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# SUSTAINABLE COMPETITIVENESS. OPPORTUNITIES AND CHALLENGES FOR POLAND'S ECONOMY

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## KONKURENCYJNOŚĆ W KONTEKŚCIE ZRÓWNOWAŻONEGO ROZWOJU. SZANSE I WYZWANIA DLA POLSKIEJ GOSPODARKI

STRESZCZENIE: Konkurencyjność jest koniecznym, ale niewystarczającym warunkiem dalszego dobrobytu, stąd potrzebne są dodatkowe działania w zakresie społecznego i środowiskowego wymiaru zrównoważonego rozwoju. Na podstawie dostępnej literatury na temat zrównoważonego rozwoju można stwierdzić, że kwestie konkurencyjności rzadko są brane pod uwagę. Jest to uzasadnione tym, że paradygmat zrównoważonego rozwoju jest uważany za czynnik jakościowy, wymagający analizy długoterminowej, a także trudno mierzalny. Celem artykułu jest analiza konkurencyjności polskiej gospodarki w kontekście zrównoważonego rozwoju w oparciu o Indeks Globalnej Konkurencyjności. To pozwoli na znalezienie odpowiedzi na główne pytanie badawcze, w jakim zakresie zrównoważony rozwój wpływa na konkurencyjność polskiej gospodarki? Na podstawie tej analizy będzie można określić konkurencyjność polskiej gospodarki, biorąc pod uwagę kryteria zrównoważonego rozwoju.

SŁOWA KLUCZOWE: zrównoważony rozwój, konkurencyjność, społeczny wymiar zrównoważonego rozwoju, środowiskowy wymiar zrównoważonego rozwoju, gospodarka, Globalny Indeks Konkurencyjności, Polska

## Introduction

The concept of sustainable development has been an important trend of social and economic development for several decades[1]. It was first defined by the World Commission on Environment and Development (WCED) of the United Nations in 1987. In the report of "Our common future", sustainable development was defined as that which strives to meet the needs of present and future generations in full compliance with the environment[2]. The essence of sustainable development consists in integrating the economic, social and environmental dimension in such a way as to ensure development for future generations[3].

Taking action towards sustainable development occurs in almost all fields of life and activities of people, governments and businesses, e.g. in science and technology, economy, consumption, education, media, politics, ideology, religion, culture, entertainment, sports[4]. The last activities at the international level indicate intensified actions for sustainable development[5]. For example, the latest European Union strategy adopted in 2010 under the name of "Europe 2020: A strategy for smart, sustainable and inclusive growth"[6] or the new United Nations Sustainable Development Goals[7] of the 2030 Agenda for Sustainable Development, adopted by world leaders in September 2015[8], can be mentioned here.

1 R. Janikowski, *Nachhaltigkeit als Imperativ des Alltags*, "Humanities and Social Sciences" 2014 no. XIX 21(3), p. 71–82; M. Burchard-Dziubińska, *Działania na rzecz wdrażania zrównoważonego rozwoju w układzie globalnym i Unii Europejskiej*, "Ekonomia i Środowisko" 2005 no. 2(28), p. 15–26.

2 G.H. Brundtland, *Our Common Future*, Report of the World Commission on Environment and Development, Oxford 1987, p. 37.

3 J. Famielec, *W poszukiwaniu ładu gospodarki zrównoważonej*, Studia i Materiały "Miscellanea Oeconomicae" 2014 no. 1, p. 89–101; M. Urbaniec, *Sustainable Development Indicators in Poland: Measurement and System Evaluation*, "Entrepreneurial Business and Economics Review" 2014 vol. 3(1), p. 119–134.

4 L. Preisner, *Wpływ globalnych uwarunkowań środowiskowych na funkcjonowanie przedsiębiorstw*, in: A. Budnikowski, M. Cygler (red.), *Globalizacja gospodarki a ochrona środowiska*, Warszawa 2004, s. 329–338; L.W. Zacher, *Trwały rozwój – utopia czy realna możliwość*, "Problemy ekorozwoju" 2008 vol. 3(2), p. 67.

5 *The Sustainable Development Goals: An overview of relevant OECD analysis, tools and approaches*, Paris, www.oecd.org [15-09–2016].

6 *Europe 2020 "A European strategy for smart, sustainable and inclusive growth",* Brussels 2010, COM(2010) 2020 final.

7 *Transforming our World: The 2030 Agenda for Sustainable Development*, A/RES/70/1, New York 2015, www.sustainabledevelopment.un.org [15-09–2016].

8 G. Ramos, *The Sustainable Development Goals: A duty and an opportunity*, in: P. Love (ed.), *Debate the issues: New approaches to economic challenges*, Paris 2016, p. 17–21.

Based on the European strategy for smart, sustainable and inclusive growth "Europe 2020", EU Member States must take measures in the following areas: first, in innovation, education, training and lifelong learning, and digital society; secondly, in sustainable competitiveness, combating climate change and efficient energy; thirdly, inclusive in employment, skills and fighting poverty[9]. All these development directions should support efforts towards the sustainable competitiveness of the EU economy.

In general, competitiveness is increasingly seen not only in terms of the economic performance of a nation, but also in relation to environmental and social performance. The synergy between them contributes to the creation of sustainable competitiveness[10]. The measurement of sustainability requires the use of a variety of indicators[11]. These measurements usually show the strengths and weaknesses of individual world economies and also constitute an element of competitiveness research. One of the monitoring systems of global economies – developed by the World Economic Forum (WEF) – is the Global Competitiveness Index (GCI), which was recently expanded with criteria for sustainable development. The introduction of these new criteria has its justification in the fact that competitiveness in a general sense is a necessary but insufficient condition for further prosperity. Given the current challenges it can be argued that sustainable development is becoming an increasingly important competitive factor on the macroeconomic level where, aside from economic issues, social and environmental aspects are also gaining in importance.

The key aim of this article is to analyse the level of competitiveness of Poland's economy in relation to that of sustainability, as well as the assessment of strengths and weaknesses on this issue. Therefore, the research questions which arise are, first, to what extent sustainability affects the competitiveness of Poland's economy and, second, whether undertaking actions toward sustainable development contributes to improving the competitiveness of the given country. On the basis of this analysis it will be possible to determine the position of economy of Poland in the competitiveness ranking taking into account the sustainability criteria. This paper also attempts to identify the most important factors impacting on the sustainable competitiveness of the economy of Poland. The study was conducted on the basis of such research methods as the critical analysis of Polish and foreign literature

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9 *Europe 2020*..., op. cit., p. 5.

10 A. Balkyte, M. Tvaronaviciene, *Perception of competitiveness in the context of sustainable development: facets of 'sustainable development'*, "Journal of Business Economics and Management" 2010 vol. 11(2), p. 341–365.

11 *Measuring Distance to the SDGs Targets: a pilot assessment of where OECD countries stand*, www.oecd.org [15-09–2016].

and documents, including GCI reports, developed by an international economic organisation, i.e. the World Economic Forum.

## The definition of competitiveness and sustainable competitiveness

The concept of "competitiveness" is commonly used, but in reality it is conceptually vague and open to many interpretations[12]. This is not an absolute phenomenon that can be determined without comparison to other objects or structures. Depending on the context in which the term is used, it takes on a different meaning[13].

In the literature the word "competitiveness" conveys a different meaning when applied to an individual firm or an individual sector or economic activity within a country or region[14]. Many economists perceive competitiveness as a phenomenon occurring only at the company level and reject the concept of "national competitiveness"[15], while others claim that the lack of attention to broader concepts of national competitiveness has been a clear lack of economic research and policy[16]. Porter (1990) sees the term as synonymous with productivity, stating that: "The only meaningful concept of competitiveness at the national level is productivity"[17].

Academic definitions of competitiveness encompass both general questions about strategic choices without specifying the unit of analysis, as well as definitions at the national level. The focus of competitiveness at the country level was proposed by Scott and Lodge (1985). According to them competitiveness is a "country's ability to create, produce, distribute and/or service products in international trade while earning rising returns on its resources"[18]. In a general sense, competitiveness is defined as the economy's capability of long-term economic growth. The high competitiveness of a country is not only one of the objectives of economic policy of the economy of

12 R.D. Atkinson, *Competitiveness, Innovation and Productivity: Clearing up the Confusion*, Washington 2013, p. 2.

13 M. Gorynia, B. Jankowska, *Klastry a międzynarodowa konkurencyjność i internacjonalizacja przedsiębiorstwa*, Warszawa 2008, p. 55–56.

14 M. Urbaniec, *Eco-innovations as a source of competitive advantage in enterprises*, in: A. Marković, S. Barjaktarović Rakočević (eds), *Proceedings of the XIV International Symposium SymOrg 2014: New Business Models and sustainable competitiveness*, Belgrade 2014, p. 1630.

15 P. Krugman, *Making Sense of the Competitiveness Debate*, "Oxford Review of Economic Policy" 1996 vol. 12, p. 17-25.

16 M.E. Porter, *The Competitive Advantage of Nations*, New York 1990.

17 Ibidem.

18 B.R. Scott, G.C. Lodge, *US competitiveness in the world economy*, "The International Executive" 1985 vol. 27(1), p. 20–26.

Poland, but is also of interest to scientists, especially economists, who constantly strive to seek out factors having an impact on building the competitiveness of each country. This phenomenon is particularly important in the globalisation process.

According to economists from the WEF, competitiveness is defined "as the set of institutions, policies, and factors that determine the level of productivity of a country"[19]. The WEF definition links micro- (company-level) to macro- (country-level) competitiveness, and reflects the complexity of the economic development process. This definition refers to productivity because growth models indicate that, in the long term, productivity is a key factor explaining the level of prosperity of the country and thus its citizens. Productivity also determines the rate of return obtained by investments in the economy, which in turn are the primary driver of its growth[20]. Therefore, a more competitive economy is considered one that can grow faster over time[21].

A similar definition of competitiveness includes the IMD's World Competitiveness Yearbook, but more broadly. Competitiveness refers to the way in which a country "manages the totality of its resources and competencies to increase the prosperity of its people"[22]. This conceptualisation underlines prosperity as the fundamental outcome of competitiveness. Prosperity is strongly dependent on national value systems and therefore changes from one country to another. The OECD's definition of competitiveness concerns a country's ability to sell goods in global markets and is "a measure of a country's advantage or disadvantage in selling its products in international markets"[23].

According to the European Commission, at the level of the economy, competitiveness refers to "the overall economic performance of a nation measured in terms of its ability to provide its citizens with growing living standards on a sustainable basis and broad access to jobs to those willing to work"[24]. The source of competitiveness are the institutional and microeconomic conditions that create opportunities for the development of enterprises. Equally important is the macroeconomic policy to promote a safe framework for business activities and a low carbon economy in order to ensure environmental sustainability.

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19 *The Global Competitiveness Report 2015–2016*, Geneva 2015, p. 43–44.

20 M.E. Porter, op. cit.

21 *The Global Competitiveness Report 2015–2016*, op. cit., p. 35.

22 *IMD World Competitiveness Yearbook 2014*, Lausanne 2014, p. 494.

23 *OECD Glossary of Statistical Terms*, www.stats.oecd.org [09–10–2016].

24 *European Competitiveness Report 2009*, Commission Staff Working Document, SEC (2009)1657 final, Luxembourg 2010, DOI: 10.2769/21563, p. 20.

Competitiveness is a multilevel concept[25]. The evolution of the theory and research on competitiveness takes into account, aside from the international aspect, also the condition of the economy in the macro- and microeconomic scale. In addition, competitiveness is increasingly dependent on quality determinants related to, among others, technological progress, innovation, and economies of scale, which is reflected in various indicators presenting the level of technological and innovative competitiveness of countries.

Based on the literature on competitiveness, it can be concluded that the issues of sustainable development are rarely taken into account. This is justified by the fact that the paradigm of sustainability is considered as a quality factor, requiring long-term analysis and, in addition, being difficult to measure. The concept of competitiveness is a multifaceted term that has evolved over the years based on sustainable development paradigms from responsible competitiveness[26] to sustainable competitiveness. The latest economic literature refers to the concept of sustainable competitiveness by expanding the traditional importance of competitiveness[27]. The key objective of sustainable competitiveness is the search for a model that would reflect a sustainable approach to economic prosperity, environmental issues and social dimensions.

According to SolAbility Sustainable Intelligence[28], an independent sustainable management advisory and think-tank founded in 2005, sustainable competitiveness is defined as "the ability of a country to meet the needs and basic requirements of current generations while sustaining or growing the national and individual wealth into the future without depleting its natural, intellectual and social capital"[29]. The sustainable competitiveness model developed by SolAbility includes all relevant factors of sustained growth and wealth creation of a nation – natural capital availability, resource intensity, innovation and business capabilities, and social cohesion.

The wider meaning of sustainable competitiveness includes a definition developed by the World Economic Forum. For this purpose, sustainable competitiveness was defined as "the set of institutions, policies, and factors that make a nation productive over the longer term while ensuring social and

25 M. Gorynia, B. Jankowska, op. cit., p. 51–52.

26 A. MacGillivray, J. Sabapathy, S. Zadek, *Responsible Competitiveness Index 2003 – Aligning corporate responsibility and the competitiveness of nations. AccountAbility*, Denmark 2003.

27 Defining Sustainable Competitiveness, www.reports.weforum.org [09–10–2016].

28 SolAbility is the publisher of the Global Sustainable Competitiveness Index and the maker of 3 DJSI Suspersector Leaders.

29 *The competitiveness of sustainability*, www.solability.com [09–10–2016].

environmental sustainability"[30]. Accordingly, social sustainability is defined as "the institutions, policies, and factors that enable all members of society to experience the best possible health, participation, and security; and that maximise their potential to contribute to and benefit from the economic prosperity of the country in which they live"[31]. Whereas environmental sustainability determines "the institutions, policies, and factors that ensure an efficient management of resources to enable prosperity for present and future generations"[32]. In this context, the Global Competitiveness Index has been expanded by new indicators, which take into account two dimensions – environmental and social. The framework for the measurement of sustainable competitiveness will be presented in the following section.

## The analytical framework of the sustainability-adjusted Global Competitiveness Index

By defining the functional relationship between competitiveness and sustainable development, and the identification of suitable areas and variables, the complexity of the two categories in terms of both conceptuality and measurement can be clearly observed. Therefore, a simple approach determining the linear relationship between the three dimensions has been developed. It consisted in adapting the Global Competitiveness Index for social and environmental dimensions of sustainable development. This approach does not have a scientific character, but represents a normative approach designed to stimulate discussion about political priorities, and to support research in this field.

As a result of actions taken by the World Economic Forum, a conceptual model has been developed, which aims to create a common policy platform for the integration of economic prosperity with social inclusion and environmental stewardship. This model presents a framework for adapting the measurement of global competitiveness by factors including social and environmental dimensions of sustainable development. The competitiveness model plays a key role as a factor of social welfare, where a high level of competitiveness is crucial for sustained prosperity (see figure 1).

The model shown in figure 1 indicates that competitiveness in itself does not lead to a sustainable level of prosperity. Although a certain level of economic prosperity is essential in order to achieve a high standard of living,

30 G. Corrigan, et al., *Assessing Progress toward Sustainable Competitiveness*, in: *The Global Competitiveness Report 2014–2015*, Geneva 2014, p. 55.

31 Ibidem.

32 Ibidem.

according to this concept countries are also assessed for their ability to generate long-term prosperity for citizens in a sustainable manner. In other words, competitiveness is a necessary but insufficient condition for further prosperity, hence additional efforts are needed in the field of social and environmental dimensions of sustainable development. Each of these dimensions of sustainable development is measured using different indicators presented in the table 1.

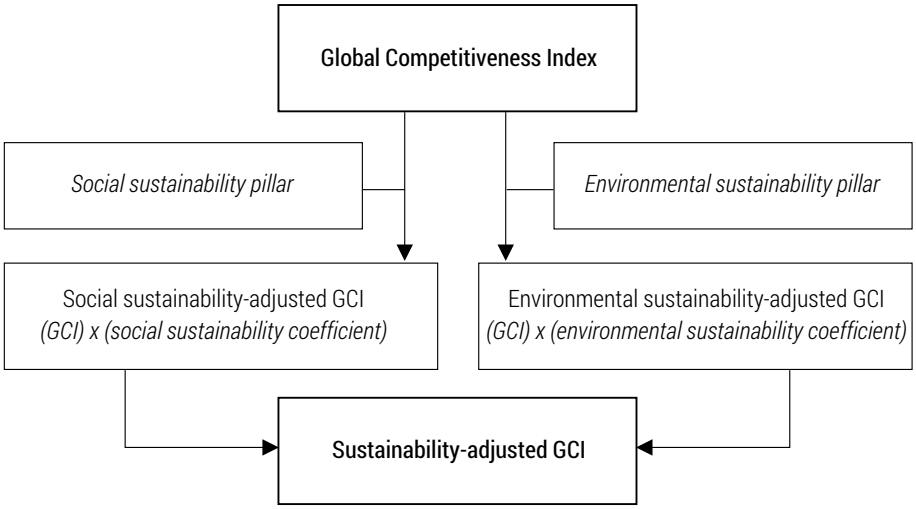


**Figure 1.** Structure of the sustainability-adjusted GCI

Source: own elaboration based on: *The Global Competitiveness Report 2014–2015*, Geneva 2014, p. 64.

**Table 1.** Components of sustainable competitiveness

| GCI Pillar | Social Sustainability Pillar | Environmental Sustainability Pillar |
|---|---|---|
| 1. Institutions | 1. Access to sanitation | 1. Stringency of environmental regulation |
| 2. Infrastructure | 2. Access to improved drinking water | 2. Enforcement of environmental regulation |
| 3. Macroeconomic environment | 3. Access to Healthcare | 3. Number of ratified international environmental treaties |
| 4. Health and primary education | 4. Vulnerable employment | 4. Terrestrial biome protection |
| 5. Higher education and training | 5. Extent of informal economy | 5. Baseline water stress |
| 6. Goods market efficiency | 6. Social safety net protection | 6. Wastewater treatment |
| 7. Labour market efficiency | 7. Income Gini index | 7. Forest cover change |
| 8. Financial market development | 8. Social mobility | 8. Fish stock overexploitation |
| 9. Technological readiness | 9. Youth unemployment | 9. Level of particulate matter concentration |
| 10. Market size | | 10. $CO_2$ intensity |
| 11. Business sophistication | | 11. Quality of the natural environment |
| 12. Innovation | | |

Source: own compilation based on: *Global Competitiveness Report 2014–2015*, Geneva 2014, p. 9, 65–66.

The World Economic Forum (WEF) implements one of the best-known competitiveness indices, the Global Competitiveness Index (GCI), embracing a wide array of determinants of a country's productivity at both the macro- and microeconomic levels[33], and reflecting the complexity of the economic development process. Furthermore, the World Economic Forum has taken efforts to adapt the Global Competitiveness Index (GCI) by measuring sustainable development. The results are presented in the following sections.

## The competitiveness of Poland's economy according to the Global Competitiveness Index

The Global Competitiveness Index (GCI) is conducted annually by the World Economic Forum in order to compare the conditions for economic development and determine the ability of each country in order to ensure long-term economic growth. The GCI measures the level of competitiveness of the economy, defined as a set of institutions, policies and factors that determine the level of productivity of the economy. The GCI is a comprehensive index, combining 114 indicators capturing concepts important for productivity. These indicators are organised into 12 categories (see table 2): institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation. These categories are in turn grouped into three sub-indexes, basic requirements, efficiency enhancers, and innovation and sophistication factors[34], which refer to the three main stages of development, i.e. factor-driven, efficiency-driven, as well as innovation-driven economies[35].

As the table shows, of the 140 countries surveyed in 2015, Poland was ranked 41st and, in 2014, was in the 43rd position of 144 countries[36]. As regards the basic requirements in 2015, Poland was ranked number 44 and, in terms of effectiveness – 34, and in the area of innovation – 57.

33 *The Global Competitiveness Report* …, op. cit., p. 44.

34 Each of the three sub-indexes have different weights in the calculation of the overall index, depending on the stage of development of each economy.

35 *The Global Competitiveness Report*, op. cit., p. 4–5.

36 In 2015 the Report covered 140 economies, because of absence of data, such countries like Angola, Barbados, Burkina Faso, Libya, Puerto Rico, Suriname, Timor-Leste, or Yemen could not be included. However, Benin, Bosnia and Herzegovina, Ecuador, and Liberia, which could not be included in the last edition, were restored in this edition. *The Global Competitiveness Report*…, op. cit., p. 5.

**Table 2.** Poland's position in the Global Competitiveness Index

| Global Competitiveness Index (2014: 43 position / 2015: 41 position) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator / Year | 2014 | 2015 | Indicator / Year | 2014 | 2015 | Indicator / Year | 2014 | 2015 |
| Basic requirements sub-index | 55 | 44 | Efficiency enhancers sub-index | 32 | 34 | Innovation and sophistication factors sub-index | 63 | 57 |
| Institutions | 56 | 58 | Higher education and training | 34 | 31 | Business sophistication | 63 | 55 |
| Infrastructure | 63 | 56 | Goods market efficiency | 51 | 46 | | | |
| Macroeconomic environment | 63 | 46 | Labour market efficiency | 79 | 81 | | | |
| Health and primary education | 39 | 40 | Financial market development | 35 | 43 | Innovation | 72 | 64 |
| | | | Technological readiness | 48 | 41 | | | |
| | | | Market size | 19 | 21 | | | |
| ↓ | | | ↓ | | | ↓ | | |
| Key for factor-driven economies | | | Key for efficiency-driven economies | | | Key for innovation-driven economies | | |

Source: own study based on: *The Global Competitiveness Report 2014–2015*, Geneva 2014, p. 9; *The Global Competitiveness Report 2015–2016*, Geneva 2015, p. 6, 8, 11, 13.

As a strong point of Poland's competitiveness, the ranking from 2015 indicates a relatively well-educated society (31), well-developed financial markets (43), and the largest regional market for goods (21). Weaknesses include the area associated with infrastructure (56), in particular transport infrastructure, which, despite significant progress, continues to lag behind European standards.[37] In addition, some aspects from the area of institution (58), e.g. burdens of government regulation (122), transparency of government policymaking (106), public trust in politicians (100), also require improvement[38]. Priority actions include, among others, further improvement in labour market efficiency (81), the consolidation of business sophistication (55) and Innovation (64). In this regard, Poland should focus on strengthening the innovation ecosystem in close cooperation with the private sector. Current development trends relate to the continuation of structural reforms aimed at innovativeness and the knowledge economy, which have an impact on future economic growth.

37 *The Global Competitiveness Report …*, op. cit., p. 298.

38 Ibidem, p. 299.

## The competitiveness of Poland's economy according to the sustainability-adjusted GCI

The Sustainable Competitiveness Index developed by WEF is based on the Global Competitiveness Index (GCI) with adjusted indicators (from social and environmental sustainability pillars). The pillars and sub-pillars of the Sustainable Competitiveness Index (Sustainability – adjusted GCI) are presented in tables 3 and 4.

In terms of the social dimension of sustainable development, it can be seen that Poland ranks high in the field of the Income Gini index that measures income inequality (26). However, key problems are related to areas such as access to social safety net protection (84), healthcare services (76), and youth unemployment (74).

**Table 3.** Poland's position in the social-sustainability adjusted GCI (in 2014)

| Indicators for social sustainability in the Global Competitiveness Index | | | | | |
|---|---|---|---|---|---|
| Population's access to basic necessities | | Population's vulnerability to economic exclusion | | Social cohesion | |
| Indicator / Year | 2014 | Indicator / Year | 2014 | Indicator / Year | 2014 |
| Access to sanitation *(total population using improved sanitation facilities)* | 60 | Vulnerable employment *(own-account and contributing family workers in total employment)* | 35 | Income Gini index *(measure of income inequality)* | 26 |
| Access to improved drinking water | 45 | Extent of informal economy (economic activity undeclared or unregistered) | 34 | Social mobility *(opportunity of individuals to improve the economic situation through their personal efforts regardless of the socioeconomic status of their parents)* | 61 |
| Access to healthcare services | 76 | Social safety net protection *(protection for the general population from economic insecurity in the event of job loss or disability)* | 84 | Youth unemployment *(total unemployed youth to total labour force aged 15–24)* | 74 |

Source: own compilation based on: *The Global Competitiveness Report 2014–2015*, Geneva 2014, p. 65; *Sustainability adjusted GCI dataset 2014–2015 in Excel*, www.weforum.org [09–10–2016].

As regards the environmental dimension of sustainable development, the picture is more complex. The areas associated with the degradation of the environment, such as particulate matter concentration (105), $CO_2$ intensity (98) and quality of the natural environment (53) require urgent measures. These indicators show a weak position of the Poland's economy, which may result from emissions as well as industrial pollution. Among the positive environmental aspects, e.g. the total number of ratified international environmental treaties (10), terrestrial biome protection (10) and forest cover change (25) should be mentioned (see table 4).

**Table 4.** Poland's position in the environmental-sustainability adjusted GCI (in 2014)

| Indicators for environmental sustainability in the Global Competitiveness Index | | | | | |
|---|---|---|---|---|---|
| Environmental policy | | Use of renewable resources | | Degradation of the environment | |
| Indicator | Year 2014 | Indicator | Year 2014 | Indicator | Year 2014 |
| Stringency of environmental regulations | 36 | Baseline water stress (normalised (0–5) ratio of total annual water withdrawals to total available annual renewable supply) | 45 | Particulate matter (2.5) concentration (population-weighted exposure to PM 2.5 (micro-grams per cubic metre) | 105 |
| Enforcement of environmental regulations | 41 | Wastewater treatment (percentage of wastewater that receives treatment weighted by connection to wastewater treatment rate) | 27 | $CO_2$ intensity (kg of $CO_2$ per kg of oil equivalent energy use) | 98 |
| Total number of ratified international environmental treaties | 10 | Forest cover change (forest cover change, as compared to 2000 levels) | 25 | Quality of natural environment | 53 |
| Terrestrial biome protection (weighted average of the percentage of land area protected in each biome) | 10 | Overexploited fish stock (fraction of the country's exclusive economic zone with overexploited and collapsed stocks) | 39 | | |

Source: own compilation based on: *The Global Competitiveness Report 2014–2015*, Geneva 2014, p. 66; *Sustainability adjusted GCI dataset 2014–2015 in Excel*, www3.weforum.org [09–10–2016].

To conclude, the social and environmental extension of measuring the competitiveness of economies is an important step, which enables the analysis of sustainable competitiveness on three levels, i.e. with regard to the social, environmental or general level of sustainable development, which combines these two areas. The interaction between these factors can drive the national economy to sustainable competitiveness.

## The competitiveness of Poland's economy in comparison with other countries

The sustainable competitiveness represents an important goal for each economy. Table 5 presents the results of the GCI adapted to sustainable development indicators for the top 10 countries and the position of Poland's economy in the ranking for each dimension of sustainable development.

**Table 5.** Poland's position in comparison to the Top 10 countries in 2014

| Category | Global Competitiveness Index | Social-sustainability adjusted GCI [a)] | Environmental-sustainability adjusted GCI [a)] | Sustainability-adjusted GCI [b)] |
|---|---|---|---|---|
| Top 10 | Switzerland<br>United States<br>Finland<br>Germany<br>Japan<br>Holland<br>Sweden<br>Norway<br>United Arab Emirates<br>Denmark | Switzerland<br>Norway<br>Holland<br>Finland<br>Germany<br>Japan<br>Denmark<br>United Arab Emirates<br>Sweden<br>Austria | Switzerland<br>Norway<br>New Zealand<br>Germany<br>Finland<br>Sweden<br>Holland<br>Austria<br>Japan<br>Great Britain | Switzerland<br>Norway<br>Finland<br>Germany<br>Holland<br>Japan<br>Sweden<br>New Zealand<br>Austria<br>Denmark |
| Poland | 43rd place | 39th place | 32nd place | 34th place |
| Poland against the background of the EU | 19th place | 21st place | 19th place | 20th place |

[a)] The result obtained by multiplying the result of the GCI and social coefficient of sustainable development

[b)] The average for the social and environmental coefficient of sustainable development. All baseline indicators are available on the WEF website: www.weforum.org [09–10–2016].

Source: own compilation based on: *Sustainability adjusted GCI dataset 2014–2015 in Excel*, www3.weforum.org [09–10–2016].

The results show that, regardless of the competitiveness level of economies, including in relation to the two dimensions of sustainable development, countries can achieve the results presented above or below to assess their competitiveness. However, these results show that Poland indicates greater competitiveness in sustainability-adjusted GCI (34) than in the GCI (43). This is particularly evident in relation to the environmental dimension of sustainability, in particular environmental policy regulations, as well as the use of renewable resources. Whereas Poland's weak position in the social dimension results primarily from youth unemployment (74), access to healthcare

services (76) and social safety net protection (84). According to the World Bank, integration in the labour market of the most vulnerable out-of-work population is constrained by a number of inefficiencies that are related to, among others, shortfalls in national policy and deficiencies in the cooperation between the central and local Governments for social and labour market policies and programs[39].

In order to achieve the priorities delineated by the European Commission in the Europe 2020 Strategy, Poland must continually improve its "soft" pillars such as innovation, business sophistication, and social cohesion. There are 19 EU member states placed ahead of Poland's economy in the sustainability-adjusted GCI, and 18 in the GCI[40]. Countries from the EU evaluated higher than Poland include, for example, Switzerland, Norway, Finland, Germany and the Netherlands. From table 5 it can also be observed that only the United States have an SD-GCI position lower than in the GCI. This means that the social and environmental areas have a negative impact on the SA-GCI of the United States. The situation is reversed in the case of the United Arab Emirates, which occupied 9th place in the GCI, and a lower position in the sustainability-adjusted GCI, not listed among the Top 10 countries.

In general, 19 EU countries still rank higher than Poland, and 33 world countries in the sustainability-adjusted GCI. But the Sustainable Competitiveness Index proposed and calculated by WEF is an index primarily based on economic performance, on national competitiveness.

## Conclusions

The analysis of the competitiveness of economies in relation to sustainable development is a new research area. Depending on the level of analysis, sustainable competitiveness can be seen at the global, national, regional or microeconomic level (e.g. enterprises). It enforces a variety of indicators of its measurement. The model of the sustainability-adjusted GCI developed by the WEF indicates that competitiveness in itself does not lead to a sustainable level of prosperity. Although achieving a certain level of economic prosperity is essential in order to achieve a high living standard, in this conception countries are also evaluated for their ability to generate long-term prosperity for citizens in a sustainable manner.

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39 D. Owen, et al., *Social Inclusion in Poland: Key Challenges and Opportunities for Support*, Washington 2016, p. 36.

40 P. Boguszewski, *Globalny raport konkurencyjności 2015–16 Światowego Forum Gospodarczego – prezentacja*, Warszawa 2015, p. 22, www.nbp.pl [09–10–2016].

The key aim of this article has been to analyse the level of competitiveness of Poland's economy in relation to sustainable development, and an indication of the strengths and weaknesses of the current situation. The analysis concerned the competitiveness of the Polish economy, taking into account the sustainability criteria on the basis of the survey conducted by the World Economic Forum. The analysis has also shown that sustainable development affects the competitiveness of Poland's economy because undertaking measures toward sustainable development contributes to improving the competitive position of Poland's economy. This is confirmed by measuring competitiveness with regard to sustainable development indicators, which shows that Poland is ranked higher in the sustainability-adjusted GCI than in the overall competitiveness ranking. This paper has also attempted to identify the most important factors impacting on the level of sustainable competitiveness of economy of Poland.

In spite of any disparities, the concept of competitiveness and sustainable development can be seen as a cumulative phenomenon[41]. National competitiveness should be seen as a relative rather than an absolute concept. It allows for the benchmarking of nations[42]. Considering sustainable competitiveness, the economy is dependent on society and the environment[43]. Moreover, it is important to identify the institutions, policies and factors making a productive nation in correlation with social and environmental development. Some examples of the most important factors driving toward sustainable competitiveness can be: productive capital, human capital, social/institutional capital, cultural/natural capital, infrastructural capital, knowledge/creative capital[44]. The interaction between these factors can drive the national economy to sustainable competitiveness.

It should also be emphasised that the sustainability-adjusted GCI is not the only monitoring system of world economies in terms of sustainability. Other systems worth mentioning include, for example, the Global Sustainable Competitiveness Index, provided by SolAbility Sustainable Intelligence[45], or the Green Growth Knowledge Platform, established by the Global Green Growth Institute (GGGI), the Organisation for Economic Co-operation and

41 E. Kasimovskaya, M. Didenko, *International competitiveness and sustainable development: are they part, are they together? A quantitative approach*, "SBS Journal of Applied Business Research" 2013 vol. 2, p. 37–51.

42 T. Berger, *Concepts of national competitiveness*, "Journal of International Business and Economy" 2008 vol. 9(1), p. 91–111.

43 B. Giddings, B. Hopwood, G. O`Brien, *Environment, Economy and Society: fitting them together into sustainable development*, "Sustainable Development" 2002 vol. 10, p. 187–196.

44 R. Martin, M. Kitson, P. Tyler (eds), *Regional competitiveness*, New York 2006.

45 *The Global Sustainable Competitiveness Index*, www.solability.com [09–10–2016].

Development (OECD), the United Nations Environment Programme (UNEP), and the World Bank[46]. Another example of the measurement of economic performance and social Progress is the OECD Framework for measuring progress and wellbeing[47]. A common feature of all measurement indices on sustainable competitiveness, including the GCI, is the process of the continuous improvement and extension of new indicators. However, the major problem is the achievement of relevant and valid data comparable at the international level.

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47 This Framework is built around three distinct domains: material conditions, quality of life and sustainability, each with their relevant dimensions. More details are available at: www.oecd.org [20–10–2016].

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