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# RELATIONSHIP BETWEEN LABOUR MARKET AND BUSINESS DYNAMISM: CASE OF EUROPEAN COUNTRIES

## Abstract

*The concept of competitiveness and its drivers has drawn increasing attention in recent years. Global Competitiveness Index (GCI), as one of the measurements of this phenomenon, consist of 12 pillars which are determining the level of national competitiveness. This study aims to explore the linkage between Labour market (LM) and Business dynamism (BD) as two pillars of GCI 2019 in case of 34 European countries (28 European Union (EU) member states and 6 candidate countries). Canonical correlation analysis was employed for analyzing the relationship between these two sets of sub-indexes. The results indicate that there is a positive and statistically significant relationship between these two variables.*

*Keywords: Global Competitiveness Index, labour market, business dynamism, canonical correlation analysis.*

***JEL classification:*** *J40, C14, C38, E24.*

# ВЕЗА ИЗМЕЂУ ТРЖИШТА РАДА И ПОСЛОВНЕ ДИНАМИКЕ: ПРИМЕР ЕВРОПСКИХ ДРЖАВА

## Апстракт

*Концепт конкурентности и њених покретача последњих година привлачи све већу пажњу. Глобални индекс конкурентности (ГЦИ), као мерило овог феномена, састоји се од 12 стубова који одређују ниво конкурентности једне земље. Циљ овог рада је истраживање повезаности између тржишта рада и пословне динамике као два стуба ГЦИ 2019 на примеру 34 европске земље (28 земаља чланица Европске уније (ЕУ) и 6 земаља кандидата). За анализу односа између ова два скупа подиндекса примењена је каноничка корелациона анализа. Резултати показују да постоји позитиван и статистички значајан однос између ове две варијабле.*

*Кључне речи: Глобални индекс конкурентности, тржиште рада, пословна динамика, каноничка корелациона анализа.*

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# Introduction

In today's global market economy, the modern economy must work on its competitiveness and development of innovation (Đurić et al., 2018). "Applied to the level of national economies, competitiveness represents the ability to survive long-term in a market economy" (Stanković & Popović, 2016, p. 191). "In modern economy foundations competitiveness are located in the high technologies, knowledge and innovation, global connectivity and strategic pooling" (Nešković et al., 2016, p. 448).

Competitiveness, as one of the most researched areas in recent years, could be defined as "the set of institutions, policies, and factors that determine the level of productivity of a country" (Schwab, 2018, p. 42). Likewise, both productivity and rates of return on investments of one economy will define growth rates and finally the level of countries competitiveness. Numerous indicators are designed to measure the progress of one national economy. Some of these are Gross Domestic Product (GDP), Genuine Progress Indicator (GPI), Happy Planet Index (HPI), Happiness/Life Evaluation Index, OECD Better Life Initiative, Human Development Index (HDI), Index of Sustainable Economic Welfare (ISEW) and among them, the most commonly used is Global Competitiveness Index (GCI) (Costanza et al., 2009; Popescu et al., 2017; Günseli, 2018).

GCI is measuring through its 12 pillars level of national competitiveness. There are examples that the economy's competitiveness is being assessed by one of the pillars of GCI – Labour Market (LM) (Ostoj, 2015). Accordingly, Mohaghar et al. (2018) perceive efficiency and flexibility of the labour market as critical drivers of workforce allocation to the most effective use and for motivation to give a maximum of their efforts to complete work obligations.

Similarly, competitiveness is also supported by Busines dynamism (BD) as a pillar of GCI, in order for a country to reach the advanced level of requirements needed for global competitiveness. Additionally, BD could be influenced by a variety of variables such as technological improvements, macroeconomic environment, the efficiency of labour market etc. (Vesal et al., 2013; Kirikkaleli & Ozun, 2019).

The paper aims to answer the question: Is there a significant relationship between LM and BD of 28 member countries of the European Union (EU) and 6 countries in the process of joining? Answering this question is important because it will show how important is the labour market and optimal allocation of skills for productivity and doing business in a constantly changing environment.

With the purpose of answering this question, the paper is structured as follows: the first section introduces the research topic; after that, the second part gives a brief review of literature which deals with labour market and business dynamism; the third section describes research methodology through the sample, the variables, the methods used for the empirical investigation and proposes the research hypothesis; the fourth part presents the obtained results and discussion; the last section summarizes the conclusions.

# Theoretical background and Literature review

All aspects which are having a major influence on productivity and growth of almost 140 countries throughout 40 years period of time are being measured by the Global

Competitiveness Index (GCI). This index puts special emphasize on drivers of economic success: enabling environment, markets, human capital and innovation ecosystem. In addition, all countries are put in one of three stages of development: (1) factor-driven stage, (2) efficiency-driven stage and (3) innovation-driven stage (Porter et al., 2002).

GCI 4.0 index consists of 103 indicators measuring a country's performance using a 'progress score' on a 0-to-100 scale, where 100 means an ideal state (Schwab, 2019). It is designed to measure global competitiveness divided into groups of 12 pillars: Institutions; Infrastructure; ICT adoption; Macroeconomic stability; Health; Skills; Product market; Labour market; Financial system; Market size; Business dynamism; and Innovation capability (Schwab, 2019).

As one of GCI pillars, LM influences the level of country's productivity and its competitiveness, therefore, as a result, "it is worth knowing the specificity and context of this value" (Ostoj, 2015, p. 82). Since its launching as a separate pillar in 2007, there have been few changes in LM's structure thorough history. The last structure, which was introduced with the GCI 4.0 report from 2018, includes measures of talent reward and respect of workers' rights. There are 12 elements of LM valued on the scale from 1 to 100 and divided into two groups (Table 1):

- •   Group A (Flexibility) – Indicators from 1 to 8 in this group are measuring the flexibility of workers or their possibility to change jobs fast and at low costs, and flexibility of wage or its fluctuations without negative social effects.
- •   Group B (Meritocracy and incentivization) – Indicators from 9 to 12 in this group are assessing factors of workers' performance and female participation in the labour force.

*Table 1: The structure of LM and BD pillars*

| 8ᵗʰ pillar: Labour market | 11ᵗʰ pillar: Business dynamism |
|---|---|
| 8.01 Redundancy costs (weeks of salary) | 11.01 Cost of starting a business |
| 8.02 Hiring and firing practices | 11.02 Time to start a business |
| 8.03 Cooperation in labour-employer relations | 11.03 Insolvency recovery rate |
| 8.04 Flexibility of wage determination | 11.04 Insolvency regulatory framework |
| 8.05 Active labour market policies | 11.05 Attitudes towards entrepreneurial risk |
| 8.06 Workers' rights | 11.06 Willingness to delegate authority |
| 8.07 Ease of hiring foreign labour | 11.07 Growth of innovative companies |
| 8.08 Internal labour mobility | 11.08 Companies embracing disruptive ideas |
| 8.09 Reliance on professional management | |
| 8.10 Pay and productivity | |
| 8.11 Ratio of wage and salaried female workers to male workers | |
| 8.12 Labour tax rate | |

*Source: Authors' presentation based on the World Economic Forum, reports.weforum.org (28.1.2020.)*

"Competitiveness and business excellence are interconnected phenomena" (Bešić et al., 2014, p. 648). BD, as 11ᵗʰ pillar of GCI, is measuring through its eight sub-indexes (Table 1) "the capacity of private sector's to generate and adopt new technologies and

new ways to organize work, through a culture that embraces change, risk, new business models, and administrative rules that allow firms to enter and exit the market easily" raised (Schwab, 2018, p. 42). In its structure, BD incorporates two components: administrative requirements and entrepreneurial culture. Moreover, BD is one of the triggers that foster economic growth through improving efficiency, productivity, and profitability in the market (Dima et al., 2018).

The literature, based on researches in the field of GCI pillars, is numerous. Most of the researches are dealing with the relationships between different pillars. Vesal et al. (2013) have researched the relationship between Labour market efficiency (LME) and Business Sophistication (BS) which were measured until introducing new methodology in 2018. They have found a statistically significant relationship between these two variables. Especially, 64.01% of changes in BS are predictable by changes in LME, and vice versa, 25.89% of changes in LME are predictable by changes in BS. Similar research by Rastegar et al. (2012) has revealed that more than 25.88% of changes in LME due to changes in Technological readiness. Also, their model showed that more than 57.21% of changes in Technological readiness is explained by changes in LME. Bazargan et al. (2017) have revealed that 77.85% of changes in BS are predicted by the changes in Higher education and training. Furthermore, more than 66.70% of changes in Higher education and training could be predicted by changes in BS.

Based on previously mentioned, this paper investigates the relationship between LM and BD pillars. The proposed model is presented in the following picture.

*Figure 1: Research model*
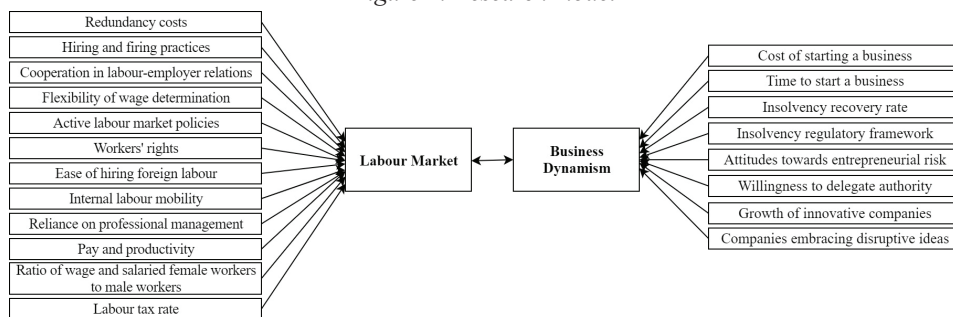


Source: Authors

## Research methodology and Hypothesis

By selecting information from GCI 2019 report, data regarding scores of LM and BD of 34 countries (28 EU member states and 6 candidate countries) was collected. The analysis includes data for one year, respectively data for the year 2019. The collected data were analyzed using the program IBM SPSS, version 23.

This research is an exploratory model aimed to enlighten the relationship between LM and BD sub-indexes. Therefore the Bivariate (Pearson) and Canonical Correlation Coefficients were calculated.

Firstly, the Pearson correlation coefficients were calculated. According to Cohen (1992), Pearson correlation coefficient values of ± .10 represent a small practical effect, ± .30 is a medium practical effect and ± .50 is a large practical effect.

Secondly, by applying the Canonical Correlation Analysis (CCA) relationship between LM and BD sub-indexes was examined. CCA deals with the association between the composites of sets of multiple dependent and independent variables. This analysis develops a number of canonical functions that maximize the correlation between linear composites (Jha, 2011). The criterion of .30 was used as a cut-off score for the structure correlation coefficients to interpret the association between two variable sets (Levine, 1977).

Before conducting all analysis, normality tests were applied. Due to small sample size, these tests showed not normally distributed data for LM sub-indexes Flexibility of wage determination, Workers' rights, Internal labour mobility and Ratio of wage and salaried female workers to male workers and these variables were excluded from the research. Furthermore, Cost of starting a business, Time to start a business, Insolvency recovery rate, Insolvency regulatory framework and Willingness to delegate authority were excluded from the analysis of BD sub-indexes.

Meaningful level for all interpretations of the data was p<.05.

The research hypothesis derived from the previous research model is stated as follows:

H1. There will be a statistically significant relationship between LM and BD.

## Research Results and Discussion

Before testing the first hypothesis, Pearson correlation coefficients between LM and BD should be calculated and these results are presented in Table 2.

*Table 2: Correlation coefficients between sub-indexes of LM and BD*

|        | BD5    | BD7    | BD8    |
|--------|--------|--------|--------|
| **LM1**  | -.002  | -.062  | .051   |
| **LM2**  | .567** | .539** | .584** |
| **LM3**  | .665** | .838** | .747** |
| **LM5**  | .570** | .838** | .774** |
| **LM7**  | .219   | .171   | .123   |
| **LM9**  | .659** | .914** | .848** |
| **LM10** | .636** | .845** | .783** |
| **LM12** | .106   | -.117  | -.044  |

*Note:* LM sub-indexes: LM1 - Redundancy costs (weeks of salary); LM2 - Hiring and firing practices; LM3 - Cooperation in labour-employer relations; LM5 - Active labour market policies; LM7 - Ease of hiring foreign labour; LM9 - Reliance on professional management; LM10 - Pay and productivity; LM12 - Labour tax rate. BD sub-indexes: BD5 - Attitudes towards entrepreneurial risk; BD7 - Growth of innovative companies; BD8 - Companies embracing disruptive ideas.

** p<.01, *p<.05

*Source: Authors' calculations*

According to Table 2, there are statistically significant correlations between the majority of sub-indexes of LM and BD. In example, the statistically significant and positive correlations were identified among Hiring and firing practices as LM sub-index and Attitudes towards entrepreneurial risk (r=.567, p<.01, large practical effect), Growth of innovative companies (r=.539, p<.01, large practical effect) and Companies embracing disruptive ideas (r=.584, p<.01, large practical effect) as BD sub-index. Moreover, among LM sub-indexes Cooperation in labour-employer relations, Active labour market policies, Reliance on professional management and Pay and productivity and all three sub-indexes od BD statistically significant and positive correlations were found. Only between Redundancy costs, Ease of hiring foreign labour and Labour tax rate and BD sub-indexes no significant correlations were identified.

In this part, the existence of a statistically significant canonical correlation between sub-indexes of LM as the independent variable and sub-indexes of BD as a dependent variable was examined using CCA. The findings are shown in Table 3.

*Table 3: Canonical Correlations*

| | Correlation | Canonical R² | Eigenvalue | Wilks Statistic | F | Num D.F | Denom D.F. | Sig. |
|---|---|---|---|---|---|---|---|---|
| 1 | **.937** | **.878** | 7.222 | .064 | 4.430 | 24.000 | 67.308 | **.000** |
| 2 | .606 | .367 | .581 | .527 | 1.296 | 14.000 | 48.000 | .245 |
| 3 | .409 | .168 | .201 | .832 | .839 | 6.000 | 25.000 | .552 |

*Source: Authors' calculations*

CCA presented that out of three canonical functions, one was statistically significant. Multivariate test of significance for canonical functions has revealed that only the first canonical function makes a statistically significant contribution to the model. Furthermore, the canonical correlation between LM set and BD set of sub-indexes is r=.937 in the first function (Wilks's lambda = .064, F(24)=4.430, p<0.05). The shared variance between the group of variable Labour market and Business dynamism is 87.8%. This relationship is positive and when LM grows, BD grows, also.

Regarding the dependent and independent variables, the standardized canonical coefficients (which are represented by the canonical weights of the first canonical function), canonical loadings and cross-loading are presented in Table 4.

*Table 4: Standardized Canonical Correlation Coefficients, canonical loadings and cross-loadings for set 1 and set 2*

| Set | Function 1 | | |
|---|---|---|---|
| **BD** | Standardized Canonical R | Canonical loadings | Cross-Loadings |
| **BD5** | .167 | **-.726** | -.680 |
| **BD7** | -.995 | **-.995** | -.933 |
| **BD8** | -.139 | **-.939** | -.880 |
| **LM** | | | |
| **LM1** | -.053 | .058 | .054 |
| **LM2** | -.097 | **-.558** | -.523 |

| | | | |
|---|---|---|---|
| **LM3** | .100 | **-.882** | -.827 |
| **LM5** | -.222 | **-.903** | -.847 |
| **LM7** | -.003 | -.161 | -.151 |
| **LM9** | -.692 | **-.979** | -.918 |
| **LM10** | -.173 | **-.900** | -.844 |
| **LM12** | .016 | .149 | .140 |

*Note:* LM sub-indexes: LM1 - Redundancy costs (weeks of salary); LM2 - Hiring and firing practices; LM3 - Cooperation in labour-employer relations; LM5 - Active labour market policies; LM7 - Ease of hiring foreign labour; LM9 - Reliance on professional management; LM10 - Pay and productivity; LM12 - Labour tax rate. BD sub-indexes: BD5 - Attitudes towards entrepreneurial risk; BD7 - Growth of innovative companies; BD8 - Companies embracing disruptive ideas.

*Source: Authors' calculations*

In the previous table, loadings are displaying correlations between original data and root scores. We can see that absolute values greater than 0.3 given in bold are interpreting how important variables are for computing the score (Levine, 1977). This means that standardized canonical correlation coefficients will be significant if the value of canonical loading is higher than 0.3. Hence, canonical weights in Table 4 show both negative and positive signs, indicating in the same time inverse and direct relationship between each variable and the group of canonical variables to which it belongs, similar to the standardized coefficients obtained in a regression analysis.

As Table 3 showed, the correlation between the first pair of canonical function was very strong (r = .937). The function 1 revealed that canonical loadings for all BD sub-indexes were over the cut-off point. Growth of innovative companies and Companies embracing disruptive ideas made primary contributions to the synthetic criterion variable, while Attitudes towards entrepreneurial risk had secondary importance to the same variable. These sub-indexes have larger canonical function coefficients. Additionally, all sub-indexes had a negative sign, indicating that they were inversely related to the other BD sub-indexes. Among these BD sub-indexes, Growth of innovative companies tended to have larger standardized canonical function coefficient, while Companies embracing disruptive ideas and Attitudes towards entrepreneurial risk had modest function coefficients but large structure coefficients.

Predictor variable set in the first function is presenting Reliance on professional management, Active labour market policies, Pay and productivity and Cooperation in labour-employer relations as primary contributors to the predictor synthetic variable, with a secondary contribution of Hiring and firing practices. All structure coefficients for LM sub-indexes are negative, indicating positive relation to all sub-indexes of BD. These results are supporting our relationship between the labour market and business dynamism which would be enhanced if the labour market is flexible and righteous.

Table 5 presents the average shared variance between the dependent variables and independent variables, making it possible to measure the redundancy index of such variables in the first canonical function.

*Table 5: Calculation of redundancy index*

| Set of variables | Average shared variance | Square Corr. | Redundancy index |
|---|---|---|---|
| *Function 1* | | | |
| Dependent | .800 | .878 | .702 |
| Independent | .466 | | .409 |

*Source: Authors' calculations*

The data obtained by the canonical correlation point out that the set of independent variables (LM) makes up a significant group in the adopted canonical correlation model, adequately explaining 70.2% of the variance of the set of dependent variables. Therefore, it is related to the group of the dependent variable (BD) and should be contemplated in economics politics as an important factor that affects entrepreneurial culture. Calculation of redundancy index has also reviled 40.9% of the variance in LM explained by BD (Table 5). Lastly, sub-indexes of BD which were included in the analysis are measuring entrepreneurial culture as a part of business dynamism and their variability was explained by the set of LM sub-indexes. Therefore, our hypothesis was partially confirmed.

The results derived from the CCA have shown a positive relationship between the set of LM and the set of BD components. Although the hypothesis was partially confirmed, these results were generally supportive of the theoretically expected relationship between LM and BD. Similarly to the results of Vesal et al. (2013) who have found that 64.01% of changes in BS are predictable by changes in LME, our research results have revealed that 70.2% of the variance in BD is due to LM. Furthermore, our results indicate that 40.9% of the variance in LM is explained by changes in BD. In line with our findings are, also, findings of Vesal et al. (2013) whose model showed 25.89% of the variance of LME is predictable by changes in BS. Lastly, in the research of Rastegar et al. (2012), changes in LME explain a significant proportion of variance in Technological readiness, as in our research for the case of BD.

## Conclusion

In this paper, the relationship between two pillars of GCI, Labour Market and Business Dynamism, was explored. The research is based on the data for these indicators of 34 European countries from GCI report 2019. We have calculated the Pearson correlation coefficients and conducted CCA to test the proposed hypothesis. Pearson correlation coefficients have shown a statistically significant correlation between the majority of sub-indexes of LM and BD. Additionally, CCA has identified a statistically significant and positive relationship between LM and BD sets of sub-indexes. It is important to outline that in our research model 70.2% of the variance in BD was due to LM and 40.9% of the variance in LM was explained by changes in BD.

Generally, the results of the study have presented the relationship between the labour market and entrepreneurial culture as part of business dynamism. What is more, that relationship is positive, and an increase in labour market score and optimal allocation of skills (labour market functioning) would lead to an increase in business dynamism. Additionally, a significant per cent of the variance in business dynamism is explained by

changes in the labour market. Altogether results indicate that creators of economic policies in European countries should analyse the best practices in labour market policies and define measures of convergence to them because these practices would enhance business dynamism of that country.

It can be said that the development of one of these two pillars causes progress of other pillars, and consequently all this causes an improvement in competitiveness ranking position of one country.

The research has its limitations. Firstly, the analysis was based on data for only one period of time. Furthermore, the size of the sample was rather on the borderline of normality and these limitations should be exceeded in future research.

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