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## **The relationship between socio-economic development and labour market flexibility in EU countries**

### INTRODUCTION

Labour market flexibility refers to the presence of legal conditions that allow for the use of diverse forms of labour organization, employment and worktime. Such conditions have an impact on employee and entrepreneur capability to adapt to changing market realities by increasing labour market competitiveness (Boni, 2006, pp. 9–10). Employers operating in a flexible market adjust the size and structure of employment to their current and future business needs by aligning wages with labour efficiency. Employees in turn have no difficulty changing jobs or finding work, while employment agencies easily find occupation for the unemployed (Siek, 2012, p. 116).

Good labour market flexibility allows for a more rational utilization of the workforce and a reduction of per-unit labour costs, thereby improving the economic situation and creating new jobs. Better labour market flexibility drives economic transformations that occur as the workforce relocates and labour demand and supply are aligned with each other. Higher levels of labour market

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flexibility translate into better competitiveness and lower costs of interference with the operation of that market. Opponents of labour market flexicurity believe that it strengthens the employer's position on the labour market and at the same time limits employee rights. It also weakens the position of trade unions and destabilizes employment, reducing the sense of job security (Kwiatkowski, 2009, pp. 285, 293–299; read more: Michie, 2003).

At the end of the 20th century, it was shown that there is a correlation in the American economy between greater flexibility of the labour market and lower unemployment (Kwiatkowski, 2009). This led to calls for the European labour market to become more flexible in order to drive down unemployment. The relationship between labour market flexibility and unemployment has been corroborated by extensive empirical research. There is some evidence that labour market institutions and regulations (e.g., employment laws, collective bargaining laws, and social security laws) influence the unemployment level: for example Botero, Djankov, LaPorta, López-de-Silanes and Shleifer (2004) for a panel of 85 countries, Feldmann (2010) – 52 economies, Feldmann (2006) – 19 economies or Bernal-Verdugo, Furceri and Guillaume (2012) – 97 countries (Botero et al., 2004; Feldmann, 2010; Bernal-Verdugo et al., 2012). The results indicate that GDP in many countries could grow by 10–15% if unemployment was eliminated<sup>3</sup>. Nevertheless, the unemployment rate is severely affected by labour taxes and unemployment benefits, known as institutional factors of the labour market (Bernal-Verdugo et al., 2012, pp. 251–273).

The process by which employment arrangements became more flexible in the European economy started in 1980s, reaching its peak in the second half of the 1990s. This coincided with a downturn in economic growth and in employment figures, leading to a rise in unemployment. Enterprises operating in EU countries introduced internal regulations to allow for their alignment with economic changes and labour market transformations. Trade and sector negotiations moved down to the company level. Wage negotiations covered by collective bargains started to be held at the company level. Various forms of employment and work-time organization came into being at the time. As part of labour market deregulation, Great Britain undertook a reform of employment arrangements, economic overhaul, privatisation of state-owned enterprises, as well as measures to reduce labour taxation and curtail trade union rights. France introduced a 35-hour working week. Belgium followed by introducing a 38-hour working week, allowing a year-long holiday for qualification-improving purposes and worktime reductions for those over 50 years of age. Germany and the Netherlands, in turn, allowed their employees to choose the length of worktime (Jerzak, 2004, pp. 7, 9).

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<sup>3</sup> Exemplified by a survey of close to 100 countries, in which data for the period from 1985 to 2008 was scrutinized to show that part-time work also known as flexible working hours reduces unemployment considerably.

The growing importance of labour market flexibility for economy has resulted in a proliferation of research and publications on the subject. In order to evaluate labour markets in EU member states, this paper presents statistical data concerning selected indicators of labour market flexibility in the EU. The aim of the article is to compare labour market flexibility in EU countries on the basis of several of the many available flexibility indicators. We are aware that the available measurement indicators are not perfect, and the availability of data and the nature of the phenomenon do not facilitate analysis at the level of international comparisons.

Moreover, the aim of the article is to relate the level of flexibility of the labour market in the European Union to the level of socio-economic development and to indicate whether there is a characteristic pattern of dependence between these indicators. To better understand the relationship between HDI and labour market flexibility, correlation coefficients were examined.

#### A THEORETICAL PERSPECTIVE ON LABOUR MARKET FLEXIBILITY

The literature distinguishes two concepts of labour market flexibility, i.e. micro-economic and macro-economic (Wiśniewski, 1999, p. 42). The macro-economic concept relates to real labour cost flexibility at the economy-wide level. It requires both full and immediate adjustments of real-product wages and related non-wage labour costs to changing productivity levels or terms of trade (Klau, Mittelstadt, 1986, p. 10). It is interpreted as a method to achieve stability in the labour market exposed to fluctuations due to supply/demand and structural shocks (Kwiatkowski, 2009, p. 285). Labour market imbalance on a macro-economic scale occurs because of structural problems leading to high unemployment or a long-term shortage of employees with specific qualifications (Wiśniewski, 1999, p. 42). In that sense, labour market flexibility is determined by both a high rate of employment and a low rate of structural unemployment. An enabling factor for labour market flexibility in a macro-economic view is legislative changes in wages, working time and employee protection. The micro-economic concept of labour market flexibility envisions a quick alignment of employers and employees with on-going economic changes that impact the labour market. In that sense, labour market flexibility is driven by relatively quick changes in the size and structure of employment across the economy, industries, professions and regions. It focuses on the way in which labour market entities respond to periodic imbalances, as reflected both by wage adjustments and job supply/demand (Maniak, 2007, p. 61).

The importance of labour market flexibility has been appreciated by various theories of the labour market. Classical economics drew attention to the flexibility of labour supply/demand relative to wages. It was assumed that where a gap existed between labour demand and supply, a change in wages would occur to align the market's supply and demand sides. In neo-classical economics, Pigou showed

that the tendency towards full employment appears in the economy if the labour market is perfectly competitive and operating on free-market principles (Pigou, 1941). A misalignment between supply and demand leads to wage fluctuations, workforce relocation and a change in labour demand and supply. Both classical and neo-classical economics underscored the importance of wage flexibility and labour supply/demand flexibility for the process of balancing the labour market. Keynes, on the other hand, questioned the classical ideas by claiming that the labour market is unreliable, with flexible wages insufficient to eliminate unemployment. His theory held that employment adjusts itself to production levels, meaning that employment is flexible with respect to production (Keynes, 2010). In the neoclassical synthesis theory put forward by Modigliani, Haberler and Samuelson, the idea was that tendencies towards full employment accompany flexible wages and prices. According to the NAIRU (Non-Accelerating Inflation Rate of Unemployment) idea proposed by Friedman (Friedman, 1968), unemployment depends on factors relating to labour market flexibility, such as labour protection, trade union power, unemployment benefit arrangements, and the degree of structural misalignment of labour supply versus labour demand. In the natural unemployment rate theory, Friedman noted that a contemporary economy is characterized by market imperfections, flawed labour market institutions, misinformation on vacancies and insufficient workforce mobility, leading to the rise of the so-called natural unemployment. Both NAIRU and natural unemployment rate theories stress that greater flexibility of the labour market reduces equilibrium unemployment (Kwiatkowski, Włodarczyk, 2014, pp. 24–28).

In recent years, much attention in academic and political discourse has been focused on the concept of flexicurity. This strategy involves increasing, on one hand, labour market flexibility and, on the other, job and social security. The literature distinguishes two types of flexicurity: Danish and Dutch (Bredgaard et al., 2008, p. 305).

The term “flexicurity” was invented by a sociologist who was an aide to Poul Nyrup Rasmussen, the Danish minister of labour in 1990 (Barbier et al., 2009, p. 4). The Danish variety, known as “the golden triangle”, is based on three pillars: flexible labour market, active labour market policies and generous unemployment benefits (Madsen, 2004, pp. 243–265). It is characterized by a systematic division of responsibility among the state (labour market policy), the employer and the employee. Employers are free to hire and fire as they choose. The burden of responsibility for dismissal rests on the state and on the dismissed person him/herself as he/she is offered a range of job activation opportunities. The employer is not limited by severance pay regulations or legal restrictions against the freedom of dismissal (Boni, 2006, pp. 17–19).

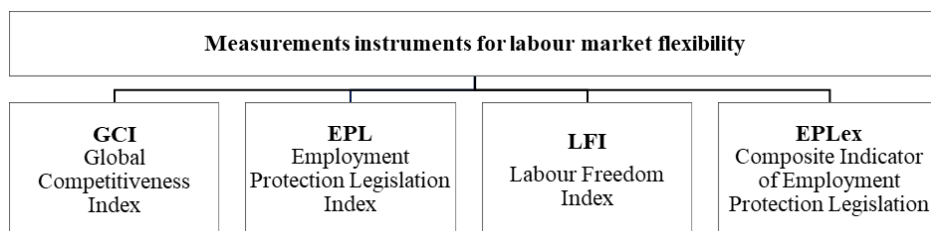
The term “flexicurity” within its Dutch meaning involves improvement in relations between labour market flexibility, employees and trade organizations, as well as in job and income security on the labour market and beyond. Special emphasis is placed on the need for improving the situation of disadvantaged

employees and facilitating their access to better job opportunities (Kucharski, 2012, pp. 38–39). The flexicurity strategy has been recommended in the labour market policy by the European Commission. EU member states have been encouraged to increase labour market flexibility while maintaining security (Heyes, 2011, p. 642). In current EU level documents, flexicurity is seen as a guidance for structural reforms (Bekker, Mailand, 2019, p. 142).

The development of the idea of labour market flexibility and interest in the subject in academic and political discourse confirm that the problem is, indeed, complex and needs further research.

#### MEASUREMENT INSTRUMENTS FOR LABOUR MARKET FLEXIBILITY

Labour market flexibility is a multi-faceted issue determined by factors which are qualitative in nature and therefore difficult to measure (Ertman, 2011, p. 48). International comparisons can be made using different indicators. For the purpose of this study, four indicators have been taken into account (Figure 1). All of these measurement tools are discussed below based on 2018 data.



**Figure 1. Basic instruments for measuring labour market flexibility**

Source: (ILO, 2019; OECD, 2019; The Heritage Foundation, 2018; World Economic Forum, 2019).

Labour market flexibility as measured by the Global Competitiveness Index (GCI) is published by the World Economic Forum (World Economic Forum, 2019). In the 2017–2018 edition, an index-based ranking was drawn up, featuring 12 pillars<sup>4</sup> for 137 economies around the world, including 28 EU countries. Pillar No. 7 relates directly to: “Labour Market Efficiency – Flexibility”. The pillar includes the following components: cooperation in labour-employer relations, flexibility of wage determination, hiring and firing practices, redundancy costs, effect of taxation on incentives to work. The ranking adopts a 0 to 7 grading scale where 0 stands for low flexibility and 7 means high flexibility.

<sup>4</sup> 12 pillars: 1. Institutions, 2. Infrastructure, 3. Macroeconomic environment, 4. Health and primary education, 5. Higher education and training, 6. Goods market efficiency, 7. Labour market efficiency, 8. Financial market development, 9. Technological readiness, 10. Market size, 11. Business sophistication, 12. Innovation.

The EPL index calculated by OECD in its last available year of publication presents 2013 data covering 41 economies in the world, including a mere 13 EU countries (OECD, 2019). The current version (version 3) of EPL structure distinguishes four principal sub-indexes: Employment protection for individual and collective dismissals, regular contracts (EPRC), Employment protection for individual dismissals, regular contracts (EPR), Employment protection for collective dismissals, regular contracts (EPC), Employment protection for temporary contracts (EPT). According to the latest survey methods, the OECD no longer states a single summary value for EPL but the results are given for each group separately. The index value ranges from 0 to 6, where 0 stands for high flexibility and 6 for low flexibility (OECD, 2019).

The LFI index is calculated by The Heritage Foundation based on World Bank data. According to information available for 2018, the index includes data for 186 economies, including 28 EU countries. This represents a quantitative measure taking into account various legal and regulatory aspects of a given country's labour market framework, including regulations on minimum wages, dismissal restrictions, severance pay requirements as well as legal constraints relating to employment and working hours. The index consists of seven quantitative factors such as the ratio of minimum wage to the average value added per worker, hindrance to hiring additional workers, rigidity of hours, difficulty of firing redundant employees, legally mandated notice period, mandatory severance pay, and labour force participation rate. The synthetic value of the index ranges from 0 (low flexibility) to 100 (high flexibility) (The Heritage Foundation, 2018).

The EPLex index is calculated by the International Labour Organisation (ILO). According to data available for the latest year of publication (2013), the index covers 45 countries, including 13 from the EU. The method of calculation is based on a set of quantitative indicators relating to employment protection regulations for indeterminate-term contracts and individual dismissals. The information presented is broken down into 50 variables (ILO, 2019). In 2015, ILO set out eight new EPLex indicators including such categories as: valid grounds for dismissals, prohibited grounds for dismissals, probationary period, procedural notification requirements for dismissals, notice periods, severance pay, redundancy pay, avenues for redress, and summary EPLex indicator. Indicator values range from 0 (high flexibility) to 1 (low flexibility) (ILO, 2015, pp. 2, 6).

An analysis of the discussed indicators for measuring labour market flexibility (Table 1) shows that the measures differ from one another in terms of methodology as well as territorial coverage and time span of the data. This means that the indicators should not be treated as being interchangeable. For example, only the GCI indicator refers directly to labour market flexibility, while the remaining indicators focus on the legal protection of employment which is often equated with labour market flexibility.

**Table 1. A comparison of instruments for measuring labour market flexibility<sup>5</sup>**

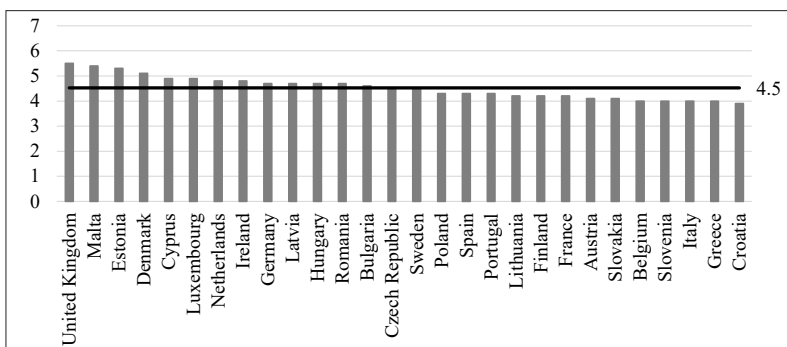
Indicator	Publishing institution	Time span	Spatial coverage
GCI Flexibility	World Economic Forum	2017–2018	137 countries globally (28 EU countries)
EPL	OECD	2013	41 countries globally (21 EU countries)
LFI	Heritage Foundation	2018	186 countries globally (28 EU countries)
EPLex	International Labour Organization	2012	45 countries globally (13 EU countries)

Source: (ILO, 2018; OECD, 2019; The Heritage Foundation, 2018; World Economic Forum, 2018).

### LABOUR MARKET FLEXIBILITY ASSESSMENT FOR EU COUNTRIES<sup>6</sup>

Taking into account the four indicators discussed above, the recent ranking results have been reviewed in order to compare how the labour market flexibility in the European Union countries is assessed according to slightly different criteria.

Figure 2 presents a flexibility ranking for EU-28 according to the global competitiveness report published by World Economic Forum. Top positions for labour market flexibility are held by the UK, Malta and Estonia, while the lowest ratings in the category were received by Croatia, Greece and Italy. All of the ten member states with the highest flexibility ratings also appeared on the list of the 50 most flexible labour markets globally. The mean value of EU-28 stood at approximately 4.5.



**Figure 2. Labour market flexibility indicator according to GCI 2017–2018 in EU-28**

Source: (World Economic Forum, 2018).

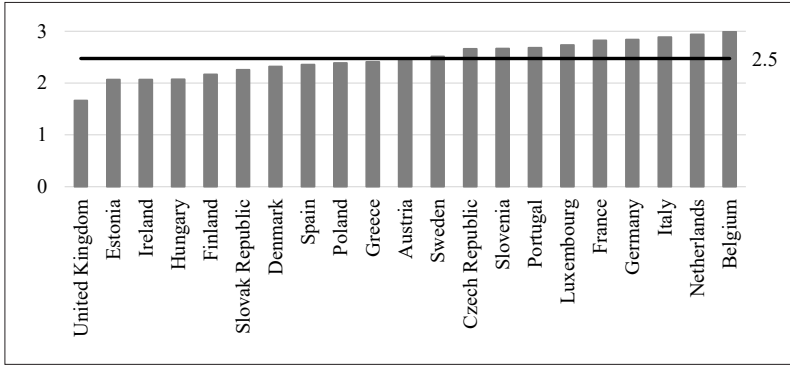
<sup>5</sup> The territorial coverage and time span are presented according to the data in the last year of publication, available in 2018.

<sup>6</sup> All the graphs in this chapter follow the order of flexibility, with countries with the most flexible labour markets on the left-hand side and those with the lowest flexibility rating on the right-hand side. The graphs calculate and show the arithmetic mean of data reported for the countries in question.



Labour market flexibility as measured by the EPL index according to the last-published data from OECD (year 2013, 21 EU countries<sup>7</sup>) is presented in Figures 3–6.

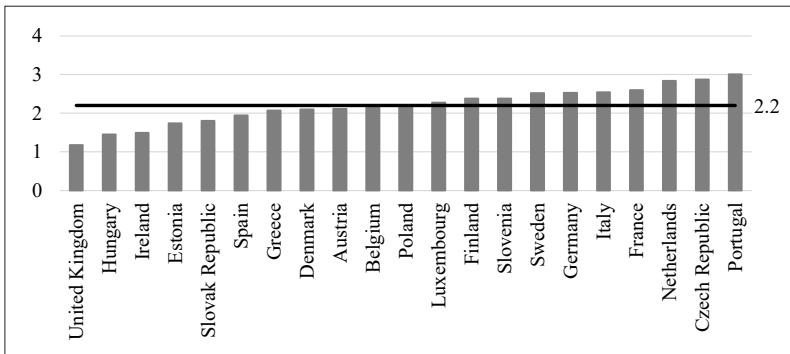
The EPL index relating to protecting regular employees from individual and collective dismissals in 21 EU countries (in 2013) is shown in Figure 3. The best flexibility was noted in the UK, Estonia, Ireland and the lowest in Belgium, the Netherlands and Italy. The mean index value was approximately 2.5.



**Figure 3. EPL index – Individual and collective dismissals – regular workers (EPRC) in EU-21 in 2013**

Source: (OECD, 2019).

Figure 4, in turn, presents the EPL index relating to protecting regular employees from individual and collective dismissal in EU-21 in 2013. The best flexibility was noted for the UK, Hungary and Ireland, while the lowest was recorded for Portugal, the Czech Republic and the Netherlands. The mean index value was above 2.



**Figure 4. EPL index – Individual dismissals – regular workers (EPR) in EU-21 in 2013**

Source: (OECD, 2019).

<sup>7</sup> No data for seven EU countries: Bulgaria, Croatia, Cyprus, Lithuania, Latvia, Malta and Romania. This is why the analysis covers only 21 EU countries.



The EPL index relating to collective dismissal regulations in 21 EU countries in 2013 (Figure 5) shows that the least restrictive regulations on collective dismissals appear in Finland, Portugal, the Czech Republic while the most restrictive are found in Belgium, Luxembourg and Italy. The mean index value was above 3.

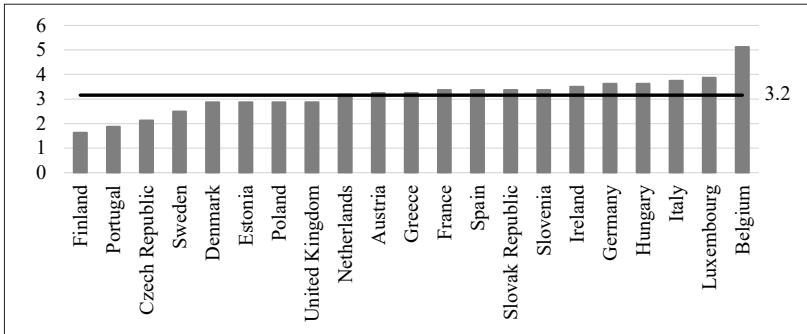


Figure 5. EPL index – Additional provisions for collective dismissals (EPC) in EU-21 in 2013

Source: (OECD, 2019).

Referring to the index relating to temporary employment regulations in 21 EU countries, it is interesting to note that the most flexible labour market was found in the UK, the Netherlands and Sweden and the least flexible in Luxembourg, France and Spain (Figure 6). The mean index value was above 2.

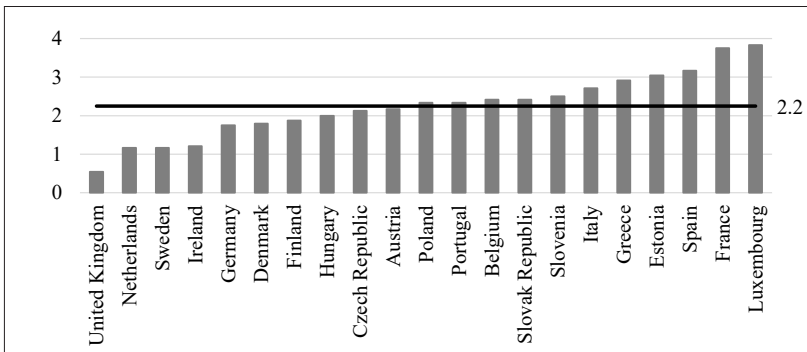


Figure 6. EPL index –Temporary contracts (EPT) in EU-21 in 2013

Source: (OECD, 2019).

On the other hand, with regard to LFI 2018 (Figure 7), the most flexible labour markets in EU-28 were shown to exist in Denmark, the Czech Republic and Ireland. The lowest degree of freedom of employment, and thereby also the highest degree of state interference, was reported for Croatia, Portugal and France. The mean LFI index value for EU-28 was above 60.

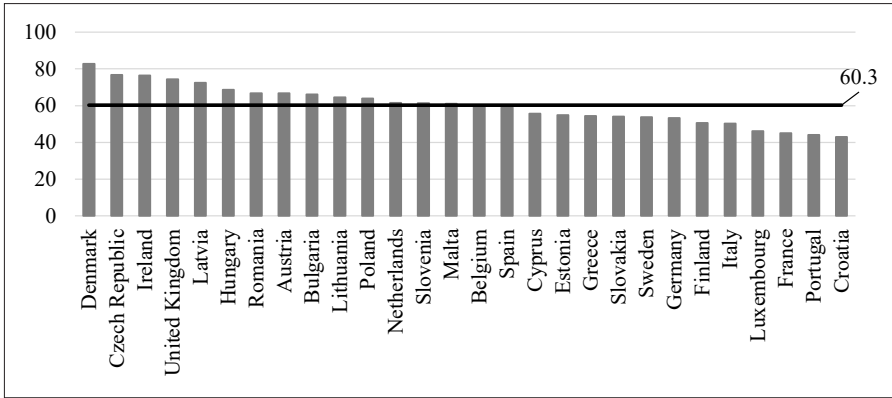


Figure 7. LFI indicator 2018 in EU-28

Source: (The Heritage Foundation, 2018).

It should also be pointed out that, as regards the EPLex index (Figure 8) according to the last-published data (year 2012, 13 EU countries<sup>8</sup>), the best flexibility rating was earned by Cyprus, the UK and Bulgaria, while the lowest went to Slovakia, the Netherlands and Germany.

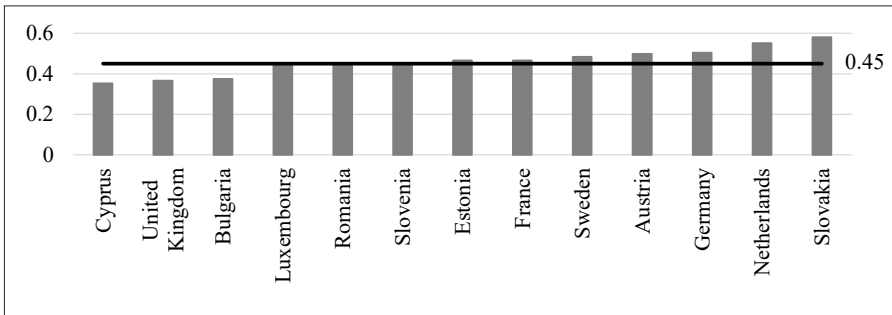


Figure 8. EPLex index in EU-13 in 2012

Source: (ILO, 2018).

An analysis of labour market flexibility ratings of EU countries (Table 2) based on the last-published data shows that the lead is held by the UK (four times top of the chart), Finland, Denmark and Cyprus. The lowest ratings were awarded to Belgium and Croatia (ranking last in two instances), Portugal, Luxembourg and Slovakia. A comparison of data shown below proves that the only indicators to present valid data for all member countries are GCI (flexibility) and LFI, while

<sup>8</sup> No data for 15 EU countries: Belgium, Croatia, Czech Republic, Denmark, Finland, Greece, Spain, Ireland, Lithuania, Latvia, Malta, Poland, Portugal, Hungary and Italy.

EPL and EPLex are not updated, apply to a remote time-period (years 2012 and 2013) and cover selected countries.

**Table 2. Summary ranking of labour market flexibility ratings in EU countries<sup>9</sup>**

Indicator	Time span	Territorial coverage	Ranked first in EU-28	Ranked last in EU-28
GCI Flexibility	2017–2018	EU-28	UK	Croatia
EPL	2013	EU-21	UK (3x), Finland	Belgium (2x), Portugal, Luxembourg
LFI	2018	EU-28	Denmark	Croatia
EPLex	2012	EU-13	Cyprus	Slovakia

Source: (World Economic Forum, 2018; OECD, 2019; The Heritage Foundation, 2018; ILO, 2018).

#### THE CONVERGENCE OF LABOUR MARKET FLEXIBILITY AND THE HUMAN DEVELOPMENT INDEX (HDI) IN EU-28

An interesting research issue is whether the countries with the greatest flexibility are at the same time countries with a high level of socio-economic development and vice versa, whether the least developed countries tend to have a low flexibility rate. This provides an initial indication of whether there is a convergence between labour market flexibility and the level of economic development. Therefore, the assessment of labour market flexibility in EU countries based on available data for labour market flexibility indicators has become an inspiration to extend research and compare results of rankings between flexibility of the labour market and the Human Development Index.

The HDI (Human Development Index) published by the United Nations Development Programme is a synthetic measure presenting changes in the socio-economic development of countries. It is calculated based on three key dimensions of human development: a long and healthy life (life expectancy), education (access to knowledge) and a decent standard of living (United Nations Development Programme, 2016 Human Development Index (HDI) | Human Development Reports). The synthetic value of the index ranges from 0 (low level of social development) to 100 (high level of social development). According to last available data, HDI 2017 covers 187 countries, including EU-28.

Figure 9 presents HDI 2017 in EU-28. The highest human development was noted in Ireland, Germany and Sweden and the lowest in Romania, Bulgaria and Croatia.

<sup>9</sup> The country which came first was ranked as having the most flexible labour market. The country which came last was ranked as having the least flexible labour market.

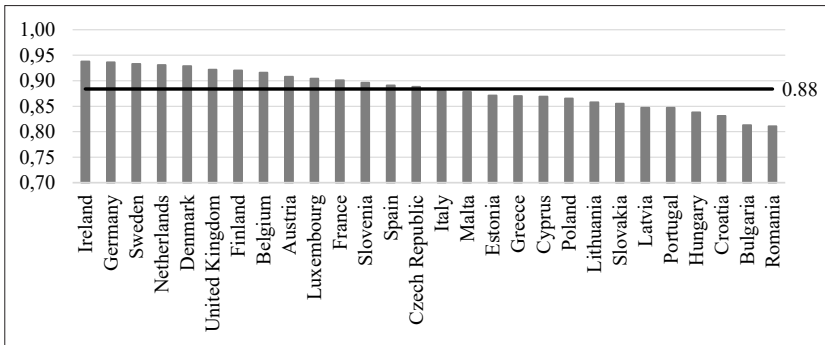


Figure 9. HDI 2017 in EU-28<sup>10</sup>

Source: (United Nations Development Programme, 2018).

The results of rankings for indicators in the area of labour market flexibility are compared with the Human Development Index (HDI) by the United Nations Development Programme (UNDP) in order to estimate the convergence between the high flexibility of labour market and the high quality of life in EU-28. A comparison table contains the results for HDI 2017, GCI 2017–2018 (flexibility) and LFI 2018 (Table 3). The key criteria for selecting indicators were access to data for all member states and timeliness of data.

Table 3. Rankings for HDI 2017, GCI 2017–2018 (flexibility) and LFI 2018<sup>11</sup>

Rank	HDI 2017	GCI 2017–2018 (flexibility)	LFI 2018
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
1.	Ireland	United Kingdom	Denmark
2.	Germany	Malta	Czech Republic
3.	Sweden	Estonia	Ireland
4.	Netherlands	Denmark	United Kingdom
5.	Denmark	Cyprus	Latvia
6.	United Kingdom	Luxembourg	Hungary
7.	Finland	Netherlands	Romania
8.	Belgium	Ireland	Austria
9.	Austria	Germany	Bulgaria
10.	Luxembourg	Latvia	Lithuania
11.	France	Hungary	Poland
12.	Slovenia	Romania	Netherlands

<sup>10</sup> The graph follows the order of Human Development Index, with countries with high human development on the left-hand side and those with low human development on the right-hand side. The graph calculates and shows the arithmetic mean of data reported for the countries in question.

<sup>11</sup> The country which came first was ranked the highest in the presented indices in EU-28.

1	2	3	4
13.	Spain	Bulgaria	Slovenia
14.	Czech Republic	Czech Republic	Malta
15.	Italy	Sweden	Belgium
16.	Malta	Poland	Spain
17.	Estonia	Spain	Cyprus
18.	Greece	Portugal	Estonia
19.	Cyprus	Lithuania	Greece
20.	Poland	Finland	Slovakia
21.	Lithuania	France	Sweden
22.	Slovakia	Austria	Germany
23.	Latvia	Slovakia	Finland
24.	Portugal	Belgium	Italy
25.	Hungary	Slovenia	Luxembourg
26.	Croatia	Italy	France
27.	Bulgaria	Greece	Portugal
28.	Romania	Croatia	Croatia

Source: (The Heritage Foundation, 2018; United Nations Development Programme, 2018; World Economic Forum, 2018).

Our results show that there is no simple convergence common for all countries. But interestingly, high level of HDI goes hand in hand with high flexibility only in the case of Ireland, the UK and Denmark. Germany and Sweden as representatives of welfare state models have different characteristics. With a high level of HDI, the elasticity ratios are at a low level. For other Western European countries (the so-called old EU member states), positions in HDI rankings are high though labour markets do not show a high degree of flexibility. Exactly the opposite dependence occurs in the so-called new member states (except Slovenia and Croatia), where relatively high flexibility of labour markets is visible, with relatively low positions in terms of the level of social and economic development.

In order to better understand the relationship between HDI and labour market flexibility, we have examined correlation coefficients. The following two types of selected correlations were taken into account: the Pearson linear correlation coefficient and the Spearman rank coefficient. The Pearson linear coefficient is the most commonly used method to assess correlations. Its advantage is an easy interpretation and its simplicity in calculating statistical tests for significance. It allows for an assessment if the correlation is significant or insignificant. A drawback is an assumption of linearity which has to be met. In case of nonlinear relations, the Pearson correlation does not give expected results. This is the reason why the second coefficient, the Spearman correlation coefficient was used. This coefficient also handles nonlinear relations. As

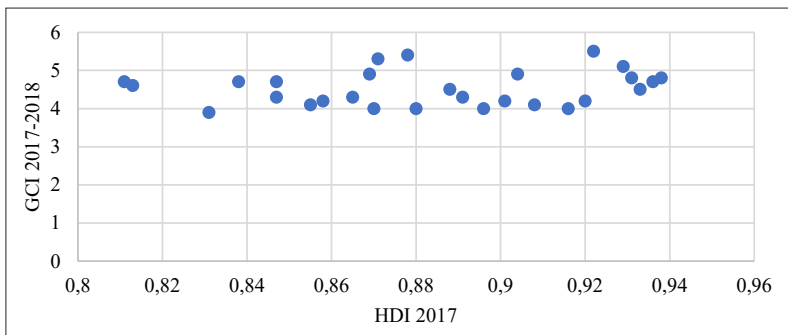
it is based on ranks, it is able to detect a wider spectrum of relations. Its drawback is a lack of significance test and in general a lower power (Rahman, 1968).

The coefficients were calculated for HDI 2017 and two measures of flexibility: GCI 2017–2018 and LFI 2018 (Table 4 and Charts 1 and 2).

**Table 4. The correlation coefficients between HDI 2017 and two measures of flexibility: GCI 2017–2018 and LFI 2018**

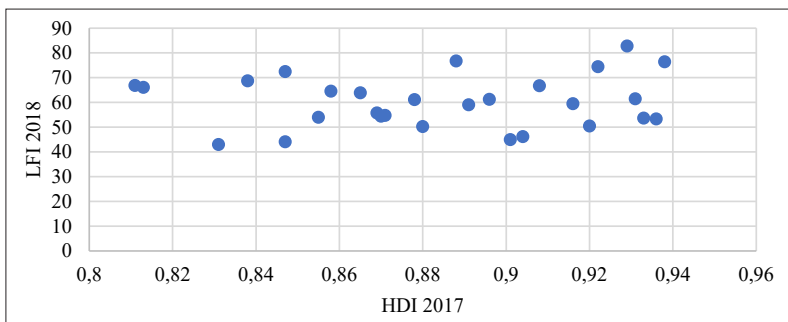
Measure	GCI 2017–2018 (flexibility)	LFI 2018
Pearson correlation	0.17	0.11
t-Stat	0.86	0.55
Df	26.00	26.00
p-value	0.40	0.59
Spearman correlation	0.20	0.04

Source: own study.



**Chart 1. HDI 2017 vs GCI 2017–2018 – the graphical representation of the data**

Source: own study based on (The Heritage Foundation, 2018; United Nations Development Programme, 2018; World Economic Forum, 2018).



**Chart 2. HDI 2017 vs LFI 2018 – the graphical representation of the data**

Source: own study based on (The Heritage Foundation, 2018; United Nations Development Programme, 2018; World Economic Forum, 2018).

The first look at the charts suggests there is no strong relation between the analyzed variables. The points form a chaotic group parallel to the X axis, which means there is no relation. There are also no signs of a nonlinear relation.

Firstly, we have examined the relationship between HDI 2017 and GCI 2017–2018. We have obtained the correlation coefficients of 0.17 (Pearson) and 0.2 (Spearman). The results suggest a very weak relation between the two variables. In the significance test of the Pearson coefficient we have obtained the *p-value* of 0.4, much larger than the critical value of 0.05. This proves the relationship is statistically insignificant.

Secondly, we have examined the relation between HDI 2017 and LFI 2018. We have obtained the correlation coefficients of 0.11 (Pearson) and 0.04 (Spearman). The results suggest an even weaker relation between the two variables. In the significance test of the Pearson coefficient we have obtained the *p-value* of 0.59 – far larger than the critical value of 0.05. This proves the relation is statistically insignificant.

The examination of the relation between HDI and labour market flexibility correlation coefficients proved there is no significant empirical evidence of relation.

The results of our research show there is no simple correlation between the flexibility of the labour market and the level of social and economic development. This may serve as a starting point for further in-depth studies on the correlation between labour market flexibility and levels of economic development. This requires the availability of detailed and multi-country data, as well as a long-time horizon to analyse such dependency well.

## CONCLUSIONS

A flexible labour market is of prime importance to the economy. Flexibility in labour demand/supply and wage flexibility are both essential to the process of achieving a labour market equilibrium. Superior labour market flexibility achieved thanks to workforce relocation and structural alignment of labour supply/demand accelerates economic transformations. The labour market becomes more competitive thanks to better flexibility, reducing costs related to disturbances in labour market operation. The proven relationship between labour market flexibility and human development (HDI) confirms tendencies towards making labour markets more flexible, as witnessed by numerous European economies.

Despite the unquestionable importance of labour market flexibility for the economy, there appears to be no single objective and universal measurement tool among the repertoire of instruments for measuring labour market flexibility available in 2018. A survey of measurement tools for labour market flexibility, such as GCI (flexibility), EPL, LFI and EPLex according to the last published data has shown that the indicators differ from each other in terms of their methodological approaches as well as spatial and temporal scope of data. As a result, the rankings report different



results, preventing a consistent evaluation of flexibility in EU member state labour markets. This paper is intended to provide a stimulus to make an effort to harmonize international measurement tools to make a conclusive comparison and evaluation of labour market flexibility in various countries.

As it has been shown in the article, there is no simple correlation between the flexibility of the labour market and the level of social and economic development. On the other hand, three pre-defined patterns are worth noticing. Firstly, the group of highly developed countries characterised by high flexibility of the labour market (the UK, Ireland, Denmark). Secondly, the group of the so-called welfare state models with a high level of development but moderate flexibility of the labour market (Germany, Sweden), and thirdly, the group of post-socialist countries undergoing economic transformation characterised by a relatively high flexibility of the labour market with an average but constantly improving level of social and economic development. The examination of a relationship between HDI and labour market flexibility based on the Pearson linear correlation coefficient and the Spearman rank coefficient proved there is no significant empirical evidence of any relationship between variables. Our results may be used as a starting point for further quantitative research aiming to ascertain cause-and-effect relations between labour market flexibility and other areas of the economy.

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### *Summary*

Labour market flexibility refers to legal conditions that facilitate adjustment on labour markets and allow using diverse forms of labour organization, employment and work time. Good labour market flexibility can contribute to the creation of new jobs and to the improvement of social and economic condition of the country. This paper, drawing on many existing international studies, rankings and statistics, seeks to compare the level of socio-economic development of the EU-28 countries with the level of labour market flexibility based on selected indicators such as: Global Competitiveness Index – Flexibility (GCI) by the World Economic Forum, Employment Protection Legislation Index (EPL) by OECD, Labour Freedom Index (LFI) by the Heritage Foundation and Composite Indicator of Employment Protection Legislation (EPLex) by the International Labour Organisation (ILO).

The results of rankings for indicators in the area of labour market flexibility are compared with the Human Development Index (HDI) by the United Nations Development Programme (UNDP) in order to estimate the convergence between the high flexibility of labour market and the high quality of life in the EU-28. Our results show that there is no simple convergence common for all countries. High level of HDI goes hand in hand with high flexibility only in the case of Ireland, UK and Denmark. Germany and Sweden, as representatives of welfare state models, have different characteristics. With a high level of HDI, the elasticity ratios are at a low level. For other Western European countries (the so-called old EU member states), positions in HDI rankings are high although labour markets do not show a high degree of flexibility. Exactly the opposite dependence occurs in the so-called new member states (except Slovenia and Croatia), where relatively high flexibility of labour markets is visible, with relatively low positions in terms of the level of social and economic development. The research on relation between variables (HDI 2017, GCI 2017–2018, LFI 2018) based on the Pearson linear correlation coefficient and the Spearman rank coefficient proved there is no significant empirical evidence for the relation between socio-economic development and labour market flexibility.

*Keywords:* labour market flexibility, unemployment, socio-economic development, Human Development Index (HDI), Labour Freedom Index (LFI).

## **Zależność między rozwojem społeczno-gospodarczym a elastycznością rynku pracy w krajach UE**

### *Streszczenie*

Elastyczność rynku pracy odnosi się do warunków prawnych, które ułatwiają dostosowanie się rynków pracy i umożliwiają stosowanie różnych form organizacji pracy, zatrudnienia i czasu pracy. Dobra elastyczność rynku pracy może przyczynić się do tworzenia nowych miejsc pracy i poprawy

sytuacji społecznej i gospodarczej kraju. Niniejszy artykuł, w oparciu o wiele międzynarodowych badań, rankingów i statystyk, ma na celu porównanie poziomu rozwoju społeczno-gospodarczego krajów UE-28 z poziomem elastyczności rynku pracy na podstawie takich wskaźników jak: Global Competitiveness Index – Flexibility (GCI) – Światowego Forum Ekonomicznego, Employment Protection Legislation Index (EPL) – OECD, Labour Freedom Index (LFI) – Heritage Foundation i Composite Indicator of Employment Protection Legislation (EPLex) – Międzynarodowej Organizacji Pracy (ILO).

Wyniki rankingów wskaźników w obszarze elastyczności rynku pracy zostały porównywane ze wskaźnikiem rozwoju społecznego (HDI) opracowanym przez Program Narodów Zjednoczonych ds. Rozwoju (UNDP) w celu oszacowania zależności między wysoką elastycznością rynku pracy a wysoką jakością życia w UE-28. Nasze wyniki wskazują, że nie ma prostej zależności wspólnej dla wszystkich krajów. Wysoki poziom HDI koresponduje z wysoką elastycznością rynku pracy tylko w przypadku Irlandii, Wielkiej Brytanii i Danii. Niemcy i Szwecja, jako przedstawiciele państw opiekuńczych, odnotowują zależność ujemną. Przy wysokim poziomie HDI wskaźniki elastyczności są na niskim poziomie. Ponadto odnotowuje się wysokie pozycje krajów Europy Zachodniej (krajów tzw. Starej Unii) w rankingach HDI, pomimo tego że rynki pracy nie wykazują wysokiego stopnia elastyczności. Odwrotna zależność występuje w państwach tzw. Nowej Unii (z wyjątkiem Słowenii i Chorwacji), gdzie stosunkowo wysoka elastyczność rynków pracy jest widoczna przy odpowiednio niskich wynikach pod względem poziomu rozwoju społecznego i gospodarczego. Przeprowadzone badania zależności między zmiennymi (HDI 2017, GCI 2017–2018, LFI 2018), na przykładzie współczynnika korelacji liniowej Pearsona i współczynnika korelacji rang Spearmana wykazały, że nie ma empirycznych, istotnych dowodów na związek między wskaźnikiem rozwoju społeczno-gospodarczego a elastycznością rynku pracy.

*Słowa kluczowe:* elastyczność rynku pracy, bezrobocie, rozwój społeczno-gospodarczy, wskaźnik rozwoju społecznego (HDI), wskaźnik Labour Freedom Index (LFI).

JEL: E24, O47.