs of corruption, quality of education, the efficiency of the legal environment, financial market development). This index integrates two sub-indices: operational and strategic company sub index and business environment sub index;
- (b) mezzo economic competitiveness (sector competitiveness index) involves measuring competitiveness at a sector level. This index can be addressed beyond the boundaries of a sector and attributed to acquired regional performance (EU Regional Competitiveness Index – Annoni & Kozovska, 2010);
- (c) macroeconomic competitiveness (Global Competitiveness Index - Sala-I-Martin et al., 2013 and New Global Competitiveness Index – Porter et al., 2009) which focuses on 12 growth pillars namely financial institutions, infrastructure, economic environment, health, primary education, higher education, goods market efficiency, labor market efficiency, financial market development, efficient production of goods and services and innovation capacity. This index is constructed by the connection of the 12 pillars of macroeconomic, based on the idea that the prosperity of a country is determined by its competitiveness, generated in turn by human, material and financial resources' productivity.

As shown above, competitiveness can be measured in different ways: analyzing one or several factors, using theoretical models, creating composite indices etc. Snieska and Bruneckiene (2009) underline that competitiveness cannot be completely defined by one or several economic or social indicators, complex measurements are necessary.

Despite mounting interest in sustainable development, the relationship between environmental or social sustainability and competitiveness has been only marginally explored. So far, economists have devoted their efforts to trying to understand the way economic growth impacts the quality of the environment or income distribution within a country and vice versa. However, little is known about how these aspects of sustainability relate to competitiveness.

When considering the dimensions of sustainable development in regards to defining competitiveness, several approaches should be excluded. Thus, currently the interconnection between the two concepts appears only when approaching competitiveness from a national or international perspective.

Feurer and Chaharbaghi (1994) have proposed a holistic definition of competitiveness, taking into account the sustainability: "Competitiveness is relative and not absolute. It depends on shareholder and customer values, financial strength which determines the ability to act and react within the competitive environment and the potential of people and technology in implementing the necessary strategic changes. Competitiveness can only be sustained if an appropriate balance is maintained between these factors which can be of a conflicting nature". However, Wilkinson and Pickett (2010) argue that the acceptable living standards should be combined with a sustainable economy.

The strategy Europe 2020 hints that EU member states should regard environmental challenges as growth opportunities, thus using efficiently their natural resources towards economic growth. It is a known fact that all of an economy's sectors can contribute to smart growth through using new technologies for innovations. Also, researchers are preoccupied with identifying specific future sustainable competitiveness drivers.

It can be concluded that globalization, social progress, sustainability and competitiveness are interlinked with different types of competitive advantages that interact and reinforce each other.

3. RESEARCH FRAMEWORK AND HYPOTHESES

As we already observed, measuring how competitiveness influences sustainable development is a complex task. The many facets of both concepts, in terms of understanding and measurement, led us to constrain our research and focus primarily on one level of competitiveness – firm competitiveness – and one aspect of sustainable development – the socio-economic dimension.

This approach is justified by the companies' effort in activities aimed at addressing sustainable development, namely the creation of goods and services using processes and systems that are non-polluting, conserving energy and natural resources, creating an economically viable, safe and healthful environment for employees (Veleva and Ellenbecker, 2001). Since firm competitiveness is often synonymous with a firm's long-run profit performance and its ability to compensate its employees and provide superior returns to its owners (Buckley et al. 1988), herein after we measure a firm's competitiveness by its financial performance.

Traditionally, companies use standard financial indicators in order to examine their business effectiveness or competitiveness (Tangen, 2003). We identified several instruments which can be attributed to various approaches: market measures (Alexander and Buchholz, 1978), accounting measures (Waddock and Graves 1997) and even both (McGuire et al., 1988). Such is the case of the widely preferred and used accounting measures Return on Assets (ROA), which determines a company's ability to make use of its assets and Return on Equity (ROE), which determines what return investors take for their investment. The use of these indicators presents several advantages, especially the worldwide agreement of their definition and the easiness of their calculation, reasons that led us to use these two indicators in our research.

As for the sustainable development measurement, from the vast array of indicators, we narrowed our research on its socio-economic dimension (as defined and calculated by Eurostat), dimension representative in this context since companies constitute a major source of employment and generate significant domestic and export earnings, contributing to a country's social and economic development. Studies show that a firm's performance robustly influences economic growth (Levine, Loayza and Beck, 2000), thus validating our approach.

Concerning the socio-economic dimension, Eurostat publishes every two years a report that monitors the EU Sustainable Development Strategy (EU SDS), calculating Sustainable Development Indicators (SDIs) presented in ten themes with more than 100 indicators. Out of those, twelve have been identified as headline indicators, starting with socio-economic development, measured as the growth rate of real GDP per capita for each of the EU's Member States.

Based on the specific literature findings, presented above, we have developed the following research hypothesis: There is a correlation between sustainable development, in terms of socio-economic development index and firm's competitiveness, measured by ROA and ROE.

4. METHODOLOGY AND RESULTS

In order to test and validate the research's hypothesis, we have selected a sample of 55 Romanian companies, the inclusion criteria targeting their listing on the Bucharest Stock Exchange and the values of GDP per capita and Global Index of Competitiveness. The companies have an industrial profile, from both heavy and light industry. Objections may be made to the inclusion of the two sectors in the same sample but the argument is that, in the absence of a sufficient amount of data, it is recommended to ensure the greatest possible homogeneity of the data, as well as a large enough sample to preserve the viability of the statistical analysis results.

The period of time taken into consideration for the analysis covers 10 years (from 2004 to 2013), thus, the necessary data was extracted for each company for the indicated period. The first issue addressed concerned measuring the determined variables, as shown in table 3 below.

Table 3. Variables defining

Variable	Coding	Measuring	Source
Socio-Economic Development Index	SEDI	Real GDP per capita, growth rate and totals	Extracted from Eurostat
Return on assets	ROA	Net income / Total assets	Firm data base
Return on equity	ROE	Net Income/Shareholder's Equity	Firm data base

Source: Created by the authors

Next, given the nature of our research and of the collected data, we applied an econometric modeling with panel data, considered the most representative due to the fact that it estimates regression equations and uses series that are both time series and cross-sectioned data (Greene, 2000).

Using STATA 12, we first realized a descriptive statistic of the three panel type variables, for the 10 years period of time taken under consideration, with 55 sections, corresponding to the number of firms included in the sample, presented in table 4 below.

Table 4. Descriptive statistics

Variable	Mean	Std. Dev.	Variance	Skewness	Kurtosis
SEDI	5.5	0.874945	8.265306	0	1.775758
ROA	0.052	0.0952	0.009	-2.751	5.904
ROE	0.099	0.813	0.661	-0.647	5.412

Source: Authors' compilation based on the analysis described in the text

The Skewness and Kurtosis test values indicate that the analyzed series are normally distributed and therefore they can be interpreted in our approach.

We then proceeded to analyze the correlations between each firm competitiveness determinant explained above and the sustainable development indicator, applying as a first model the GLS regression with random effects, which considers each intercept as the result of a random deviation from some mean intercept, and as a second one the fixed effects model, which explores the impact of variables that vary over time (results for both models are shown in table 5).

Table 5. Analysis results (random effects model and fixed effects model)

	The random effects model	The fixed effects model
	SEDI	SEDI
ROA	5.7890798***	7.6585357***
ROE	.06667685	.07352863
N obs.	540	540

* p<0.05; ** p<0.01; *** p<0.001

Source: Authors' compilation based on the analysis described in text

In order to decide which model gives the most accurate results considering the type of panel data, we performed a Hausman test that showed values for Prob>chi2 greater than 0.05 which indicated the use of random effects model.

Thus, considering the dependant variable, results show that SEDI is influenced only by the return on assets of the firms: a 1% increase in the value of ROA determines the increase of SEDI by 5.78%, while for the return on equity of the firms results show that there is no significant impact upon the SEDI, thus partially validating our research hypothesis.

5. CONCLUSIONS

As stated in the beginning, our research had two main approaches: a theoretical one focused on researching the area of competitiveness and sustainable development theory in order to provide the basis of developing new theoretical models and a practical one, namely identifying how firm competitiveness affects socio-economic sustainability in Romania.

When considering the theoretical approach, our research underlines the fact that there is no inherent conflict between competitiveness and sustainability, but a need to develop a system of competitiveness which is as beneficial as possible, in terms of both economic and social growth.

As a first direction, we underlined the necessity for a clear categorization of the theoretical definitions of competitiveness in order to create a fundamental systematic background for the future theory development. As shown in our paper, there are different approaches in defining competitiveness, either from various disciplines' point of view or according to different research areas. When linking competitiveness to sustainable development, we pointed that only two approaches are valid, those of national and international competitiveness, approaches that broaden the concept in considering the dynamic political, economic and social environment. With the growing interest in the problem of sustainability, it shall be expected that in the future the competitiveness' definition will include the sustainability dimension.

We then demonstrated that the relationships between sustainable development and competitiveness are currently acknowledged in the specific research area, emphasizing the shift towards a new concept – sustainable competitiveness.

Moreover, by further analyzing the methodological approaches in assessing both sustainable development and competitiveness, we may conclude that there still is no common ground between researchers as to integrate the two dimensions in a specific model, with many different interpretations and methods that guarantee reliability and informative value.

As for the practical aspect of our research, our analysis's results demonstrated that indeed firm competitiveness impacts upon social development, however, debates arise when considering the appropriate measurement instruments. In our case, only ROA was shown to be significant (the higher success of a firm in using assets to generate earnings independent of the financing, the higher impact on sustainable development), while ROE had no impact whatsoever. This is a consequence of the availability of data; the majority of our firms did not register profit for the analyzed period which indicates that for a significant effect, a higher level of ROE is needed.

Our research analyses mainly one level of competitiveness – firm competitiveness – and one aspect of sustainable development – the socio-economic dimension. In this respect, the results are debatable, implying that the study of competitiveness and sustainable development requires a broader base of explanatory variables and thus, further analysis is needed. A further research topic in this regard will concentrate on both expanding the firm competitiveness' variables and the sustainable development's indicators or even extending the analysis for all of the five levels of competitiveness (firm, sectors, national, regional and international level).

Considering the established goals of the Europe 2020 strategy, our findings underline the impact of including in the competitiveness theory the sustainable development perspective, in order to meet the target of smart, sustainable and inclusive growth.

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