

PEST ENVIRONMENT FOR ENHANCING THE DEVELOPMENT OF SHARING ECONOMY

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Abstract. The aim of the paper is to estimate and to compare sharing economy development processes in 17 EU countries and the United Kingdom. Based on literature review, authors compiled a set of indicators and used them for research purposes. The selected indicators were assigned into four main groups: socio-demographical, economic, technological and political factors. The research used data for years 2012–2016. For research purpose authors applied the AHP (Analytic Hierarchy Process) method and modelled four situations by attributing greater or lesser significance to the different group of indicators. The results showed that attributing graded significances to the different groups is critical and affects the ranking of countries.

Keywords: sharing economy, pest analysis, AHP (analytic hierarchy process), socio-demographical factors, economic factors, technological factors, political factors.

JEL Classification: O30, O44, L26.

1. Introduction

The new phenomenon called “sharing economy” (SE), which emerged more than a decade ago, has caught the attention of scientists and policymakers. Creating new opportunities for entrepreneurs and consumers, growth possibilities for innovative start-ups, the flexibility of access to goods and increasing consumer choices, promoting sustainable consumption are recognized as benefits of sharing economy (Grybaitė & Stankevičienė, 2016; Molenaar, 2015; Olson & Kemp, 2015). The European Commission’s report “A European Agenda for Collaborative Economy”, published in 2016, emphasized that sharing economy (the notion of sharing economy often also referred to as the collaborative economy in the EU documents) is growing fast and makes an essential contribution for job creation and growth in the European Union. The report “A European Agenda for Collaborative Economy” claims that sharing economy creates new opportunities for consumers and entrepreneurs. Moreover, the potential of sharing economy to contribute to competitiveness and growth is emphasized. European Commission acknowledges the sharing economy as a socio-economic trend that has an impact on our way of lives, that changing the way services are provided and define sharing economy as a new, innovative and dynamic sector. The sharing economy not

only creates new markets and expands existing ones, but also extends to markets where traditional service providers have previously provided services. It is underlined that consumers may benefit from the sharing economy through new services, increased supply and lower prices. Sharing economy can also encourage more asset sharing and resource efficiency, thus contributing to the EU’s sustainability agenda and the transition to a circular economy. The Communication on Online Platforms and the Digital Single Market (2016) highlights the benefits of online platforms which are drivers for the growth of the sharing economy and emphasizes the importance of online platforms for further development of the digital economy in the EU. The conference on the collaborative economy organized by the European Commission in 2018 reveals the crucial contribution of sharing economy to innovation, entrepreneurship and economic dynamism. Furthermore, it was proposed that sharing economy “should not only be considered a business model, but also as a new form of integration between the economy and society with concrete added social value” (Danti, 2018).

As the sharing economy has been acknowledged as a new and growing sector contributing to competitiveness and growth, it is crucial to analyse the surrounding factors and define the most critical factors which can positively affect the growth of

sharing economy. Authors of the paper aim to evaluate the competitive environment of sharing economy in 17 European Union countries and the UK and to find out which countries are the best performers in sharing economy. For those purpose authors composed a set of indicators which reflect the main factors, affecting the growth of sharing economy. Based on the classical environment analysis model, the authors selected indicators and grouped them into four groups which reflect economic, political-legal, technological and socio-demographic aspects. For research purpose, the authors used the Multicriteria method – AHP (Analytic Hierarchy Process). The multicriteria methods enable to aggregate values of indicators and to obtain the one integral indicator, which allows comparing countries.

2. Literature review

Various researches, e.g. Molenaar (2015), Derojeda et al. (2013), Hamari et al. (2016), Daunorienė et al. (2015), Demailly and Novel (2014), Selloni (2017), Dabbous and Tarhini (2019), Huckle et al. (2016) and others consider technological factors as the most significant factors having a high impact on the rapid growth of sharing economy. Baller et al. (2016) emphasize the ITC's ability to improve access to services and enhance connectivity. According to Baller et al. (2016), the internet is one of the world's most critical general-purpose technologies and its impact on entire economies is enormous. As Sundararajan (2016) emphasizes, wireless broadband, mass-market smartphones and digitalized social networks are crucial elements of the sharing economy. Owyang (2013) assumes that social networking technologies, mobile technologies and payment systems are the main technological drivers of sharing economy development.

Furthermore, the grows of sharing economy are significantly impacted by socio-demographical factors, such as population density, a generational shift in consumption habits, trust factors, culture, development of a sharing mentality, entrepreneurial spirit as well as the knowledge level of new IT services (Owyang, 2013; Dabbous & Tarhini, 2019; Debarshi, 2015; Apte et al., 2019; Davidavičienė et al., 2019).

A reliable legal system, political stability, protected property rights, the ease to start and operate a business are all factors that can be named as important for any business as well as for the participants of the sharing economy. Government regulation and laws can stimulate or hinder the development of the sharing economy (Ohlhausen, 2015; Vitkovic, 2016; Apte et al., 2019).

3. Methodology

Based on the literature review authors composed a set of indicators and grouped them into four groups (see Appendix). Indicators have been chosen based on such criteria: the indicators are measurable, cover all selected countries, are relevant to the topic, are statistically available.

Let us briefly discuss each group of indicators. The general indicators of communication such as the availability of computers, mobile phones and internet are essential for creating a positive environment for the developing of sharing economy. Also, it is important how widely the internet is used by citizens (Appendix). The increase of sharing economy is significantly impacted by socio-demographical ones: number of population, population density, a shift in consumption habits, culture, development of a sharing mentality, entrepreneurial spirit. The indicators referring to socio-demographic aspects are presented in Appendix.

To reflect the political and regulatory environment, the authors of this paper applied the indicators widely used by scientists, developed by The Heritage Foundation and The World bank group. The *Rule of law* measures the perceptions of the extent to which agents have confidence in and abide by the rules of society, and the quality of contractual enforcement, property rights, the police, the courts, as well as the likelihood of crime and violence. The *Regulatory Quality* captures perceptions of the ability of government to formulate and implement sound policies and regulations that permit and promote private sector development. The *Government effectiveness* captures perceptions of the quality of the public services and the degree of independence of the civil service from political pressure, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Worldwide Governance Indicators, n.d.). The *Property rights* assess the extent to which a country's legal framework allows individuals to freely accumulate private property, secured by clear laws that are enforced effectively by the government. The *Business freedom* measures the extent to which the regulatory and infrastructure environments constrain the efficient operation of businesses. The *Investment freedom* evaluates a variety of regulatory restrictions that typically are imposed on investment (The Heritage Foundation, n.d.).

The authors agreed that indicators included in the group of economic indicators embrace major macroeconomic factors.

Multicriteria methods, such as AHP (Analytic Hierarchy Process), SAW (Simple Additive

Weighting), TOPSIS (Technique for Order Preference by Similarity to an Ideal Solution), PROMETHEE (Preference Ranking Organization Method for Enrichment Evaluation), COPRAS (Complex proportional assessment) are broadly known and widely used by researchers (Wang et al., 2009; Stankevičienė & Menčaitė, 2012; Zavadskas et al., 2010; Nugaras & Ginevičius, 2015; Tvaronavičienė et al., 2008; Tvaronavičienė & Grybaitė, 2012; Guerrero-Baena et al., 2015; Latinopoulos & Kechagia, 2015; Podvezko, 2009; Grybaitė & Stankevičienė, 2018; Wierzbicka, 2018; Pietrzak & Ziemkiewicz, 2018, Morkūnaitė et al., 2017). For research purpose, the authors chose one of the most popular AHP (Analytic Hierarchy Process) methods. They modelled four situations attributing significance to the indicators included in the set of selected indicators:

1st situation – the highest significance is attributed to the indicators, reflecting the group of technological factors, they received the largest weight, while indicators included into remaining groups received a minimum weight.

2nd situation – the highest significance is attributed to the group of political factors indicators; they received the largest weight while remaining groups received a minimum weight.

3rd situation – the highest significance is attributed to the indicators included in a group of social factors; they received the largest weight while remaining groups received a minimum weight.

4th situation – the highest significance is attributed to the group of economic indicators, while remaining groups received a minimum weight.

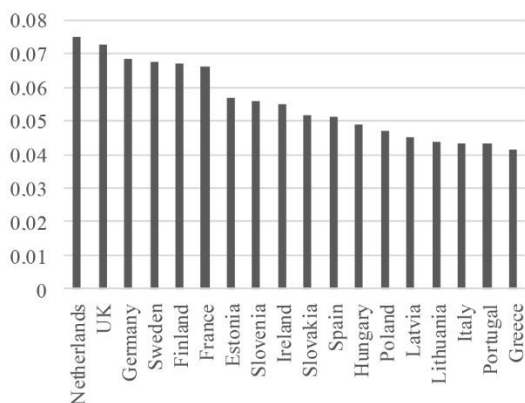


Figure 1. Aggregated assessment of selected countries during the period 2012–2016 (the first situation) (source: computed by authors based on Eurostat, The World Bank, The Heritage Foundation, The Global Entrepreneurship Monitor)

4. Results

In the first situation, authors assume that technological factors are the most important for sharing economy development; thus, indicators, included in a group of technological indicators received the highest weight. As shown in Figure 1, the computed index for the year 2012–2016 is the highest for the Netherlands and the lowest for Greece. Of the three Baltic countries, Estonia is in the highest position, and Lithuania is in the lowest. Figure 1 shows that Lithuania among 18 countries, is in the 15th position. It should be noted that countries on the top, e.g. Netherlands, UK, Germany, Sweden, Finland and France have a higher level of internet access (percentage of households) and a higher per cent of individuals using the internet (% of the population) than remaining countries.

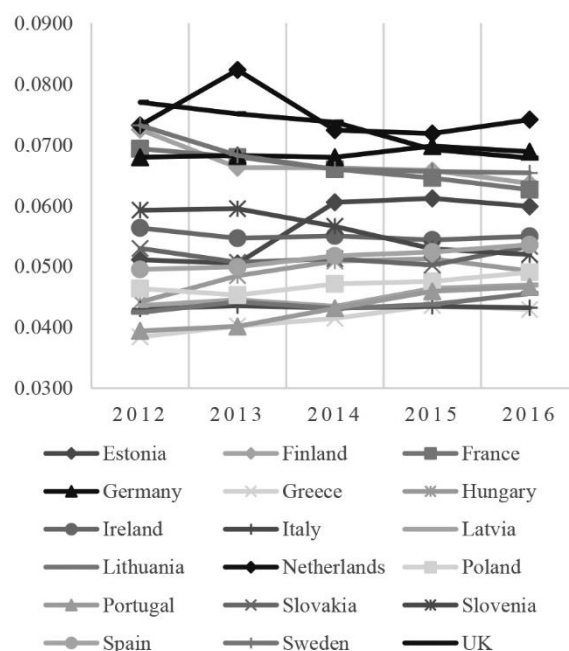


Figure 2. Dynamics of aggregated assessment of selected countries during the period 2012–2016 (the first situation) (source: computed by authors based on Eurostat, The World Bank, The Heritage Foundation, The Global Entrepreneurship Monitor)

The dynamics of aggregated assessment of selected countries during the period 2012–2016 (Figure 2) shows that countries can be assigned into two groups. The first group consists of such countries as Netherlands, UK, Germany, Sweden, Finland and France and the remaining countries form the other group. It can be observed that the computed index for the Netherlands is the highest in 2013, this may have been influenced by the very high percentage of individuals using the internet for selling goods or

services that year. The significantly increased calculated index for Estonia in the year 2014 could be attributed to the fact that in that year, the percentage of mobile internet access increased significantly in Estonia.

In the second situation, the political environment is considered the most important. Hence, the remaining groups of factors are being considered less important as compared with political factors.

It can be noticed, that similarly as in the first modelled situation, the top 5 countries remain the same; however, the ranking of countries changes. Finland moves from the fifth position (1st situation) to the first position. Likewise, in the first situation, Greece remains in the last position. To compare the three Baltic countries, Estonia remains in the highest position, Lithuania's index moved to a higher position that Latvia's (Figure 3). It is noted that Estonia and Latvia show a steady increase in the calculated index, while the index calculated for Lithuania decreased in 2016 (Figure 4). Greece's index indicates a steady decline.

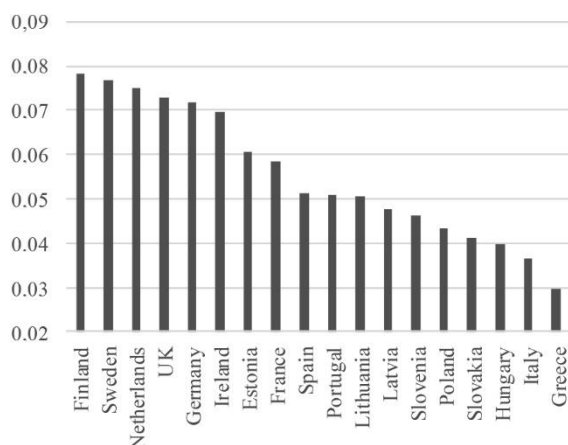


Figure 3. Aggregated assessment of selected countries during the period 2012–2016 (the second situation) (source: computed by authors based on Eurostat, The World Bank, The Heritage Foundation, The Global Entrepreneurship Monitor)

In the third situation, social-demographic factors consider the most important, as compare with other factors. Hence, social-demographic indicators received the largest weight, while remaining groups received a minimum weight.

Compared with the first two modelled situations, we can see different results: the list of the top 5 countries has changed. France and Italy moved among the 5 top countries, while Sweden and Finland dropped to the 7 and 15 places accordingly (Figure 5). What became different when observing

the Baltic countries positions, that countries re-grouped and Latvia now is in the first place compared with the other two Baltic countries. It can be assumed that the regrouping of the countries was mostly affected by such indicators as population density, entrepreneurial intention and motivational index. Dynamics of aggregated assessment of selected countries during the period 2012–2016 show the significant fluctuations compare with the first two modelled situations (Figure 6).

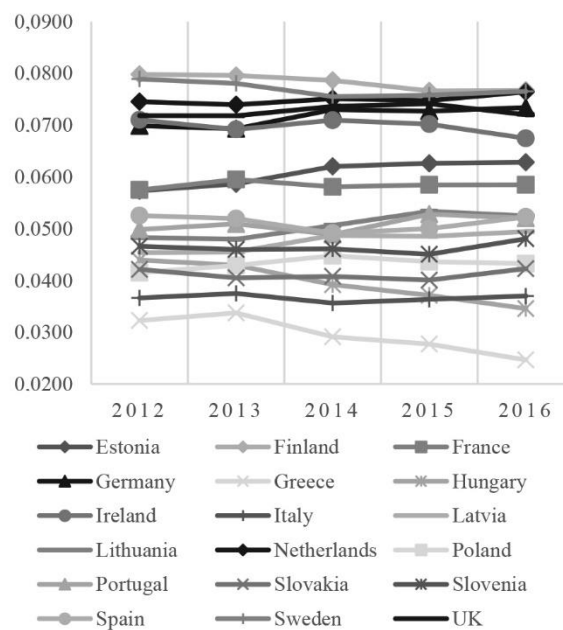


Figure 4. Dynamics of aggregated assessment of selected countries during the period 2012–2016 (the second situation) (source: computed by authors based on Eurostat, The World Bank, The Heritage Foundation, The Global Entrepreneurship Monitor)

Authors modelled the fourth situation and attributed the highest significance to the group of economic indicators while remaining groups received a minimum weight. The same top 5 countries are found as in the first modelled situation (Figure 7 and Figure 1).

The only country which hasn't changed its positions is Greece. In all four modelled situations, Greece remains in the last position among 18 selected countries. The Baltic countries positions stay the same as in the second situation. In the fourth modelled situation, the top 5 countries remain the same as in the first situation, but positions have changed. It can be assumed that it is the result because of the differences among countries in such indicators as government expenditure on education, total (% of GDP) and R&D expenditure (% of GDP).

Table 1. Ranking of countries. Based on authors calculations applying the AHP method

1 st situation	2 nd situation	3 rd situation	4 th situation
1. Netherlands	1. Finland	1. Netherlands	1. Sweden
2. UK	2. Sweden	2. UK	2. Germany
3. Germany	3. Netherlands	3. Germany	3. Finland
4. Sweden	4. UK	4. France	4. Netherlands
5. Finland	5. Germany	5. Italy	5. UK
6. France	6. Ireland	6. Poland	6. France
7. Estonia	7. Estonia	7. Sweden	7. Ireland
8. Slovenia	8. France	8. Latvia	8. Slovenia
9. Ireland	9. Spain	9. Spain	9. Italy
10. Slovakia	10. Portugal	10. Portugal	10. Estonia
11. Spain	11. Lithuania	11. Estonia	11. Hungary
12. Hungary	12. Latvia	12. Lithuania	12. Spain
13. Poland	13. Slovenia	13. Finland	13. Portugal
14. Latvia	14. Poland	14. Slovenia	14. Poland
15. Lithuania	15. Slovakia	15. Hungary	15. Lithuania
16. Italy	16. Hungary	16. Slovakia	16. Slovakia
17. Portugal	17. Italy	17. Ireland	17. Latvia
18. Greece	18. Greece	18. Greece	18. Greece

5. Conclusions

The authors of the paper composed a set of indicators which reflect the main factors of the external environment, i.e. technological, political, social-demographical and economic factors, which are very important for the development of sharing economy.

For research purpose, the authors applied multicriteria evaluation method – AHP; calculated single integral indicator for each country which allowed authors to compare countries and to find out which countries are the best performers in sharing economy.

The results showed that the ranking of countries was affected by significance attributed to different groups of indicators (technological, economic, political or social-demographic). The ranking of the countries changed when the highest significance was attributed to one of the group's indicators, whereas the remaining three groups of indicators received the lowest significance.

The research revealed which country's environment is more favourable for the development of sharing economy as compared to others.

It is envisioned that the results of this research will enable policymakers to make appropriate decisions to facilitate the growth of the sharing economy.

However, the research has some limitations. One of the limitations is the lack of statistical data. Due to the limited availability of statistical data, authors couldn't investigate all ES countries and therefore choose to investigate 17 EU countries and the UK. Secondly, the choice of the set of indicators is rather subjective.

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APPENDIX

Set of selected indicators

Technological factors	Political and regulatory factors	Social factors	Economic factors
Availability of computers (percentage of households)	Rule of law	Population on 1 January by age and sex, number	GDP per capita, PPP (current international \$)
Level of internet access (percentage of households)	Regulatory quality	Ratio of young people in the total population on 1 January by sex and age (from 15 to 29), percentage	R&D expenditure (% of GDP)
Mobile internet access (percentage of individuals) individuals used a mobile phone (or smartphone) to access the internet	Government effectiveness	Population density	Total unemployment rate (percentage of the total population)
Mobile-cellular subscriptions per 100 inhabitants	Property rights	Cultural and Social Norms	Government expenditure on education, total (% of GDP)
Fixed broadband subscriptions (per 100 people)	Business freedom	Entrepreneurial Intention	Annual net earnings (Single person without children, 100% of AW), Euro
Individuals using the internet (% of population)	Investment freedom	Motivational index	
Individuals using the internet for selling goods or services, percentage of individuals		Basic School Entrepreneurial Education and Training	
Individuals using the internet for ordering goods or services			