IMPACT OF CORPORATE SOCIAL RESPONSIBILITY ACTIVITIES RELATED TO THE COSTS OF EMPLOYEE TRAINING AND QUALIFICATION DEVELOPMENT ON CHANGES IN UNEMPLOYMENT RATE IN EU COUNTRIES

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Abstract

The purpose is to assess the impact of corporate social responsibility activities related to employee training and qualification development costs on changes in unemployment rates in EU countries.

Methodology: Research methods used in an article are analysis of scientific literature, methods of comparison and generalisation. The assessment of the impact on the unemployment rate is carried out using econometric methods - descriptive statistics, analysis of subgroup (panel) data and least squares linear regression analysis.

Findings: In the area of social performance, Denmark, Sweden and Poland stand out as the countries with the highest focus on improving employee qualification. The results show that the higher unemployment rates at the EU level in the EU countries studied are due to higher inflation in previous years; higher value-added and higher weighted growth in export partners have contributed to the decline in unemployment rates; business costs of training and qualification development of employees does not have a significant impact on the change in the unemployment rate. However, it should be noted that the results of the

empirical study are relevant when applying the model developed.

Originality: after highlighting the theoretical approaches of socially responsible corporate activity, focused on employees and emphasizing its impact on employment and unemployment, the assessment model that allows determining the dependence of changes in the unemployment rate on control variables and indicators of socially responsible corporate activity associated with the costs of training and qualification of employees in the case of EU countries, was formed and adapted.

Keywords: Corporate social responsibility, Unemployment, Employee training and qualification development costs

JEL Classification Codes: E24, M14, J32, J24

1. Introduction

Corporate social responsibility is an important factor contributing to changes in economic performance, affecting the financial stability of members of society, labour productivity, unemployment rates, etc. Businesses are increasingly focusing on training and upskilling employees. Authors highlight the importance of social activities targeting employees (Sun and Yu, 2015; Jung and Kim, 2016; Gorgenyi-Hegyes et al. 2021; Camilleri, 2021; Itzchakov et al. 2022; etc.), stressing that employee costs account for a large share of the costs incurred by businesses (Gan and Yusof, 2019; etc.). Concerning the social responsibility, it is notable that research focuses on employment and unemployment (Ersoy and Aksehirli, 2015; Pimentel et al., 2016; Rahman, 2017; Ellison, 2018; Gorgenyi-Hegyes and Fekete-Farkas, 2019; etc.), however, there is lack of complex research at the level of countries focusing on corporate socially responsible activities and changes in unemployment in the countries. From this point of view, it is relevant to raise the following question - by what methods and with what coverage, it is possible to assess the impact of corporate social responsibility activities *related to employee training and qualification development costs on changes in unemployment rates* in EU countries? The following research goals tasks are set: (1) to carry out a comparative analysis of business costs allocated to the training and qualification of employees in EU countries, highlighting the theoretical approaches of socially responsible corporate activity, focused on employees and emphasizing its impact on employment and unemployment; (2) to form and apply an assessment model that allows determining the dependence of changes in the unemployment rate on control variables and indicators of socially responsible corporate activity associated with the costs of training and qualification of employees in the case of EU countries.

Research methods used in an article are analysis of scientific literature, methods of comparison and generalisation. The assessment of the impact on the unemployment rate is carried out using econometric methods - descriptive statistics, analysis of subgroup

(panel) data and least squares linear regression analysis. The statistical data analysis package GRETL is used to process the survey data.

2. Literature review

Various studies have shown the need and importance of business investment in employee training, as it contributes to employee development while improving business performance and the internal environment of the organisation. In the light of the extensive research that has been carried out, the inclusion of training as an indicator for assessing the impact of social performance at a national level is essential. The indicator of *costs on employee training and qualification* can be considered as one of the important elements in defining the social performance of a business (Awawdeh et al., 2021; Farooq et al., 2021; etc.). Training adds value not only to the employee but also to the business itself. This value is manifested through increased employee motivation, the use of innovative approaches, increased employee engagement, etc. (Li et al., 2019; Chen et al., 2020; etc.). The study by Edinger-Schons et al. (2019) confirms the importance of training for employees, highlighting that only by familiarising themselves with the specificities of a business's activities related to socially responsible practices can employees properly present them to consumers. Properly delivered information has a positive impact on consumer behaviour in the form of increased business revenues. This positive impact is directly linked to the support and willingness of managers to pursue socially responsible performance. Itzchakov et al. (2022) show the importance of employee training in creating a better working environment and adding value to the business. The study focused on peer debriefing training, which showed a positive impact on employees, their environment, and the creation of a closer bond with colleagues. According to Ahn and Huang (2020), both basic (general) and specific (domain-specific) training have a positive impact on employees and reduce turnover. This implies that employees value the business's investment in them and therefore tend to associate their career with the business.

Li et al. (2019), who have studied socially responsible business activities in China, highlight that business investment is mainly in reducing negative environmental impacts, but that business investment in employee training stands out in social activities, and a significant amount of resources are devoted to it. Camilleri (2021) also mentions the importance of socially responsible business behaviour in terms of providing employees with opportunities for learning and development, improving their working environment, etc. A study by Sun and Yu (2015) shows that employees of a business that implements socially responsible practices generate better performance compared to employees of other entities. The study also reveals that socially responsible businesses have higher labour costs for their employees, which are associated with higher extrinsic motivational measures within the organisation.

Jung and Kim (2016) ask whether a business can be considered socially responsible by

engaging in socially responsible activities directed at the external environment and reducing employee-related costs, restructuring its operations and laying off some of its employees (to increase profits). The study shows that an increased focus on externally socially responsible activities by a business has a negative impact on its employee-related costs. It also shows a negative relationship between socially responsible business activities and employment growth. However, the results of this study are based on a relatively small sample size (166 employees of businesses in Korea were surveyed), which raises doubts about the reliability of the results. However, it also shows that the assessment of corporate social responsibility can be carried out by including an indicator of costs on employee training and qualification as an important part of the survey.

The academic literature has paid close attention to socially responsible business practices, highlighting their *impact on employment and unemployment* (Ersoy and Aksehirli, 2015; Pimentel et al, 2016; Rahman, 2017; Ellison, 2018; Gorgenyi-Hegyes and Fekete-Farkas, 2019; Lee and Szkudlarek, 2021; Zumente & Lāce, 2020). Gorgenyi-Hegyes and Fekete-Farkas (2019) study reveals the importance of social responsibility for women's employment, the recovery of people with health problems, and the creation of family-friendly workplaces. Attention to the internal business environment helps businesses to retain existing and attract new employees, improve financial and non-financial performance, increase employee productivity, foster innovative change and improve employee skills, etc., thereby increasing employment in society.

According to Ellison (2018) and Ersoy, Aksehirli (2015), the public is in favour of socially responsible business activities and members of society tend to associate their careers with such businesses. Pimentel et al. (2016), who studied corporate social responsibility and its impact on unemployment rates in different countries, found that countries with high levels of business engagement in socially responsible activities have lower unemployment rates than countries where business does not attach importance to socially responsible activities. This suggests that there is a link between social responsibility and unemployment rates. Rahman (2017), who has studied the impact of the public sector on corporate social responsibility, notes that business engagement in socially responsible activities leads to changes in a country's economic performance, such as a reduction in unemployment and poverty, and improvements in the education system and health care. Consequently, socially responsible business activities have an impact on the well-being of society, contributing to a reduction in unemployment rates and an increase in employment. Other researchers point to the impact of the macroeconomic environment on socially responsible business activities (Krajnakova et al., 2018). Krajnakova et al. (2018) reveal that an unfavourable economic situation slows down business investment in socially responsible activities, but business does not stop it. Including changes in the unemployment rate, inflation, and real GDP as key indicators to assess the macroeconomic environment, the researchers found that these indicators affect the level of business engagement in socially responsible activities, but the effect is not significant.

It is observed that business engagement in socially responsible activities is higher in

economically strong countries and is driven by economic changes that have led to a greater business focus in this area (Li and Chang, 2018). Not only do these activities affect different areas, but also the growth of national economies, changes in unemployment rates, etc. affect business itself and encourage it to make decisions related to socially responsible activities.

By acting in a socially responsible way and in partnership with other organisations, businesses contribute to increasing employment and reducing unemployment. This shows that socially responsible activities have an impact on unemployment rates, but the extent of the impact at the national level remains unclear.

3. Methodology, data collection tools and techniques

The study is based on secondary data provided by countries covering the period 2014-2020. Due to data limitations, 23 out of 27 EU countries are assessed, excluding Slovakia, the Netherlands, Luxembourg and Spain. However, the sample selected provides evidence for more than 86% of the phenomenon under study, making the study relevant and explaining developments at the European Union level.

The impact assessment is based on the following indicators from the academic literature: *(1) Business social performance in relation to costs on training and qualification development of employees (% of GDP).*

Data source: Bloomberg, Eurostat, Countries Ministries of Labour. Environmental, Social and Governance (ESG) data from Bloomberg reveals information about a business and its environment. The Bloomberg platform provides more than 700 different ESG indicators, which are collected from reports submitted by businesses, notifications made by businesses and Bloomberg surveys that directly ask businesses to provide data on their business processes, resource efficiency, workforce development etc. In order to isolate the business cost on training and upskilling of employees, a cost per employee was calculated, i.e. the total annual cost on training divided by the number of people employed by the business in question, giving the business cost per person. Cost at the country level was extracted by calculating the overall average cost per person of businesses. The annual cost per employee was processed by taking into account the number of people employed in the business to obtain the annual business cost directed towards the training of employees. The data describe the opportunities provided by the business for employees to learn and develop their competencies. The statistical unit is the business unit.

(2) Change in Unemployment rate from 20 to 64 years (%) 2014-2020.

The data source is Eurostat. These indicators are based on the results of the European Labour Force Survey (EU-LFS), in some cases integrated with data sources such as national accounts of employment or registered unemployment. After adjustments, corrections and harmonisation of the EU-LFS data, the "LFS core indicators" are the most complete and reliable set of employment and unemployment data available. The statistical unit is people.

Control variables underlying the unemployment rate. Researchers point out that control variables are important and need to be included to avoid underestimation or overestimation of selected dependent variables (Čiegis et al., 2019). In this context, it is appropriate to identify indicators that have an impact on the dependent variable, i.e. the unemployment rate.

Several indicators affect this variable. Elhorst (2003) used the following variables to investigate regional differences in unemployment rates: the number of people of working age, employment, commuting time, net migration, etc. Nepram et al. (2021), who investigated the impact of public spending on unemployment rates, cite government income, political ideology, education, etc. as key indicators affecting unemployment rates. Holden and Sparrman (2018) point out that the unemployment rate is influenced by public debt, export volumes, monetary policy, etc. Mehry et al. (2021) distinguish the impact of education, GDP per capita and inflation on the unemployment rate. Thus, the authors distinguish between different variables. In this context, and based on the literature, it is appropriate to identify the following key control variables for the impact of corporate social responsibility on unemployment (see Table 1).

Table 1. Model variables and indicators for use in empirical research

An indicator describing changes of countries unemployment	An indicator describing the social responsibility of business	Control variables underlying the unemployment rate
Unemployment rate from 20 to 64 years, %, (U)	Social activities related to costs for training and qualification development of employees (SA_{L-TR}) (% of GDP)	1. Harmonized index of consumer prices (HICP) 2. GDP (Y) (EUR) 3. Human capital (HC) (share of persons with higher education, residents aged 15–64, %)

Source: created by the authors.

The assessment of the impact of a business's socially responsible activities on changes in unemployment rates is based on the *following methods:*

– *descriptive statistics and dynamic data analysis* to look at changes in indicators at the EU level. The dynamic analysis compares the characteristics of the data and calculates the minimum and maximum values, the change and the standard deviation of the data analysed;

– *subgroup (panel) data analysis* to combine time-series and intergroup data, i.e. to estimate time and country effects (Butkus and Matuzevičiūtė, 2016). For the analysis of these data, *ordinary least squares* (OLS) regression analysis was used, which is suitable for short time series;

– *random effects regression analysis to* identify relationships between the phenomena under study, i.e. the effect of independent variables on dependent variables.

For normalised variables, the analysis (*Gretl* statistical data analysis software used) of the subgroup (panel) data is used to test for heteroskedasticity, multicollinearity, autocorrelation, linearity and cross-sectional dependence of the selected variables, to ensure the model's realism and practicability. The following tests are carried out in the course of model building:

– *Wooldridge test for autocorrelation.* H_0 is rejected and autocorrelation is detected when the p-value < 0.05*;*
– *White's test for heteroskedasticity.* H_0 is rejected and heteroskedasticity is established when the p-value < 0.05;
– *The variance inflation factor* (*VIF*) *test* is used to test whether the assumptions of the model are satisfied, i.e. to test for multicollinearity. H_0 is rejected and multicollinearity is established when VIF > 10. This means that the independent variables are too highly correlated and that model improvement is needed;
– *linearity test to* identify linear relationships between dependent and independent variables. H_0 is rejected and a linear relationship is found when p < 0.05;
– *Pesaran CD* is used to determine the dependence of cross-sectional volumes. H_0 is discarded and the dependence of the cross-sectional data is established when p < 0.05.

If the residual errors of the models are heteroskedastic or the model has autocorrelation, then the model is fitted using a *regression of the stabilised residual errors (HAC).* This eliminates the problems associated with heteroskedasticity and autocorrelation.

The models include *time dummies* to absorb the effect of time on the survey results. They are included in all models.

Adjusted *coefficients of determination (R^2)* were calculated to assess which part of the predicted variables is explained by the econometric model. They can be described as a measure of the difference between the modelled and observed values of the dependent variable, i.e. what percentage of the variation in the national unemployment rate can be explained by changes in the socially responsible activities of the business in relation to employee costs.

The closer the value is to 1, the more this socially responsible activity explains changes in the unemployment rate and the less it affects the value closer to 0. Researchers identify a value of 0.20 as a starting point and when R^2 < 0.20, the model is not appropriate (Čekanavičius and Murauskas, 2014). The adjusted coefficients of determination were chosen given the small number of observations.

Building the models used in the empirical study. It is observed in the scientific literature that researchers rely on the model identified by Okun (1962) to assess the impact of various phenomena on the unemployment rate (Soylu et al., 2018; Butkus and Seputiene, 2019; et al.). Its use in various studies confirms the existence of an inverse relationship between economic growth and the unemployment rate, as stimulating consumption can be considered as one of the means of reducing the unemployment rate (Butkus and Seputiene, 2019). It is also indicated that this model is often used to analyse the relationship in subgroup (panel)

data analysis (Soylu et al., 2018).

In light of this, and given the importance and significance of Okun's model, the empirical study and the evaluation of Corporate Social Responsibility (CSR) in relation to the cost of employee unemployment is based on this model, which takes the following expression in the study:

$$\Delta U_{i,t} = \alpha + \beta \, \Delta \ln(TY_{i,t}) + \gamma \Delta CSR_{i,t} + c_k \Delta C_{i,t,k} + \theta_t + \varepsilon_{i,t} \quad (1)$$

Where: $U_{i,t}$ - unemployment rate, α - constant; β – Okun's coefficient; $TY_{i,t}$ - GDP; $CSR_{i,t}$ - Corporate Social Responsibility Indicators of Employee Costs; c_k - coefficients of control variables; $C_{i,t,k}$ - vector of control variables; θ_t - time dummies; $\varepsilon_{i,t}$ - time-varying (idiosyncratic) error.

In terms of the impact on unemployment, the CSR indicators on employee costs remain the same and are expressed in the model as $CSR_{i,t}$. It should also be noted that the unemployment rate is affected by different phenomena so that the control variables in the model have a different meaning and expression C. The model is used to assess the impact of CSR activities related to employee costs on unemployment rates in EU countries.

4. Results and discussion

A comparative analysis of indicators at the EU level is being carried out to assess the importance and extent of business spending on social activities related to training and skills development. Corporate social responsibility is inextricably linked to the implementation of social activities targeted at employees. This analysis starts by looking at the average business costs on training and qualification of employees (see Figure 1).
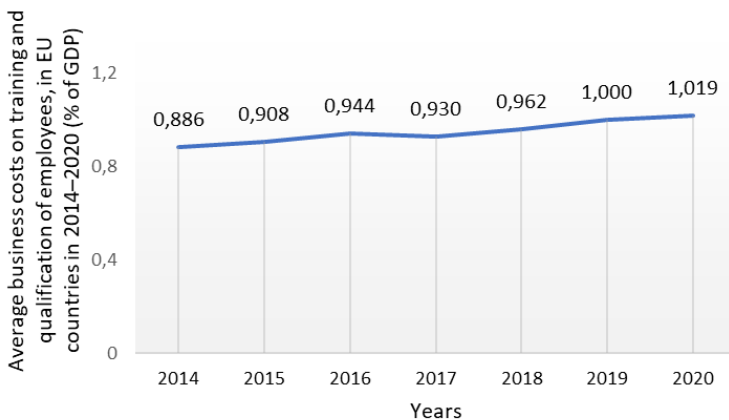

Figure 1. Average business costs on training and qualification of employees, in EU countries in 2014–2020 (% of GDP)

Source: Eurostat

This cost has been on an upward trend between 2014 and 2020, with an average annual growth rate of 0.0221% of GDP. In 2017, it showed a slight decrease, to -0.014% of GDP. Nevertheless, over the period considered, they varied from 0.886% of GDP to 1.019% of GDP and increased by 0.153% of GDP. This shows that between 2014 and 2020, businesses have increased investment in human capital, promoted the training of employees and contributed to improving their qualification.

Similar results are found in Eurostat (2022) reports on refresher training courses for employees paid for in full or in part by business. Although these statistics are only collected every 5 years, there is an upward trend at the EU level.

It is useful to analyse which countries have the highest business focus on these activities and which have the lowest levels of financial resources for employee training (see Figure 2).
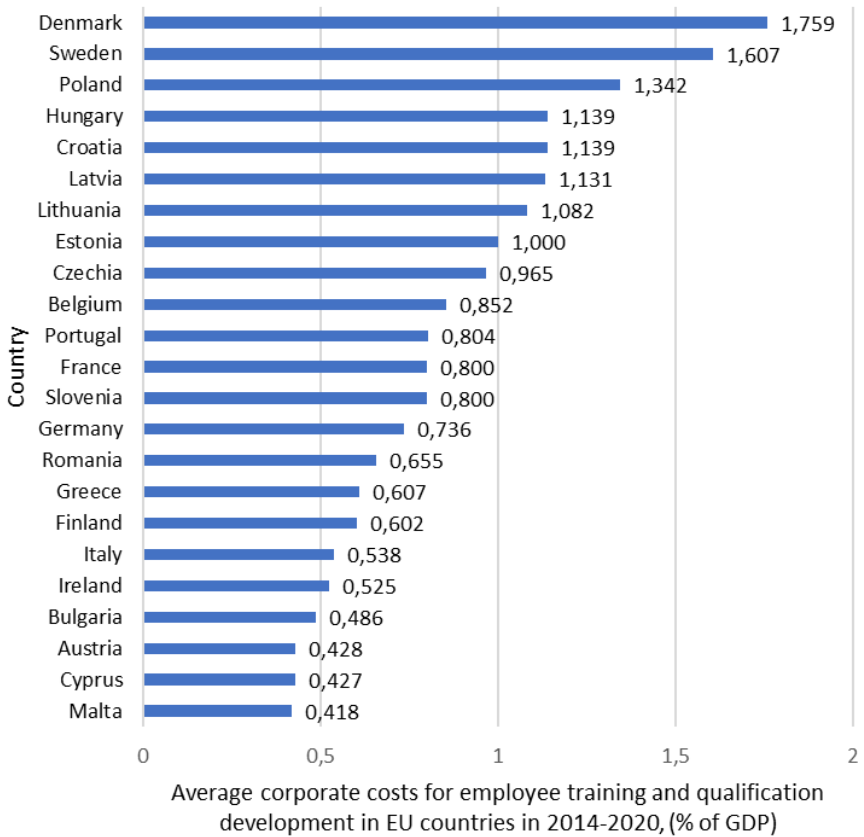

Figure 2. Average corporate costs for social activities related to employee training and qualification development in EU countries in 2014-2020, (% of GDP)

Source: Bloomberg, Eurostat, Countries Ministries of Labour

Business spending on training and qualification of employees was the largest share of GDP (%) in Denmark (1.759% of GDP), Sweden (1.607% of GDP) and Poland (1.342% of GDP) in 2014-2020. Relatively, the lowest share of spending on training and upskilling was in Malta, Cyprus, Austria and Bulgaria (less than 0.5% of GDP). The Baltic States contributed between 1% and 1.131% of GDP, reflecting the high level of business focus on employees in this sector. Other studies show that Sweden and Denmark place a strong emphasis on employee training (Alic, 2021), indicating that these countries are heavily involved in socially responsible activities aimed at improving the qualification of their employees, thus adding value to the business itself and thus to the employees.

The model is used to test the impact of *CSR activities on the unemployment rate in relation to employee costs*. The empirical study starts by testing the model to see if it is logical and appropriate. The *testing is carried out by including only the control variables* value added (*Δln GDP*), human capital (% change in the share of tertiary graduates in the population aged 15-64) (*ΔHC*) and inflation in the previous year (*Δln HICP_1*) and assessing their impact on the dependent variable, the unemployment rate. Although this test revealed logical and appropriate results, further evaluations with the inclusion of CSR employee costs indicators show a problem of cross-sectional data dependence, i.e. a Pesaran CD test value of p < 0.05. The cross-sectional data dependency problem was addressed by testing the model in 2 additional ways:

- *Including weighted coefficients for the unemployment rate of export partners in the model*. This assumes that a change in the unemployment rate in the exporting country is followed by a change in the unemployment rate in the country of import, e.g. if Germany's export partner is Belgium, a 1% increase in the unemployment rate in Germany leads to a decrease in export volumes, with the Belgian market being affected. As the share of imported goods decreases (especially for goods used in the production of other products) the unemployment rate in Belgium increases.

The weighted coefficients of the unemployment rate of the country's export partners were obtained by summing the coefficients of the share of exports to partner countries, multiplied by the change in the unemployment rate of those countries (see formula 2).

$$k = E_1 * \Delta U_1 + E_2 * \Delta U_2 + \cdots E_{22} * \Delta U_{22} \quad (2)$$

Where: E is the share of exports to the country; ΔU is the change in the unemployment rate.

The addition of weighted coefficients on the unemployment rate of export partners to the control variables in the linear regression model partially reduced the cross-sectional dependence of the data (Pesaran CD p-values increased):

- *Including weighted growth rates of export partners in the model*. This assumes that a deteriorating economic situation in the exporting country has a negative impact on economic growth in the importing country, thus contributing to a rise in the unemployment rate. For example, if Germany's export partner is Belgium, a 1% contraction in the German economy leads to a decrease in export volumes, which

also affects the Belgian market. As the share of imported goods decreases (especially for goods used in the production of other products), the Belgian economy shrinks, thus reducing labour demand and increasing the unemployment rate.

The weighted growth rates of a country's export partners are obtained by summing the coefficients of the share of exports to partner countries multiplied by the logarithmic change in the GDP (per capita) rate for those countries (see Formula 3).

$$k = E_1 * \Delta \ln(GDP_1) + E_2 * \Delta \ln(GDP_2) + \cdots E_{22} * \Delta \ln(GDP_{22}) \quad (3)$$

Where: E is the share of exports to the country; $\Delta \ln$ (GDP) is economic growth.

The inclusion of weighted growth rates for export partners further improved the quality of the model. The p-value of the Pesaran CD test is above 0.05 in the new model and below 0.05. Once this problem has been solved, the estimation of the impact of CSR activities on the unemployment rate starts with a test of the goodness of fit of the main model, i.e. the inclusion of the control variables and the weighted coefficients of the export partners' economic growth, as expressed above (see Table 2).

Variables with a non-linear relationship with the change in the unemployment rate were logarithmised. The Pesaran CD test confirmed that there is no cross-sectional data dependence in the models ($p > 0.05$). No unusual correlations (multicollinearity) between the independent variables were also found (VIF values obtained <10). Autocorrelation of residual errors in the model was found according to the Wooldridge test ($p < 0.001$). The results of the White test ($p < 0.001$) also showed heteroskedasticity. Given that the model has heteroskedasticity and autocorrelation, and to adequately estimate the selected phenomena, Arellano's method of regression of stabilised residual errors was used.

The model explains 44.2% of the change in the unemployment rate. *The results show that the higher unemployment rate is due to higher inflation ($\Delta \ln HICP\_1$) in the previous year ($p = 0.046$). Correspondingly, the decline in the unemployment rate was influenced by higher value added ($\Delta \ln GDP$) ($p = 0.010$) and higher weighted growth of export partner economies* ($p < 0.001$). The share of graduates in the population aged 15-64 was found to be unaffected.

Table 2. Testing the unemployment rate model with control variables and weighted export partner growth

	Dependent variable - change in unemployment rate
Constanta	2,449***
	(0,367)
Value added (Δln GDP)	-15,650***
	(5,515)

Human capital (% change in the share of graduates in the population aged 15-64) **(ΔHC)**	0,057
	(0,037)
Inflation in previous years (Δln HICP_1)	19,110**
	(9,031)
Weighted growth of export partners	-39,180***
	(6,861)
R^2_{adj}	0,442
p-value of the Wooldridge test	$1,067 \times 10^{-4}$
White test p-value	$7,000 \times 10^{-6}$
Pesaran CD test p-value	0,119

* - 90% significance level; ** - 95% significance level; *** - 99% significance level. Values in parentheses is a standard error. Model are constructed by ordinary least squares linear regression (*OLS*), including time pseudo-variables and stabilising residual errors.

Source: created by the authors.

A one percentage point increase in value-added leads to a 0.156 percentage point decrease in the national unemployment rate. A one percentage point increase in the price level increases the unemployment rate by 0.191 percentage points (with a one-year lag). A one-percentage-point increase in the economies of export partners reduces the unemployment rate by 0.392 percentage points. These results are supported by research to date, which highlights that the unemployment rate is increased by inflation (Gomis-Porqueras et al., 2020; Santos and Kristiyanto, 2021; etc.) and reduced by higher value added (Bartolucci et al., 2018; etc.) and by higher weighted growth of the export partner economies (Dritsakis and Stomatiou, 2018; Perez and Matsaganis, 2019; etc.).

Gomis-Porqueras et al. (2020), who study the relationship *between inflation*, unemployment and capital in 76 countries, find that rising inflation has a positive effect on the unemployment rate, i.e. it raises it and has a negative effect on gross consumption. Similar results are found in Santos and Kristiyanto (2021). The researchers assess 7 cities in the province of East Java and the changes in unemployment and inflation in these cities. The analysis reveals that rising inflation has led to an increase in the unemployment rate. However, rising wages, and other things being fixed, reduce unemployment. Based on these studies, it can be argued that the unemployment rate also tends to increase with rising inflation.

Having found a significant relationship between *value-added* and unemployment rates, Bartolucci et al. (2018) underline the importance of these phenomena in crisis management periods. In times of economic recession and declining GDP, unemployment increases in both low- and high-income countries. The recovery in high-income countries is slower compared to GDP changes in the pre-crisis period, i.e. the positive impact of GDP increases on reducing unemployment is small. The study also reveals that the sensitivity of unemployment to GDP changes is lower in low-income countries, which calls for adequate

measures to sustain long-term economic growth and reduce unemployment. This suggests that value-added has a significant positive impact on reducing unemployment.

Authors emphasise the interdependence of countries, arguing that the economic situation or social situation of members of a society in one country has an impact on the economy of the other country with which it has a close relationship, i.e. trade, union membership, a similar geographical location, etc. (Dritsakis and Stomatiou, 2018; Perez and Matsaganis, 2019; etc.). Therefore, it can be assumed that higher *weighted economic growth of export partners* has an impact on the unemployment rate in a country. The researchers Perez and Matsaganis (2019) give as an example the sovereign debt crisis that spread from Greece to other euro area countries in 2010. After the introduction of the single currency, Southern European countries ran large deficits. The only way to reduce them and stem rising unemployment was to reduce regulatory constraints, thus helping businesses cope with reduced domestic demand and enabling them to compete in international markets. Rising exports should have created new jobs, reduced unemployment and stabilised the economy. However, such initiatives have manifested themselves somewhat differently in each economy: in Greece, exports grew modestly and did not create enough additional jobs; in Spain and Portugal, they were higher, but did not create enough additional jobs to compensate for previous job losses, and so on. Nevertheless, the authors stress the interdependence between countries. In this context, it can be argued that EU countries also influence each other and that the economic situation in one Member State affects another Member State through the pursuit of common interests, compliance with international obligations, trade, etc. The study by Dritsakis and Stomatiou (2018) highlights the interdependence between countries and uses the 2008 economic crisis as an example. The researchers also reveal the positive impact of exports on economic growth and unemployment reduction. This shows that national economies are interdependent and influence each other. The study also reveals the importance and significance of exports and economic growth in reducing unemployment.

The model developed in the studies reviewed, in which the unemployment rate is influenced by higher inflation ($\Delta ln\ HICP\_1$), lower value added ($\Delta ln\ GDP$) and lower weighted growth of export partner economies, is logical and appropriate for assessing the impact of corporate social responsibility on unemployment. A further estimation is carried out at to determine the impact of CSR on the dependent variable related to labour costs (see Table 3).

In terms of model fit and robustness, the model structure was found to satisfy all conditions: the Pesaran CD test showed no dependence on the cross-sectional data ($p > 0.05$), and no multicollinearity was observed (VIF values <10). The results of the Wooldridge test, which showed autocorrelation of residual errors ($p < 0.05$), led to the application of Arellano's method of regression of stabilised residual errors. The data analysis showed that the socially responsible activities of the business in terms of employee training and qualification development costs do not have a significant impact on the change in the unemployment rate at ($p > 0.10$).

Table 3. Testing the unemployment rate model with all control variables to corporate social activity according to employee costs

	Dependent variable - change in unemployment rate
	Business social performance in relation to costs on training and qualification development of employees
Constanta	0,612
	(0,755)
Value added (Δln GDP)	-1,570
	(1,858)
Human capital (% change in the share of graduates in the population aged 15-64) (ΔHC)	0,112
	(0,1000)
Inflation in previous years (Δln HICP_1)	36,320***
	(7,768)
Weighted growth of export partners	11,170
	(11,250)
Business social performance in relation to costs on training and qualification development of employees (Δln SALTR)	0,200
	(0,602)
R^2_{adj}	0,548
Wooldridge test *p* value	$3,176 \times 10^{-6}$
White test *p* value	0,732
Pesaran CD test *p* value	0,144

* - 90% significance level; ** - 95% significance level; *** - 99% significance level. Values in parentheses is a standard error. Model are constructed by ordinary least squares linear regression (*OLS*), including time pseudo-variables and stabilising residual errors.

Source: created by the authors.

However, it should be noted that the results of the empirical study using these models are relevant and can help businesses in allocating their financial resources to different areas of social responsibility. These results are also relevant for the different public authorities that define the rules of business conduct and apply different regulatory policies. Focusing on the most beneficial areas can lead to higher business financial flows to social responsibility variables in relation to costs on training and qualification development of employees. In addition, the results are relevant for decision-makers at the EU level. This demonstrates the practical applicability of the model developed and the results obtained.

5. Conclusion, limitations, and directions for future research

A comparative analysis of corporate social responsibility indicators has highlighted the areas that receive the most attention from businesses and their contribution to improving employee qualifications. In the area of social performance, Denmark, Sweden and Poland stand out as the countries with the highest focus on improving employee qualifications. Business spending on employee training is an important part of the performance development process.

The results show that the higher unemployment rates at the EU level in the EU countries studied are due to higher inflation in previous years. Correspondingly, higher value-added and higher weighted growth in export partners have contributed to the decline in unemployment rates. A one percentage point increase in value-added leads to a 0.156 percentage point decrease in the unemployment rate. A one percentage point increase in the price level increases the unemployment rate by 0.191 percentage points (with a one-year lag). A one-percentage-point increase in the economies of export partners reduces the unemployment rate by 0.392 percentage points. The share of graduates in the population aged 15-64 is found to have no impact on the unemployment rate. The data analysis shows that corporate social responsibility in terms of labour costs does not have a significant impact on the change in the unemployment rate ($p > 0.10$). However, it should be noted that the results of the empirical study are relevant when applying the model developed.

Restrictions. There is a lack of statistical data on the social performance variable. Although there has been a long history of research on corporate social responsibility, statistics have only been collected intensively since 2014, which has limited the research carried out and has allowed the assessment of the interplay between phenomena in a limited sample of time series. It should be noted that it was decided not to use the COVID-19 situation analysis to assess the phenomena in question and the period covered by the empirical study. The empirical study covers the beginning of COVID-19, which complicates the identification of its impact on the phenomena analysed.

Directions for further research. Given the strengths and limitations of the study highlighted above, further research could be directed towards: replication of the study, including more variables in the areas of social performance as well as employment and unemployment; replication of the study, assessing the impact of social responsibility on unemployment before, during and after COVID-19, i.e. the study of the impact of socially responsible business practices in terms of employee costs on changes in the level of unemployment could be extended.

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