





# “Business dynamism in the world economy”

<b>AUTHORS</b>	Zuzana Virglerova  <a href="https://orcid.org/0000-0002-7957-9216">https://orcid.org/0000-0002-7957-9216</a> Felice Addeo  <a href="https://orcid.org/0000-0001-7072-7019">https://orcid.org/0000-0001-7072-7019</a> Eliska Zapletalikova  <a href="https://orcid.org/0000-0002-0291-4282">https://orcid.org/0000-0002-0291-4282</a>
<b>ARTICLE INFO</b>	Zuzana Virglerova, Felice Addeo and Eliska Zapletalikova (2020). Business dynamism in the world economy. <i>Problems and Perspectives in Management</i> , 18(3), 160-169. doi: <a href="https://doi.org/10.21511/ppm.18(3).2020.14">10.21511/ppm.18(3).2020.14</a>
<b>DOI</b>	<a href="http://dx.doi.org/10.21511/ppm.18(3).2020.14">http://dx.doi.org/10.21511/ppm.18(3).2020.14</a>
<b>RELEASED ON</b>	Monday, 07 September 2020
<b>RECEIVED ON</b>	Tuesday, 05 May 2020
<b>ACCEPTED ON</b>	Friday, 17 July 2020
<b>LICENSE</b>	 This work is licensed under a <a href="https://creativecommons.org/licenses/by/4.0/">Creative Commons Attribution 4.0 International License</a>
<b>JOURNAL</b>	"Problems and Perspectives in Management"
<b>ISSN PRINT</b>	1727-7051
<b>ISSN ONLINE</b>	1810-5467
<b>PUBLISHER</b>	LLC “Consulting Publishing Company “Business Perspectives”
<b>FOUNDER</b>	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

40



NUMBER OF FIGURES

1



NUMBER OF TABLES

4

© The author(s) 2026. This publication is an open access article.



## BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10,  
Sumy, 40022, Ukraine  
[www.businessperspectives.org](http://www.businessperspectives.org)

**Received on:** 5<sup>th</sup> of May, 2020

**Accepted on:** 17<sup>th</sup> of July, 2020

**Published on:** 7<sup>th</sup> of September, 2020

© Zuzana Virglerova, Felice Addeo,  
Eliska Zapletalikova, 2020

Zuzana Virglerova, Ph.D., Tomas  
Bata University in Zlín, Faculty of  
Management and Economics, Czech  
Republic. (Corresponding author)

Felice Addeo, University of Salerno,  
Department of Political and  
Communication Science, Italy.

Eliska Zapletalikova, Tomas Bata  
University in Zlín, Faculty of  
Management and Economics, Czech  
Republic.



This is an Open Access article,  
distributed under the terms of the  
[Creative Commons Attribution 4.0  
International license](https://creativecommons.org/licenses/by/4.0/), which permits  
unrestricted re-use, distribution, and  
reproduction in any medium, provided  
the original work is properly cited.

**Conflict of interest statement:**

Author(s) reported no conflict of interest

Zuzana Virglerova (Czech Republic), Felice Addeo (Italy),  
Eliska Zapletalikova (Czech Republic)

# BUSINESS DYNAMISM IN THE WORLD ECONOMY

## Abstract

The creation and growth of new enterprises and, on the other hand, their decline and market exit are crucial factors of business dynamism and economic growth. Thus, business dynamism is an important aspect in the market chain and productivity of an economy, as well as a trigger for market reforms. The aim is to analyze business dynamism using Global Competitiveness Index 4.0 and its variables worldwide and to verify the relationship between business dynamism in the EU states and economic characteristics such as Value added at factor cost, Enterprise Birth Rate and Enterprise Death Rate. Data were collected from the 2019 Global Competitiveness Report and from the EUROSTAT database, using the most recently updated source for each indicator. The 11th pillar of the Global Competitiveness Index, focused on business dynamics, and a set of indicators were analyzed using PCA to verify if all the variables are effective representatives of the concept. It was found out that the pillar does not effectively represent the concept of business dynamism in case of the EU countries; therefore the new pillar was constructed. A strong and statistically significant correlation between business dynamism and Value Added was confirmed. A relationship between business dynamism and other economic indicators was not proven. From a territorial point of view, Oceania achieved the best overall result in the analyzed field. The process of starting a new business is the most challenging in terms of start-up costs in South America. By contrast, the EU has reached the best result in this process.

## Keywords

Global Competitiveness Index, value added at factor cost, enterprise, productivity

## JEL Classification

E32, L21, M21

## INTRODUCTION

The productivity of an economy is closely related to the growing spread of productivity indicators across enterprises (Andrews & Saia, 2016), growing misallocation of resources (Gopinath, Kalemli-Ozcan, Karabarbounis, & Villegas-Sanchez, 2015), quality of business environment (Belás & Sopková, 2016; Cepel, Stasiukynas, Kotaskova, & Dvorsky, 2018; Kozubikova, Kotaskova, Dvorsky, & Kljucnikov, 2019; Mura & Ključnikov, 2018) and decrease in business dynamism (Decker, Haltiwanger, Jarmin, & Miranda, 2016).

The measurement of business dynamism does not have an official variable. Some authors supposed the following variables to measure it: the number of new jobs (Decker, Haltiwanger, Jarmin, & Miranda, 2014), the number of start-ups (Pugsley & Şahin, 2019), the number of intangible inputs in production (Haskel, & Westlake, 2017), and productivity growth (Garcia-Macia, Chang-Tai, & Klenow, 2016; Aghion, Bergeaud, Boppart, Klenow, & Li, 2019).

This paper is based on the Global Competitiveness Index 4.0. (GCI) and analyzes business dynamism using the 11<sup>th</sup> pillar. This index was created by the World Economic Forum and has measured national competitiveness of many countries over the world since 2004. The new format of the index (since 2019) has 12 pillars, which are organized as

follows: Institutions; Infrastructure; ICT adoption; Macroeconomic stability; Health; Skills; Product market; Labor market; Financial system; Market size; Business dynamism; and Innovation capability. The purpose for a creating of this index is to measure the competitiveness of a country to achieve economic growth, productivity and sustained economic prosperity (World Economic Forum, 2019).

The aim is to analyze business dynamism using Global Competitiveness Index 4.0 and its variables worldwide and to verify the relationship between business dynamism in the EU states and economic characteristics such as Valued added at factor cost, Enterprise Birth Rate and Enterprise Death Rate.

The paper responds to a missing verification if all variables presented in the index effectively represent the concept of business dynamism. Business dynamism in the EU countries and its comparison with the rest of the world have not yet been analyzed. The results can be of interest to governments and state agencies to understand the differences in business dynamism around the world and to create the business environment in a more efficient way.

---

## 1. LITERATURE REVIEW

Business dynamism is one of the conditions for a competitive business environment. The former approach was extended to the idea of economic growth. The concept of competitiveness can be analyzed from a national, sectoral or business perspective. At the firm level, a company is competitive if it is able to produce better and cheaper products and services (Dechezlepretre & Sato, 2014). The business activity is competitive if it is capable of improving the capacity for sustainable economic growth (Mulatu, 2016). Companies are competitive if they are able to produce goods and services that are successful on international markets, and they also increase the standard of living of citizens. Likewise, Porter and Rivkin (2012) stated that a location is competitive if companies operating in some area should compete internationally and be able to support a social environment.

The US economy has traditionally been measured as more dynamic than the euro area. In recent decades, the structure of markets has changed, and the business dynamism has dropped. Standard economic theories lay special emphasis on creative destruction as a source of economic growth. This means that an economy can grow because old companies are replaced by new ones that are more innovative, create new products and lower production costs. Standard theories stress the role of increasing the number of new products and services. Without this development, business dynamism would decline in the form of a decrease in the share of economic activity in new enterpris-

es, which could mean a decrease in productivity growth due to a decline of innovation activity (Acemoglu, 2008).

A possible explanation of the business dynamism decline can be found in the high-tech sectors (Cavalleri, Eliet, McAdam, Petroulakis, Soares, & Vansteenkiste, 2019; Hyatt & Spletzer, 2013). Symptoms of declining business dynamics include a decrease in the rate at which workers are redistributed to new employers (Decker et al., 2014) and a decrease in the number of start-ups as part of all firms in the economy (Pugsley & Sahin, 2019). The fact that the growth of imperfect competition leads to a decrease in business dynamism in the event of market barriers, i.e. the ratio of prices to marginal cost, birth and death rates of new businesses and new jobs, has been proven by many authors (e.g., Autor, Dorn, Katz, Patterson, & Van Reenen, 2017; De Loecker & Eeckhout, 2018; Diez, Leigh, & Tambunlertchai, 2018; Dottling, Gutierrez, & Philippon, 2017).

There are many ways to measure business dynamism. Among the widely used are gross entry and exit rates of companies. In the late 1970s, start-ups amounted to about 15% of existing companies every year. Nowadays, the part of new start-ups has decreased below 10%. The rate of companies that leave the business has also decreased, but the decline is not so fast (10% per year in 1970s to 8% per year now). These declines are extensive, but they are not concentrated in particular economic or geographic area (Decker et al., 2014; Davis & Haltiwanger, 2014). On the

real side, market power can affect key output variables: growth in investment potential and gaps in output, labor share (Aghion, Bloom, Blundell, Griffith, & Howitt, 2005; Baqaee & Farhi, 2018; De Loecker & Eeckhout, 2017; Gutierrez & Philippon, 2018; Hall, 2018).

Institutional changes can affect market entry and market exit in different ways, which can create a new mechanism that stimulates the dynamism of a regional firm (Bennett, 2019). Innovation can create a gap between business dynamism and productivity. Recent studies by Garcia-Macia et al. (2016) and Aghion, Bergeaud, Boppart, Klenow, & Li (2019) have found out that innovation made by existing firms increases the productivity growth more effectively than innovation of entering companies. This study concludes that the entry of new firms may not be as critical to productivity growth as is commonly believed.

Haltiwanger, Scarpetta, and Schweiger (2014) show how a high level of business dynamism influences the reallocation of sources from low-productivity to high-productivity activities in the economy. They also confirmed the positive effect of exit of old companies and born new ones on business dynamism and job relocation. Studying and analyzing business dynamics can help better match skills to job, which will make workers more productive. The force of the output is also important.

Efforts to increase business dynamism lead to many market reforms. Cerqueiro, Penas, and Seamans (2019) found out that the protection of debtors increased firm exit and job destruction rate among young small firms. Insolvency frameworks help weak companies solve their problems with liquidity and ineffectiveness on the market. It slows down a natural restructuring of the market and can prevent the entrance to new people. The government must be prudent with these market reforms to keep only healthy incumbent firms on the market and prevent a harm of the productivity growth (McGowan, Andrews, & Millot, 2018; Andrews & Petroulakis, 2017).

Many inefficiencies and strictness can hinder entry and reallocation of sources on the market. A high entry barrier that should protect enterprises on the market, an unfriendly business environment in the

form of large administrative costs, insufficient credit and a lack of specialized financing for startups can reduce business dynamism. Some studies warn of zombie companies, which are defined as old companies with persistent problems to meet their interest payments and slow down the business dynamism. Their removal can cause an employment growth, especially amongst young firms, which disproportionately contribute to job creation (Haltiwanger, Jarmin, & Miranda, 2013; Criscuolo, Gal, & Menon, 2014). Calvino, Criscuolo, and Menon (2015) proved that there were differences between countries in the start-up dynamism and they found that most surviving start-ups did not grow.

## 2. AIMS

This study aims to analyze business dynamism using the Global Index of Competitiveness and to verify if there is any relation to economic indicators. The literature review inspired the following research questions:

- RQ1) *What is the difference in business dynamism in the EU states compared to other countries around the world?*
- RQ2) *Do all the variables under the 11th Global Competitiveness pillar effectively represent the Business Dynamism concept?*
- RQ3) *How does Business Dynamism relate to some crucial aspects such as Value Added at factor cost, Enterprises' Birth Rate and Death Rate?*

## 3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

Pillar 11 of the Global Competitiveness Index 4.0 was used as a definition of Business Dynamism of European countries. It is composed of eight variables (cost of starting a business, time to start a business, insolvency recovery rate, insolvency regulatory framework, attitudes towards entrepreneurial risk, willingness to delegate authority, growth of innovative companies, and companies embracing disruptive ideas).

First four variables are calculated from real procedures in each state (World Bank Group, 2019). The description of variables used in the paper is as follows:

*Cost of starting business* includes all official fees for legal and professional services connected to the enterprise founding. Fees for purchasing and legalizing corporate books are included where required by law. Tax registration is not included. They are expressed as a percentage of the economy's income per capita.

*Time to start a business* is expressed in the number of calendar days required to independently complete the business funding procedures (if the faster procedure can be reached with additional costs, the independent way is chosen).

*Insolvency recovery rate* is expressed as cents per dollar recovered by secured creditors through judicial reorganization, liquidation or debt enforcement process.

*Insolvency regulatory framework* measures the adequacy and integrity of the legal framework applied in the reorganization and liquidation process. The higher the score, the better.

Last four variables of the 11<sup>th</sup> pillar (*attitudes towards entrepreneurial risk, willingness to delegate authority, growth of innovation companies and companies embracing disruptive ideas*) are evaluated based on a survey conducted by World Economic Forum in January – April 2019. 134 economies with valid responses were covered in this research and 12,987 valid responses were analyzed. The survey was organized in form of on-line questionnaires and paper form questionnaires.

Next four variables are derived from a research made in all analyzed states in 2018–2019 (World Economic Forum, 2019). The description is as follows:

*Value added at factor cost* is the gross operating income of enterprises in the EU after adjusting for operating subsidies and indirect taxes. *Enterprise birth rate* represents the number of newborn enterprises in European Union. *Enterprise death rate* means the termination of an enterprise in the

European Union. This number does not include mergers, takeovers, break-ups or restructuring of enterprises.

Data were collected from the 2019 Global Competitiveness Report and EUROSTAT database using the latest updated source for each indicator. A quantitative approach was used to address the research questions. The research unit of analysis are the 28 EU member states.

The second research question was addressed using a two-stage Principal Component Analysis (PCA) approach (Di Franco & Marradi, 2013). In the first stage, the 11th pillar of the Global Competitiveness set of indicators was analyzed using PCA to verify if all the variables were actually representing Business Dynamism. If some variables are not linked with the others, there will be a second stage, in which a new PCA will be performed with the variables showing the highest loadings. The Pearson correlation coefficient was used to measure correlation between Business Dynamism and selected economic characteristics. SPSS Statistics was used for the data analysis.

## 4. RESULTS

The variables representing the 11th pillar were analyzed by grouping the countries in seven geographical areas: European Union, Rest of Europe, Africa, Asia, South America, Oceania, and North America.

Table 1 shows the mean of each variable by geographical area.

Starting a business seems to be easier in Europe, North America and Oceania: these areas have the lowest value in terms of the cost and the time of starting a business. To open new business is very complicated process in countries of South America. They have the worst results in this area. Oceania has by far the highest mean value of the insolvency recovery rate, while South America has the lowest one. EU states show the best performance within the Insolvency regulatory framework.

The last four variables of Table 1 (Attitudes towards entrepreneurial risk, Willingness to dele-

**Table 1.** Comparison of Pillar 11 in countries in seven geographical areas

Source: Own processing.

Variable <sup>1</sup>	EU	Rest of Europe	Africa	Asia	South America	Oceania	North America	Total
Cost of starting a business	11.9	19.4	20.8	20.9	52.2	14.2	13.1	20.2
Time to start a business	22.7	17.0	15.6	19.1	42.0	6.7	12.2	19.5
Insolvency recovery rate	46.4	38.2	39.5	42.9	29.9	55.1	44.0	41.7
Insolvency regulatory framework	10.4	7.1	9.4	9.2	8.4	8.0	8.8	9.2
Attitudes towards entrepreneurial risk	3.9	4.2	3.9	4.1	4.0	4.8	4.1	4.0
Willingness to delegate authority	4.5	4.5	4.4	4.4	4.1	5.2	4.4	4.4
Growth of innovative companies	4.1	4.4	4.1	4.2	3.8	4.4	4.0	4.1
Companies embracing disruptive ideas	3.7	3.9	3.7	3.8	3.6	4.0	3.5	3.7

Note: 1. Here are the operational definitions of the variable included in the table (World Economic Forum, 2019, p. 623-624):

1. Cost of starting a business: expressed as a percentage of the economy's income per capita;
2. Time to start a business: number of calendar days needed to complete the procedures to legally operate a business;
3. Insolvency recovery rate: recorded as cents on the dollar recovered by secured creditors through judicial reorganization, liquidation or debt enforcement (foreclosure or receivership) proceedings;
4. Insolvency regulatory framework: score on an index that measures the adequacy and integrity of the legal framework applicable to liquidation and reorganization proceedings. Scores range from 0 to 16, with higher values indicating insolvency legislation that is better designed for rehabilitating viable firms and liquidating non-viable ones;
5. Attitudes towards entrepreneurial risk: response to the survey question "in your country, to what extent do people have an appetite for entrepreneurial risk?" [1 = not at all; 7 = to a great extent];
6. Willingness to delegate authority: response to the survey question "In your country, to what extent does senior management delegate authority to subordinates?" [1 = not at all; 7 = to a great extent];
7. Growth of innovative companies: response to the survey question "in your country, to what extent do new companies with innovative ideas grow rapidly?" [1 = not at all; 7 = to a great extent];
8. Companies embracing disruptive ideas: response to the survey question "In your country, to what extent do companies embrace risky or disruptive business ideas?" [1 = not at all; 7 = to a great extent].

gate authority, Growth of innovative companies, and Companies embracing disruptive ideas) have been measured on a scale from 1 to 7, thus the difference among geographical areas could not appear so high as they really are. Oceania is still the area of best performance, especially in Attitudes towards entrepreneurial risk and the Willingness to delegate authority.

Summing up, it was proven that Oceania is the area with the best performance in the 11<sup>th</sup> pillar; this result is well represented by the following spider-graph (Figure 1) showing the mean of the standardized variables per each geographical area. The variables were standardized (i.e., they were put on the same scale through their Z-score) to make comparisons between different geographical areas easier to understand.

The second research question was focused on the effectiveness in representing business dynamism using the 11<sup>th</sup> pillar of the Global Competitiveness Index.

Table 2 shows that not all the variables represent business dynamism. The variables of Cost of start-

ing a business and Insolvency regulatory framework have very low factor loadings, which means that they do not fit to other variables.

**Table 2.** Rotated component matrix of Pillar 11 of the Global Competitiveness Index<sup>a</sup>

Source: Own processing.

Variable	Component		
	1	2	3
Cost of starting a business	-.089	-.903	.069
Time to start a business	-.667	.199	.304
Insolvency recovery rate	.762	-.141	.431
Insolvency regulatory framework	-.059	-.050	.945
Attitudes towards entrepreneurial risk	.846	.116	-.160
Willingness to delegate authority	.846	.423	.020
Growth of innovative companies	.805	.531	.008
Companies embracing disruptive ideas	.846	.459	.070

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.

Note: a. Rotation converged in five iterations.

Two variables – Cost of starting a business and Insolvency of regulatory framework – were removed,

Source: Own processing.

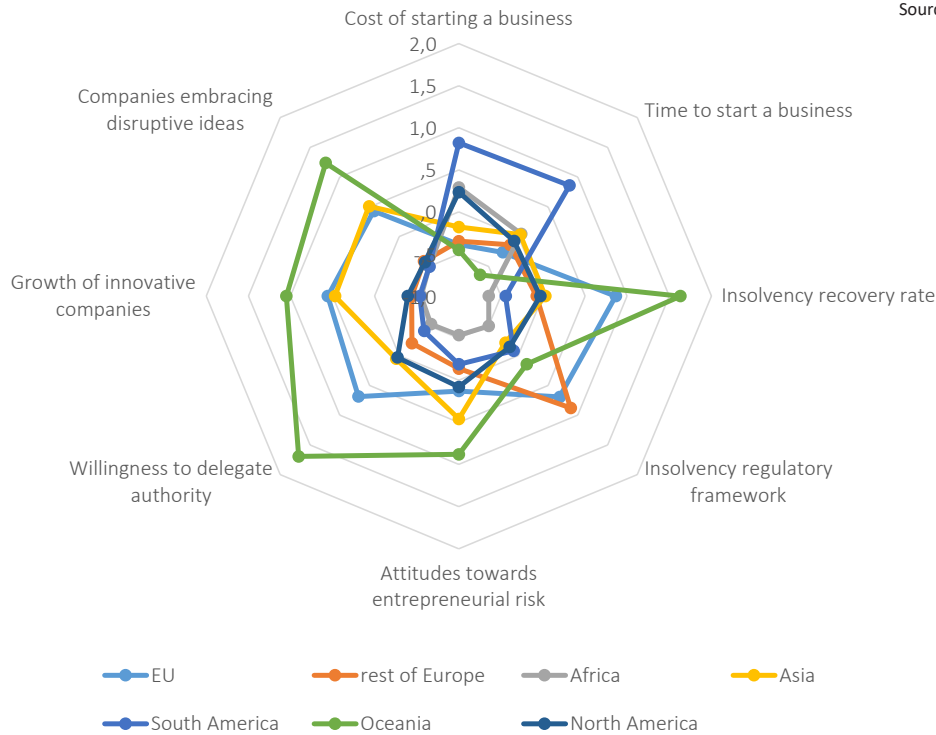


Figure 1. Comparison of business dynamism in the world.

Table 3. Component matrix of Own Index<sup>a</sup>

Source: Own processing.

Variables	Component
	1
Time to start a business	-.553
Insolvency recovery rate	.685
Attitudes towards entrepreneurial risk	.847
Willingness to delegate authority	.938
Growth of innovative companies	.931
Companies embracing disruptive ideas	.950

Extraction Method: Principal Component Analysis

Note: a. One component extracted.

Table 4. Correlations of business dynamism and economic indicators

Source: Own processing.

Variables		Business dynamism	Value added	Birth rate	Death rate
Business Dynamism	Pearson Correlation	1	.390*	-.216	-.144
	Sig. (2-tailed)	–	.040	.280	.473
	N	28	28	27	27
Value added	Pearson Correlation	.390*	1	-.262	-.097
	Sig. (2-tailed)	.040	–	.186	.630
	N	28	28	27	27
Birth rate	Pearson Correlation	-.216	-.262	1	.822**
	Sig. (2-tailed)	.280	.186	–	.000
	N	27	27	27	27
Death rate	Pearson Correlation	-.144	-.097	.822**	1
	Sig. (2-tailed)	.473	.630	.000	–
	N	27	27	27	27

Note: \* Correlation is significant at the 0.05 level (2-tailed), \*\* correlation is significant at the 0.01 level (2-tailed).

and a second PCA was carried out on the remaining variables. The second PCA showed high factor loading for the six remaining variables. They were all combined in an index by using the SPSS standard procedure to save the factor scores (see Table 3).

The third research question focused on the analysis of dependence between business dynamism and economic variables: Valued added at factor cost, Enterprise Birth Rate, and Enterprise Death Rate. To answer this question, the Business Dynamism index was correlated with three indicators extracted from the Eurostat dataset (as can be seen in Table 4).

Correlation analysis showed that:

- Business Dynamism has a strong and statistically significant positive correlation with Value Added;
- Business Dynamism has a weak and not statistically significant correlation with Birth Rate (positive) and Death Rate (negative).

## 5. DISCUSSION

This study provides results in the areas of the business environment and business competitiveness in an international context. It was found out that the members of the European Union reported the best result in the costs required to start business. The process of business funding seems to be the cheapest in the world. The second best performance is shown by North America, the third – by Oceania. The time required to start a business is the shortest in Oceania. European Union ranks fifth after Oceania, North America, Africa, Asia and countries from the rest of Europe. Many countries started to simplify the process of starting business by launching online systems for company registration. This process is not common in the EU countries. This disadvantage is maintained due to a huge possibility of fraud in case

of on-line registration process of new companies. Focusing on insolvency, EU shows very good results. Insolvency recovery rate, after Oceania, is the highest in the case of the EU states. The lowest rate can be seen in the case of South America. EU shows the best position in the world within the insolvency regulatory framework. As to the rest of variables (Attitudes to the risk, Willingness to delegate authority, Growth of innovative companies, and Companies embracing disruptive ideas), the results are very similar. It is not in line with Oláh, Virglerová, Popp, Kliestikova, and Kovács (2019) who state that there are differences between attitudes to the risk and risk management between Serbia (which is not a EU member) and V4 countries (which are all the EU member states).

Two-stage Principal Component Analysis was used to verify if all variables of the 11th pillar selected by the World Economic Forum represent business dynamism. It was found out that two variables (Cost of starting a business and Insolvency regulatory framework) have very low factor loadings. They do not represent business dynamism as effectively as the rest of variables. The new index composed by six variables (Time to start business, Insolvency recovery rate, Attitudes towards entrepreneurial risk, Willingness to delegate authority, Growth of innovative companies, and Companies embracing disruptive ideas) was constructed using the SPSS standard procedure to save factor scores.

The last research question focuses on the relationship between business dynamism and selected economic indicators (Valued added at factor cost, Enterprises' birth rate and death rate). The strong and statistically significant positive correlation was confirmed only in the case of Value added at factor cost. This confirms the results of research by Haskel and Westlake (2017). In the case of other economic indicators, only weak and not statistically significant correlation was found. Different results in this area has been achieved by other authors (e.g., Diez et al., 2018; Dottling et al., 2017; De Loecker & Eeckhout, 2018).

---

## CONCLUSION

This paper analyzes business dynamism of the EU countries and provides the comparison with countries from all over the world. The Global Competitiveness Index constructed by the World Economic Forum in 2019 was used as a framework and data source.

Firstly, Pillar 11 pillar of the GCI was analyzed, and the results for all eight variables in the EU countries were compared with the those from the rest of the world (rest of Europe, Asia, Oceania, Afrika, North America and South America). Not only the eight variables were analyzed which constitute the pillar, but also a relationship of business dynamism with selected economic indicators was explored. EU reported the best results in the case of costs needed to start a business. By contrast, the time to start a new business in EU is longer than in other countries. The insolvency recovery rate is also the strong variable in the case of EU. The rest of the results did not prove significant differences among countries.

It was found out that two variables from the Global Competitiveness Index do not represent the index in the same way as the rest of variables. The new index was constructed. Finally, the strong and statistically significant positive correlation was confirmed in the case of Value added at factor costs and business dynamism represented by new index.

The study has some limitations. First, it focuses on analyzing business dynamism through the Global Competitiveness Index. Business environment conditions and barriers in each state were not analyzed. Only the EU states were analyzed (except the comparison of the results of the Pillar 11 variables). An analysis of the relationship between the real economic condition and business dynamism of each EU state creates a new possibility for further research.

## AUTHOR CONTRIBUTIONS

Conceptualization: Zuzana Virglerova, Eliska Zapletalikova.

Data curation: Felice Addeo.

Formal analysis: Felice Addeo.

Investigation: Felice Addeo.

Methodology: Felice Addeo.

Project administration: Zuzana Virglerova.

Supervision: Zuzana Virglerova.

Validation: Felice Addeo.

Visualization: Eliska Zapletalikova.

Writing – original draft: Zuzana Virglerova, Felice Addeo, Eliska Zapletalikova.

Writing – review & editing: Zuzana Virglerova, Eliska Zapletalikova.

## REFERENCES

1. Acemoglu, D. (2008). *Introduction to Modern Economic Growth*. Princeton, NJ: Princeton University Press.
2. Aghion, P., Bergeaud, A., Boppart, T., Klenow, P. J., & Li, H. (2019). A theory of falling growth and rising rents. *Federal Reserve Bank of San Francisco* (Working Paper 2019-11). <https://doi.org/10.24148/wp2019-11>
3. Aghion, P., Bloom, N., Blundell, R., Griffith, R., & Howitt, P. (2005). Competition and Innovation: An Inverted-U Relationship. *Quarterly Journal of Economics*, 120(2), 701-728. <https://doi.org/10.1093/qje/120.2.701>
4. Andrews, D., & Petroulakis, F. (2017). Breaking the Shackles: Zombie Firms, Weak Banks and De-pressed Restructuring in Europe. *OECD Economics Department Working Paper*, No. 1433. Retrieved from [https://www.oecd-ilibrary.org/economics/breaking-the-shackles\\_0815ce0c-en](https://www.oecd-ilibrary.org/economics/breaking-the-shackles_0815ce0c-en)
5. Andrews, D., & Saia, A. (2016). *Coping with Creative Destruction: Reducing the Costs of Firm Exit*. (OECD Economics Department Working Paper, No. 1353). Retrieved from [https://www.oecd-ilibrary.org/economics/coping-with-creative-destruction\\_bbb44644-en](https://www.oecd-ilibrary.org/economics/coping-with-creative-destruction_bbb44644-en)
6. Autor, D., Dorn, D., Katz, L., Patterson, C., & Van Reenen, J. (2017). Concentrating on the Fall of the Labor Share. *American Economic Review*, 107(5), 180-185. Retrieved from <https://www.nber.org/papers/w23108>
7. Baqaee, D. R., & Farhi, E. (2018). *Productivity and Misallocation in General Equilibrium* (NBER Working Paper, No. 240).
8. Belás, J., & Sopková, G. (2016). A Model of Entrepreneurial Orientation. *Transformation in Business & Economics*, 15(2B), 630-645.
9. Bennett, D. L. (2019). Infrastructure investments and

- entrepreneurial dynamism in the U.S. *Journal of Business Venturing*, 34(5), 28. <https://doi.org/10.1016/j.jbusvent.2018.10.005>
10. Calvino, F., Criscuolo, C., & Menon, C. (2015). Cross-country evidence on start-up dynamics (OECD science, technology and industry working papers, No. 2015/06). Paris: OECD Publishing. <https://doi.org/10.1787/5jrxtkb9mxtb-en>
  11. Cavalleri, M. C., Eliet, A., McAdam, P., Petroulakis, F., Soares, A., & Vansteenkiste, I. (2019). *Concentration, market power and dynamism in the euro area* (European Central Bank Working paper, No. 2253).
  12. Cepel, M., Stasiukynas, A., Kotskova, A., & Dvorsky, J. (2018). Business Environment Quality Index in the SME Segment. *Journal of Competitiveness*, 10(1), 21-40. <https://doi.org/10.7441/joc.2018.02.02>
  13. Cerqueiro, G., Penas, M. F., & Seamans, R. (2019). Debtor protection and business dynamism. *Journal of Law and Economics*, 62(3), 521-549. <https://doi.org/10.1086/704956>
  14. Criscuolo, C., Gal, P., & Menon, C. (2014). *The Dynamics of Employment Growth: New Evidence from 18 Countries* (OECD Science, Technology and Industry Policy Papers, No. 14). Retrieved from [https://www.oecd-ilibrary.org/science-and-technology/the-dynamics-of-employment-growth\\_5jz417hj6hg6-en](https://www.oecd-ilibrary.org/science-and-technology/the-dynamics-of-employment-growth_5jz417hj6hg6-en)
  15. Davis, S. J., & Haltiwanger, J. (2014). *Labor Market Fluidity and Economic Performance* (NBER Working Paper, No. 20479). Retrieved from [http://econweb.umd.edu/~haltiwanger/Davis\\_Haltiwanger\\_Jackson\\_Hole.pdf](http://econweb.umd.edu/~haltiwanger/Davis_Haltiwanger_Jackson_Hole.pdf)
  16. De Loecker, J., & Eeckhout, J. (2017). *The Rise of Market Power and the Macroeconomic Implications* (NBER Working Paper, No. 23687). Retrieved from <https://www.nber.org/papers/w23687>
  17. De Loecker, J., & Eeckhout, J. (2018). *Global market power* (NBER Discussion Paper, No. 24768). Retrieved from <https://www.nber.org/papers/w24768>
  18. Dechezlepretre, A., & Sato, M. (2014). *The Impacts of Environmental Regulations on Competitiveness*. LSE Policy Brief. Retrieved from [http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/11/Impacts\\_of\\_Environmental\\_Regulations.pdf](http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/11/Impacts_of_Environmental_Regulations.pdf)
  19. Decker, R., Haltiwanger, J., Jarmin, R. S., & Miranda, J. (2014). The Role of Entrepreneurship in US Job Creation and Economic Dynamism. *The Journal of Economic Perspectives*, 28(3), 3-24. Retrieved from <https://www.aeaweb.org/articles?id=10.1257/jep.28.3.3>
  20. Decker, R., Haltiwanger, J., Jarmin, R., & Miranda, J. (2016). *Changing Business Dynamism: Volatility of Shocks vs. Responsiveness to Shocks*. Retrieved from [https://cmepg.gmu.edu/wp-content/uploads/2014/01/DeckerHaltJM\\_1\\_15\\_2016.pdf](https://cmepg.gmu.edu/wp-content/uploads/2014/01/DeckerHaltJM_1_15_2016.pdf)
  21. Di Franco, G., & Marradi, A. (2013). *Factor analysis and principal components analysis*. Italy: Franco Angeli.
  22. Diez, F., Leigh, D., & Tambunlertchai, S. (2018). *Global Market Power and its macroeconomic Implications* (Working Paper 18/137). International Monetary Fund. Retrieved from <http://pinguet.free.fr/fmi18137.pdf>
  23. Dottling, R., Gutierrez, G. & Philippon, T. (2017). Is there an Investment Gap in Advanced Economies? If so, Why. *Proceedings from 2017 Sintra Forum on Central Banking*. European Central Bank. Retrieved from [https://www.ecb.europa.eu/pub/conferences/shared/pdf/20170626\\_ecb\\_forum/T\\_Philippon\\_Is\\_there\\_an\\_investment\\_gap\\_in\\_advanced\\_economies\\_If\\_so\\_why\\_with\\_R\\_Dottling\\_and\\_G\\_Gutierrez.pdf](https://www.ecb.europa.eu/pub/conferences/shared/pdf/20170626_ecb_forum/T_Philippon_Is_there_an_investment_gap_in_advanced_economies_If_so_why_with_R_Dottling_and_G_Gutierrez.pdf)
  24. Garcia-Macia, D., Chang-Tai, H., & Klenow, P. J. (2016). *How Destructive Is Innovation?* (NBER Working Paper, No. 22953).
  25. Gopinath, G., S. Kalemli-Ozcan, Karabarbounis, L., & Villegas-Sanchez, C. (2015). *Capital Allocation and Productivity in South Europe* (NBER Working Paper, No. 21453). <https://doi.org/10.1093/qje/qjx024>
  26. Gutierrez, G., & Philippon, T. (2018). *How EU Markets Became More Competitive Than US Markets: A Study of Institutional Drift* (National Bureau of Economic Research: Working Paper, No. 24700). Retrieved from <https://www.nber.org/papers/w24700>
  27. Hall, R. (2018). *New Evidence on the Markup of Prices over Marginal Costs and the Role of Mega-Firms in the US Economy* (National Bureau of Economic Research: Working Paper, No. 24574). Retrieved from <https://web.stanford.edu/~rehall/Evidence%20on%20markup%202018>
  28. Haltiwanger, J., Jarmin, R., & Miranda, J. (2013). Who Creates Jobs? Small Versus Large Versus Young. *Review of Economics and Statistics*, 95(2), 347-361. Retrieved from [https://www.mitpressjournals.org/doi/10.1162/REST\\_a\\_00288](https://www.mitpressjournals.org/doi/10.1162/REST_a_00288)
  29. Haltiwanger, J., Scarpetta, S., & Schweiger, H. (2014). Cross country differences in job reallocation: The role of industry, firm size and regulations. *Labour Economics*, 26(1), 11-25. <https://doi.org/10.1016/j.labeco.2013.10.001>
  30. Haskel, J., & Westlake, S. (2017). *Capitalism without capital: the rise of the intangible economy*. Princeton: Princeton University Press.
  31. Hyatt, H. R., & Spletzer, J. (2013). The Recent Decline in Employment Dynamics. *IZA Journal of Labor Economics*, 2(3), 1-21. Retrieved from <https://link.springer.com/article/10.1186/2193-8997-2-5>
  32. Kozubikova, L., Kotaskova, A., Dvorsky, J., & Kljucnikov, A. (2019). The impact of political factors' perception on suitability of international business environment: The case of startups. *Economics and Sociology*, 12(1), 61-79. <https://doi.org/10.14254/2071-789X.2019/12-1/3>
  33. McGowan, M. A., Andrews, D., & Millot, V. (2018). The Walking Dead? Zombie Firms

- and Productivity Performance in OECD Countries. *Economic Policy*, 33(96), 685-736. Retrieved from <https://ideas.repec.org/a/oup/ecp-oli/v33y2018i96p685-736..html>
34. Mulatu, A. (2016). On the concept of 'competitiveness' and its usefulness for policy. *Structural Change and Economic Dynamics*, 36, 50-62. <https://doi.org/10.1016/j.strueco.2015.11.001>
  35. Mura, L., & Ključnikov, A. (2018). Small businesses in rural tourism and agro tourism: Study from Slovakia. *Economics and Sociology*, 11(3), 286-300. <https://doi.org/10.14254/2071-789X.2018/11-3/17>
  36. Oláh, J., Virglerová, Z., Popp, J., Klietkova, J., & Kovács, S. (2019). The Assessment of Non-Financial Risk Sources of SMES in the V4 Countries and Serbia. *Sustainability*, 11(17), 4806-4824. <https://doi.org/10.3390/su11174806>
  37. Porter, M., & Rivkin, J. (2012). The looming challenge to U.S. competitiveness. *Harvard Business Review*, 90(1), 55-62. Retrieved from <https://hbr.org/2012/03/the-looming-challenge-to-us-competitiveness>
  38. Pugsley, B. W., & Şahin, A. (2019). Grown-up Business Cycles. *The Review of Financial Studies*, 32(3), 1102-1147. Retrieved from [https://www.newyorkfed.org/medialibrary/media/research/staff\\_reports/sr707.pdf](https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr707.pdf)
  39. World Bank Group. (2019). *Doing business 2019. Training for reform*. Retrieved from [https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report\\_web-version.pdf](https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf)
  40. World Economic Forum. (2019). *The Global Competitiveness Report 2019*. Retrieved from [http://www3.weforum.org/docs/WEF\\_TheGlobalCompetitivenessReport2019.pdf](http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf)