

## THE IMPACT OF OFFSHORING ON THE EUROPEAN LABOUR MARKET

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### ABSTRACT

This study shows the differences in wages of workers from the EU countries according to various levels of education. It also shows the level of offshoring in the analysed countries and its impact on the salaries. It was found that the largest wage gap between the high-skilled and the low-skilled workers exists both in the countries of Central and Eastern Europe and in the countries such as Germany and Portugal. Results of the analysis show that offshoring contributes to a decrease in wages of workers in the countries of the European Union. Nonetheless, the highest decrease in wages is visible among workers with the lowest skills, and the lowest decrease can be seen among workers with the highest skills.

**Key words:** offshoring, labour market, labour productivity

### INTRODUCTION

Progressive globalisation of the economy enforces more and more intense competition. Many companies, particularly transnational corporations, improve their efficiency, among other things, by moving their production processes and services abroad, that is, *offshoring*. These operations undoubtedly are very beneficial for the business. They help in reducing costs (especially the cost of workforce), resource acquisition, market penetration, enhancing innovation and, as a result, a faster development. Also, the countries, to which transnational corporations move their production processes and services become beneficiaries of the *offshoring* process. Nonetheless, there is a belief that the countries, from where production processes and services are moved, incur losses. Of course, it is not as obvious as it appears. The *offshoring* may be a threat for these countries, but it can also bring positive effects. It allows the companies from these countries to reduce costs and improve product quality, increasing their competitiveness, which has a positive effect on the entire economy of the investing country. It helps the investing countries in the transition to economic activities offering higher productivity and higher value added. A significant threat to these countries may be the negative impact of *offshoring* on their labour market. Moving some production processes and services abroad may result in a reduction in the number of jobs and a reduced workers' compensation. Upon carrying out an analysis of the phenomenon of *offshoring* in the perspective of value-added chain, we can see that the nodes linked with the concept and concept implementation, which are most profitable and remunerative, remain in the country of origin. The production processes, which are much less profitable, are moved abroad and the product brand, whereas most sales activities and services, from which the companies draw most profits, remain in the country of origin. We can see the changes in the labour market in the countries, from where the companies move some nodes of their value-added chain abroad, from this point of view.

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The aim of this study is to show the impact of *offshoring* on the labour market of the selected countries of the European Union and, in particular, on wages of different groups of workers.

### **OFFSHORING IN THE SELECTED ECONOMIC THEORIES**

The latest trend in the process of international expansion of companies operating on the international markets, and, above all, the TNCs, is moving the production processes and services abroad, the so-called *offshoring* [Kraciuk 2014]. The growing popularity of *offshoring* in the modern economy is driven by technological and economic transformations mainly related to the processes of globalisation and development of the knowledge-based economy. The progressive globalisation of the world economy also contributes to growth of the international trade, increased capital and workforce movements. In the neoclassical theory of international trade, the flows of factors of production are a substitute for trade, since the work or the capital is “exported” or “imported” within the goods being traded. Relocation of the production processes associated with the international capital movements allows for its more effective use. This is due to the fact that the capital invested in developing countries, which are relatively rich in workforce, is expected to be more productive than the one invested in the developed countries [Moszyński 2007]. The neoclassical Heckscher-Ohlin model allows drawing a conclusion that work and capital movements are conducive to reducing differences in the productivity of factors between the countries. In practice, absolute levels of wages do not tend to reduce. One of the important reasons for maintaining the higher wages in the developed countries is seen in technological advantages [Deardorff 2004].

The concept of value-added chain developed and formulated by Porter also refers to *offshoring*. It consists in describing the company business as a chain of operations set in chronological order. In terms of concept of value-added chain, building competitive advantage consists in improving the efficiency of the company value chain through strengthening its individual nodes or links between these nodes [Strategor 1995]. The concept of *offshoring* is closely related to the analysis and management of enterprise value chain. It requires that key competences are distinguished and the operations, which can be carried out more efficiently by a subsidiary established abroad or a foreign partner, are separated. Configuration and coordination activities aimed at creating added value and competitive advantage play here an important role [Oczkowska 2012].

Conventional *offshoring* processes, like other issues related to expansion of foreign companies, were analysed with the tools used by the so-called OLI (ownership – location – internalization) paradigm, provided by the Theory of International Production. However, due to changes in the global environment, in recent years the usefulness of tools provided by the OLI paradigm to analyse new and more specialised international business practices of companies, including outsourcing and *offshoring*, has become significantly lower. New concept of analysis of the associated processes of outsourcing and *offshoring*, called the DLE (disintegration – D, location – L, externalization – E paradigm) [Zorska 2012], turned out to be a more effective direction. The DLE concept includes two separate parts and, in this respect, differs from the OLI paradigm. The first one is the analysis of conditions and changes in the global environment and in the companies competing in the global market. The second part concerns determining the sources of competitive advantages and benefits gained by the companies meeting the conditions (DLE) to engage in various forms of outsourcing and *offshoring*. The task of the first analysis is to determine what are the external and internal factors, which have an impact on the conditions and their changes with regard to outsourcing and *offshoring* carried out by the companies involved in international business and how they operate. The analysis should consider the following [Zorska 2012]:

- conditions related to the economic globalisation process;
- changes to the global markets of production factors, in particular, the liberalisation of access to the markets of goods and factors in the countries conducting economic transition;
- changes in factors influencing the internalisation of operations carried out in the companies;

- adjustments of strategies and structures, which affect the disintegration of value-added chains of the companies and the externalisation of the value-generating activities;

The second part of the method of analysis proposed by Kedia and Mukherjee concerns the three DLE criteria, which justify the use of outsourcing and *offshoring* for the separated operations by the company. These conditions include [Kedia and Mukherjee 2009]:

- business disintegration advantages related to increased modularity of the company value chain – the D condition;
- advantages related to locating part of the business in other country providing values desirable for the business carried out (location advantages) – the L condition;
- achievable benefits from externalising the selected operations from own organisation (externalization advantages) – the E condition compared to the benefits of internalising these operations.

### **OFFSHORING AND THE LABOUR MARKET**

The globalisation processes taking place in the world economy are forcing companies to conduct various activities aimed at improving their competitiveness. These include, inter alia, fragmentation of production, the main driver of which are changes in the level of business operating costs, including the labour costs. Companies often choose to order externally (to third parties) the tasks from one or more nodes in the value-added chain (outsourcing), and now, more and more often the orders, production or services are transferred outside the borders of the country (*offshoring*) [Maniak 2008]. Nature of delocalisation of production has changed over time. Originally, it involved the product development cycle; after reaching the peak phase, the production of some goods was transferred abroad. In this way, the production in the declining and less profitable sectors moved from the more developed countries to less developed states. In this context, the concept of delocalisation may be associated with deindustrialisation, because in many countries relocation of workplaces abroad is accompanied by a decline in the share of industry in GDP and employment. In recent years, the production is transferred not only to developing countries, but also to other countries offering lower cost. Currently, due to the growing importance of economies of scale and greater location flexibility in business operations, the operations of companies are based on building international networks, which integrate the production processes of companies located in different countries. In this new approach, relocation of production is less and less a unilateral flow from more developed countries to less developed ones, but more and more often it is based on bilateral flows between developed countries [Maniak 2008]. According to the data collected by the European Restructuring Monitor (ERM) in the years 2003–2013, about half of the jobs *offshored* from the EU countries remained in the European Union. One-third went to the new Member States and another 13% found a new location in the countries of the former EU-15 [Hurley et al. 2013]. Intensity of the *offshoring* decreased visibly after 2008, meaning that its effect on the destruction of jobs in Western Europe also alleviated. However, in addition to the *offshoring*, an opposite phenomenon has appeared, which has drawn an interest for some time, namely the so-called *reshoring*. *Reshoring* is mentioned most often in the context of American enterprises, which many years ago transferred their production to East Asia, and now decide to resume production in the United States. In the European Union, *reshoring* is present mainly in the German and Italian companies, which has an indirect impact also on the Polish economy. In 2012, the Fiat Group decided to move production of Fiat Panda from a factory in Tychy to Italy, which resulted in an outflow of 1,400 jobs from Poland. Another example of *reshoring* was the decision of Volkswagen made in 2007 to close a factory in Belgium, which resulted in more than 3,000 people losing their jobs and transfer most production to Wolfsburg in Germany. The identified causes of *reshoring* include, inter alia, higher production costs abroad than the initially expected ones, problems with product quality, problems in supply chain management and the closing cost gap between developed and developing countries. A factor, which improved the competitiveness of the American

industry, was embarking on shale gas production, which resulted in a significant fall in prices of energy in the United States [Lewandowski and Magda 2014].

In theory, a conflict between the benefits of moving the selected stages of production abroad in the form of *offshoring* (mainly related to an increase in productivity and reduction of costs) and the costs mainly related to deteriorated situation of the employees in local labour markets (loss of jobs, lower wages) is possible. However, the net impact of outsourcing activities on the local labour markets is often described as ambiguous and depends on the interaction between the different constituent effects [Parteka and Wolszczak-Derlacz 2014].

### SOURCE DATA AND TEST METHODS

In the study, the information on wages of workers by different education level, *offshoring*, labour productivity and unemployment in 26 countries of the European Union in 2014. Their choice was dictated by the availability of statistical data was used. These values are based on the data provided by Eurostat, the World Input-Output Database and the Pordata database. Figure 1 shows the average monthly wage of workers in the countries of the European Union by their level of education. It is clear that in the analysed group of countries of the European Union a significant wage differences exist. The lowest rates for both low-skilled and high-skilled workers exist in the countries of Central and Eastern Europe, and the highest ones exist in the countries of Western Europe, and, most of all, especially in the Scandinavian countries. The largest wage gap between the high-skilled and the low-skilled workers exists in the countries of Central and Eastern Europe and in the countries such as Germany and Portugal (Fig. 1).

Direct product consumption rates show the value of products (goods and services) consumed directly by the analysed sector (branch) in relation to production of global unit production value. This rate can also be interpreted as direct *offshoring* rate. These coefficients were calculated according to the following formula:

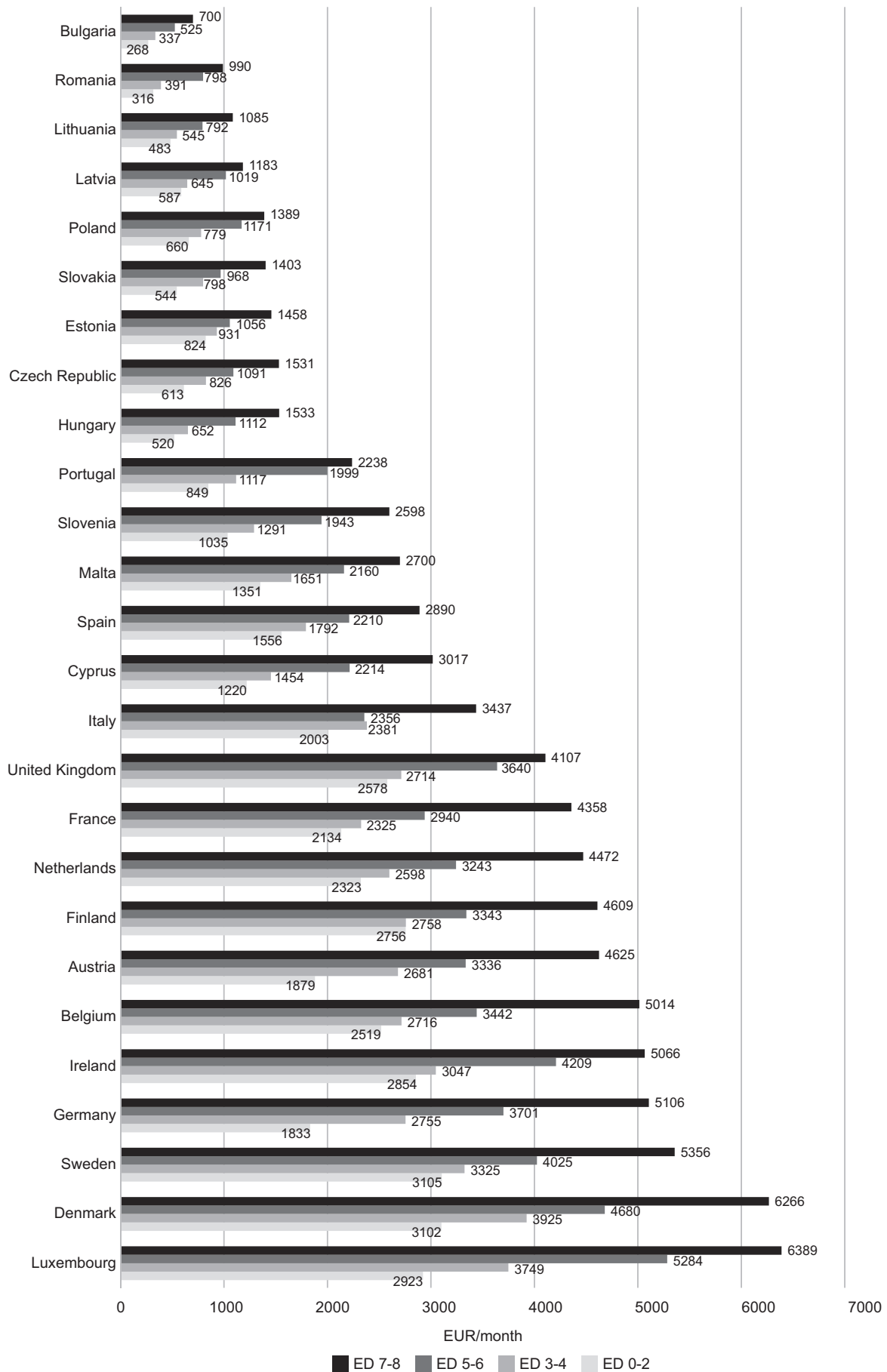
$$a_{ij} = \frac{x_{ij}}{X_j}$$

where:  $x_{ij}$  – flows of products manufactured in the country in the sector (branch)  $i$  and consumed by sector (branch)  $i$  expressed in base prices;  
 $X_j$  – global production of sector (branch)  $j$ .

The *offshoring* activity is most intense in countries such as Luxembourg, Malta and Ireland. Nonetheless, the outsourcing of production stages abroad is much less intense in the large countries of the former EU-15, such as: Italy, Spain, United Kingdom, France (Fig. 2).

The research conducted using the method of multidimensional regression took into account labour productivity index and unemployment rate in individual EU countries. In 2014, Luxembourg, Belgium and Ireland were characterised by the highest labour productivity index. Other countries of Western Europe were also characterised by a high level of this index. Significantly lower labour productivity could be seen in the countries of Central and Eastern Europe. The highest unemployment rate was noted in the countries of the South Europe (Fig. 3).

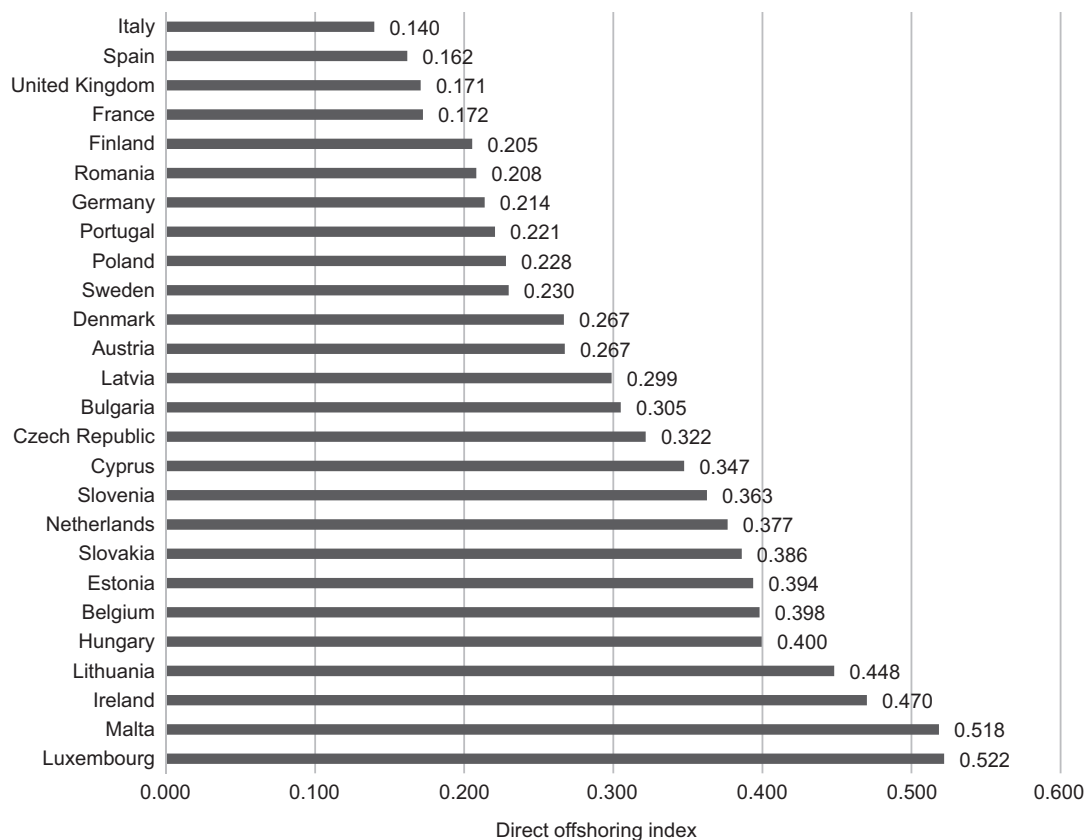
The multiple regression model calculated using the least squares estimation was used to determine the impact of *offshoring* on the labour market of the selected countries of the European Union, in the form:  $\ln Y = a_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4$ , where:  $Y_{(ED0-2, ED3-4, ED5-6, ED7-8)}$  represents level of monthly wages of employees



ED 0-2 – lower than primary, primary, ED 3-4 – secondary or post-secondary, ED 5-6 higher education of first degree (bachelor, engineering), ED 7-8 master’s, doctoral.

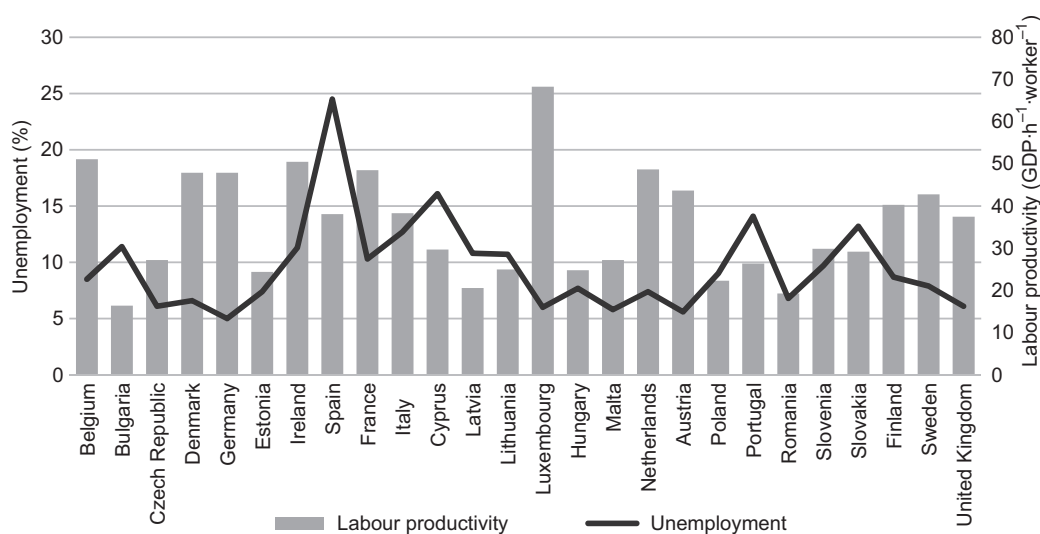
**Fig. 1.** Average monthly wage levels by different levels of education in the EU Member States in 2014

Source: Own elaboration based on <http://ec.europa.eu/eurostat/web/labour-market/earnings/database>.



**Fig. 2.** Direct offshoring in the EU countries in 2014

Source: Own elaboration based on the data from [http://www.wiod.org/database/sut\\_input16](http://www.wiod.org/database/sut_input16).



**Fig. 3.** Labour productivity and unemployment in the EU countries in 2014

Source: Own elaboration based on the data from <http://www.pordata.pt/en/DB/Search+Environment/New+Search>, <http://ec.europa.eu/eurostat/web/labour-market/earnings/database>.



for different levels of education<sup>1</sup>,  $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$  represent: direct *offshoring* rate, labour productivity index and unemployment rate respectively, and  $\beta_1$ ,  $\beta_3$ ,  $\beta_4$  represent structural parameters of the model estimated using the method of the least squares.

With the regression model, the expected change of the dependent variable due to the volatility of the explanatory variable by one unit, with other independent, explanatory variables (constant, *ceteris paribus*) is determined. The regression model is a model of relations between parameters, so independent variables do not always have to be a linear function of the original values. It is possible to indicate non-linear functions of explanatory variables, inter alia, notated in the logarithmic, exponential form. If the dependent variable and dependent variable are converted to a logarithm, volatility of the dependent variable is expressed in terms of elasticity and shows a percentage change of dependent variable, if the explanatory variable changes by 1%.

$$\begin{aligned} \ln Y_{ED\ 0-2} &= -0.3608 - 0.3104 \ln X_1 + 2.0455 \ln X_2 - 0.0502 \ln X_3 & R^2 &= 0.90 \\ p\text{-value} & (0.632) \quad (0.079) \quad (0.000) \quad (0.377) \end{aligned} \quad (1)$$

$$\begin{aligned} \ln Y_{ED\ 3-4} &= 0.2012 - 0.3089 \ln X_1 + 1.9797 \ln X_2 + 0.1189 \ln X_3 & R^2 &= 0.92 \\ p\text{-value} & (0.735) \quad (0.030) \quad (0.000) \quad (0.766) \end{aligned} \quad (2)$$

$$\begin{aligned} \ln Y_{ED\ 5-6} &= 1.6773 - 0.2876 \ln X_1 + 1.6856 \ln X_2 - 0.1699 \ln X_3 & R^2 &= 0.90 \\ p\text{-value} & (0.012) \quad (0.050) \quad (0.000) \quad (0.229) \end{aligned} \quad (3)$$

$$\begin{aligned} \ln Y_{ED\ 7-8} &= 1.7340 - 0.2429 \ln X_1 + 1.7693 \ln X_2 - 0.1741 \ln X_3 & R^2 &= 0.94 \\ p\text{-value} & (0.001) \quad (0.029) \quad (0.000) \quad (0.105) \end{aligned} \quad (4)$$

Based on the above regression equations, we can determine a percentage change in average wages of workers with different education level in the countries of the European Union, if direct *offshoring* rate changes by 1%. Moving some parts of production or services abroad causes a reduction of wages of all workers in the EU countries. The decline in wages, however, is decreasing with the increase in staff education. The biggest decline in wages could be seen among workers with lower than primary and primary education. According to equation (1), an increase of *offshoring* rate by 1% results in a decrease in wages by 0.36%. For the employees with the highest education degrees (master's, doctoral), an increase of *offshoring* rate by 1% results in a decrease in wages by 0.24% [equation (4)].

## CONCLUSIONS

The progressive economy globalisation process is forcing companies to conduct various activities aimed at improving their competitiveness. These activities include: defragmentation and delocalisation of production, that is, *offshoring*. The process of *offshoring* has an impact on the labour market of the country, from which some production and service processes are moved abroad. This leads to a decrease in the share of industry in GDP and in employment, and, as a consequence, a decrease in wages. It can be concluded that the low-skilled and medium-skilled workers are more exposed to negative consequences of the intensification of international outsourcing processes. Decline in the wages of these workers, as a consequence of the *offshoring*, is visibly much significant than in the wages of the high-skilled workers.

<sup>1</sup> ED 0-2 – lower than primary, primary, ED 3-4 – secondary or post-secondary, ED 5-6 higher education of first degree (bachelor, engineering), ED 7-8 master's, doctoral.

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## WPŁYW OFFSHORINGU NA EUROPEJSKI RYNEK PRACY

### STRESZCZENIE

W niniejszym opracowaniu przedstawiono zróżnicowanie płac pracowników przy różnym poziomie wykształcenia w krajach Unii Europejskiej. Scharakteryzowano także poziom offshoringu w analizowanych krajach oraz jego wpływ na wysokość płac. Stwierdzono, że największa luka płacowa pomiędzy pracownikami bardzo dobrze i słabo wykwalifikowanymi występuje w krajach Europy Środkowo-Wschodniej, ale również w Niemczech i Portugalii. Wyniki analizy wskazują, że offshoring przyczynia się do obniżki płac pracowników w krajach Unii Europejskiej. Obniżka płac jest jednak największa w przypadku pracowników najslabiej wykształconych, najniższa zaś w przypadku pracowników najlepiej wykształconych.

**Słowa kluczowe:** *offshoring*, rynek pracy, produktywność pracy