

CORRELATION BETWEEN ECONOMIC GROWTH AND PUBLIC DEBT LEVEL IN SELECT COUNTRIES OF THE EUROPEAN UNION

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ABSTRACT

The complex correlation between public debt and economic growth is very important and is a focus of research within the scientific community and among policy makers. The main purpose of this paper is to identify the correlation between the level of public debt and the level of economic growth in select European Union countries. It is an empirical study of the transmission mechanisms and impact of public debt on economic growth in countries which joined the European Union in 2004 or later. The time range of the analyses covers the years 2000–2019. Estimation of the model parameters shows that the level of public debt had an impact on economic growth only in some countries.

Key words: public debt, economic growth, transmission, asymmetry, interdependence

JEL codes: E6, F3, F4, O11

INTRODUCTION

The correlation between public debt and economic growth has more often been the subject of theoretical discussions than of those supported by empirical analysis using econometric tools. However, there is a growing interest within the scientific community and among policy makers to understand this complex and important relationship. A nation's fiscal policy is of key importance to its economic growth both in the short and long term, but available literature on the subject does not clearly indicate the nature of the potential correlation between public debt and economic growth. This is highlighted in a study by Rahman, Ismail and Ridzuan [2019], who concluded that there is no mutual consensus on the relationship between public debt and economic growth. This relationship can be positive, negative or even non-linear.

The burden of public debt differs in each country and depends primarily on the savings rate and the

population growth rate [Dombi and Dedák 2018]. Asteriou, Pilbeam and Pratiwi [2020] emphasize that an increase in public debt has a negative impact on economic growth both in the short and long term. Similar conclusions were also reached by Balassone, Francese and Pace [2011], who examined the relationship between the public debt-to-GDP ratio and income growth in Italy in the years 1861–2009. The same conclusions were also drawn by Fincke and Greiner [2013], whose empirical research indicated a negative relationship between the public debt to GDP ratio and the growth rate of economies in the following years. Alfonso and Jalles [2013] also noticed the negative effect of an increase in the debt ratio on economic growth.

An attempt to empirically investigate the transmission mechanism with regard to the long-term impact of public debt on the level of economic growth in European Union countries was undertaken by Mercinger, Aristovnik and Verbić [2014, 2015], whose results indicate a statistically significant non-linear impact of

the annual GDP growth rates per capita. The non-linear effect of the threshold of debt, and that the threshold itself is variable over time and depends on the state, is also clearly confirmed by research from Yang and Su [2018]. Research by Reinhart and Rogoff [2010] found a weak relationship between low government debt and economic growth, but found that if the ratio of public debt to GDP exceeds 90%, it is detrimental to economic growth. Kumar and Woo [2010] also reached similar conclusions. However, research conducted by Minea and Parent [2012] indicated that this threshold is definitely higher than 90% of GDP.

On the other hand, above a certain threshold, higher public debt reduces potential economic growth, which was noted, among others, by Clements, Bhattacharya and Nguyen [2003], Checherita and Rother [2010], Cecchetti, Mohanty and Zampolli [2011], Baum, Checherita-Westphal and Rotherb [2013]. The fact that research shows that debt has a negative impact on growth through the standard crowding out effect is also emphasized in a study by Panizza and Presbitero [2013]. Gómez-Puig and Sosvilla-Rivero [2015], using the Granger causality test, provided evidence for the possibility of two-way causal links between public debt and economic growth in both central and peripheral countries of the European Economic and Monetary Union. Empirical evidence from research by Ahlborn and Schweickert [2018] indicated that continental countries struggle with more restrictive economic growth effects of public debt than liberal countries in particular. At the same time, Égert [2015], using non-linear threshold models, showed that finding a negative non-linear relationship between the public debt-to-GDP ratio and economic growth is extremely difficult and sensitive to modeling choices and data coverage. The results of research by Karadam [2018] show that the direction of the influence of public debt on growth changes smoothly from positive to negative depending on the level of debt. In addition, Karadam stated that the debt threshold is lower for developing countries, meaning that public debt may harm growth at lower levels of indebtedness in these economies compared to developed countries. He also found that short-term external debt and long-term public external debt generate a clearer and stronger negative impact on growth in the case of high debt [Karadam 2018].

Guei [2018] using the ARDL panel model, also examined the relationship between debt growth and debt

growth in emerging countries. The results suggest that debt does not have a solid impact on economic growth in the long run. However, in the short term, foreign debt is negatively and significantly correlated with economic growth. Zaghdoudi [2020] found that the relationship between external debt and economic growth is non-linear. Qureshi and Liaqat [2020] also explored the relationship between external debt and economic growth, using the VAR model for this purpose. Undoubtedly, the issue of public debt concerns every member of society, and economic growth is considered to reflect the economic situation in a country and its level of development. Therefore, it often affects the importance of the state in the international arena. It is for this reason that the topic of the interdependence of public debt and economic growth has been taken up in this paper. The main purpose of this study was to identify the correlation between the level of public debt and the level of economic growth in select European Union countries.

METHODOLOGY

In order to conduct the analyses, data on the levels of gross public debt expressed in current prices and economic growth expressed as the value of nominal GDP in individual countries were used. The time scope of the work covered the years 2000–2019. The study uses quarterly data. Empirical research covered the countries which joined the European Union in the year 2004 and later. The European Union countries selected for the analysis are characterized by historical experiences that are significantly different from those of Western European countries. They represent a different cultural and political heritage or a relatively weaker socio-economic level of development. These are mostly the countries in the Central and Eastern European region, plus Cyprus and Malta. Most of them can also be included in the group of post-communist countries. The values of the analyzed ratios were expressed in EUR.

Secondary data from the European Statistical Office (Eurostat) was used to achieve the goals set in the study. The Augmented Dickey-Fuller (ADF) extended test was used to assess the stationarity of the time series. The ADF test is based on a regression equation [Maddala 1977]:

$$\Delta y_t = \delta_{y_{t-1}} + \sum_{i=1}^k \gamma_i \Delta y_{t-i} + bt + \varepsilon_t$$

where:

- δ, b, γ – structural parameters estimated using the least squares method,
- k – number of lags,
- t – deterministic trend,
- Δy_{t-1} – the first differences of variable y in period $t-1$,
- ε_t – residuals.

A method of examining causal relationships is the Granger causality test. Granger gives a definition of causality: the variable X is the Granger cause of the variable Y , when the current values of the variable Y can be predicted more accurately by knowing the past values of the variable X (than not knowing them) [Granger 1969, 1980].

The Granger causality test was used to analyze relations between the studied variables. Testing causality in the Granger sense is based on the following system of equations:

$$Y_t = \beta_0 + \sum_{j=1}^m \beta_j Y_{t-j} + \sum_{k=1}^n \beta_k X_{t-k} + u_t$$

$$X_t = \beta_0 + \sum_{j=1}^m \beta_j X_{t-j} + \sum_{k=1}^n \beta_k Y_{t-k} + u_t$$

where:

- Y_t – matrix of the variable Y ,
- X_t – matrix of the variable X ,
- β – structural parameters of the model,
- u_t – random component of the model [Granger 1969].

In order to determine the correlation between the level of public debt and economic growth in select countries of the European Union, the Vector Error Correction Model (VECM) was used, which determines the short-term dynamics of each price within long-term relationships.

The VECM has the following form:

$$\Delta x_t = \Psi_0 D_t + \Pi x_{t-1} + \sum_{i=1}^{k-1} \Pi_i \Delta x_{t-1} + \varepsilon_t$$

where:

$$\Pi = \sum_{i=1}^k A_i - I$$

$$\Pi_i = \sum_{j=i+1}^k A_j$$

- $X_t = [x_{t1}, \dots, x_{tk}]^T$ – vector of observations on the current values of all explanatory variables,
- D_t – vector of exogenous equation components such as intercept, time change, non-stochastic regression, delayed values of exogenous variables,
- A_0 – matrix of parameters with vector variables D_t (does not contain zero elements),
- A_i – matrix of parameters with lagging variables of the vector x_t (does not contain zero elements),
- k – model row, specifying the maximum length of the delay,
- $\varepsilon_t = [e_{1t}, \dots, e_{kt}]^T$ – vectors of stationary random disturbances (residual vectors of the model equations).

RESULTS

In order to build the VECM model, it is extremely important to determine the stationarity of the tested time series. In this study, the ADF stationarity test was used to determine the stationarity of the time series. It was conducted for all analyzed series at three significance levels: 1, 5 and 10%. Based on the Akaike Information Criterion the length of the delay was set at $k = 1$. Table 1 presents the results of the test carried out in the EViews program for the series of data showing the level of public debt in the examined European Union countries at three levels of significance.

Taking into account that the value of the ADF statistic is greater than the critical value of the p -value tested at all three levels of significance, there is no reason to reject the null hypothesis of non-stationarity of the series. This means that each of the thirteen tested time series is non-stationary. A similar action was performed in the case of the data series showing the level of GDP in thirteen selected European Union countries. The test results are presented in Table 2. It also presents the critical values at three levels of significance.

When comparing the values of the ADF statistics for all tested time series with the critical values at three levels of significance, one should adopt the null hypothesis of non-stationarity of the series. Hereby, this means that any time series reflecting GDP values is non-stationary. Based on the above calculations, all the time series were found to be non-stationary. However, when the variables are transformed first to their logarithms and then to their increments (degree I), the null hypothesis is rejected. This means that the series are extramural and

Table 1. The value of ADF statistics for public debt time series in selected countries.

A number of tested variables	ADF statistics value	Critical Value p -value		
		level 1%	level 5%	level 10%
Bulgaria public debt	-0.260	-3.527	-2.904	-2.589
Croatia public debt	-0.021	-3.526	-2.903	-2.589
Cyprus public debt	-0.441	-3.526	-2.903	-2.589
Czech Republic public debt	-1.477	-3.526	-2.903	-2.589
Estonia public debt	0.036	-3.527	-2.904	-2.589
Lithuania public debt	0.636	-3.526	-2.903	-2.589
Latvia public debt	0.224	-3.526	-2.903	-2.589
Malta public debt	-0.537	-3.532	-2.906	-2.590
Poland public debt	-0.497	-3.526	-2.903	-2.589
Romania public debt	1.248	-3.526	-2.903	-2.589
Slovakia public debt	0.343	-3.526	-2.903	-2.589
Slovenia public debt	0.988	-3.526	-2.903	-2.589
Hungary public debt	-2.558	-3.530	-2.905	-2.590

Source: calculations and authors' own study using the Eviews program.

Table 2. The value of ADF statistics for the time series of GDP in selected countries.

A number of tested variables	ADF statistics value	Critical Value p -value		
		level 1%	level 5%	level 10%
Bulgaria GDP	-1.612	-3.532	-2.906	-2.590
Croatia GDP	-1.883	-3.532	-2.906	-2.590
Cyprus GDP	-1.664	-3.532	-2.906	-2.590
Czech Republic GDP	-0.778	-3.533	-2.906	-2.591
Estonia GDP	-0.374	-3.537	-2.908	-2.591
Lithuania GDP	-0.407	-3.533	-2.906	-2.591
Latvia GDP	-1.021	-3.533	-2.906	-2.591
Malta GDP	2.414	-3.532	-2.906	-2.590
Poland GDP	0.104	-3.533	-2.906	-2.591
RomaniaGDP	-0.638	-3.532	-2.906	-2.590
Slovakia GDP	-1.132	-3.533	-2.906	-2.591
Slovenia GDP	-0.673	-3.533	-2.906	-2.591
Hungary GDP	-1.524	-3.533	-2.906	-2.591

Source: calculations and authors' own study using the Eviews program.

integrated in the first degree (I(1)). Therefore, based on the results of the ADF stationarity test, the study of the relationship between public debt and the GDP indicator will require the use of the VECM model in the further part of the study. In order to indicate the cause and effect

relationship between the level of public debt and GDP in selected European Union countries in the years 2000–2019, the necessary estimation of the VECM model parameters was performed. The results of the model parameters estimation are presented in Table 3.

Table 3. Estimation of the VECM model parameters.

Specification	Bulgaria public debt	Bulgaria GDP	Specification	Croatia public debt	Croatia GDP
Bulgaria public debt (–1)	0.176 [1.425]	–0.009 [–0.106]	Croatia public debt (–1)	0.843 [6.368]	–0.185 [–2.481]
Bulgaria public debt (–2)	–0.030 [–0.236]	0.090 [1.066]	Croatia public debt (–2)	0.372997 [2.227]	0.005 [0.061]
Bulgaria public debt (–3)	0.180 [1.491]	–0.012 [–0.149]	Croatia public debt (–3)	–0.284 [–1.631]	–0.032 [–0.323]
Bulgaria public debt (–4)	–0.193 [–1.587]	–0.048 [–0.591]	Croatia public debt (–4)	0.052 [0.375]	0.206 [2.648]
Bulgaria GDP (–1)	–0.264 [–1.958]	–0.241 [–2.660]	Croatia GDP (–1)	–0.419 [–1.886]	0.683 [5.444]
Bulgaria GDP (–2)	–0.232 [–1.702]	–0.243 [–2.653]	Croatia GDP (–2)	0.644 [2.873]	–0.708 [–5.600]
Bulgaria GDP (–3)	–0.301 [–2.200]	–0.255 [–2.776]	Croatia GDP (–3)	–0.448 [–1.892]	0.663 [4.973]
Bulgaria GDP (–4)	–0.286 [–2.051]	0.778 [8.306]	Croatia GDP (–4)	0.331 [1.428]	0.329 [2.511]
Specification	Cyprus public debt	Cyprus GDP	Specification	Czech Republic public debt	Czech Republic GDP
Cyprus public debt (–1)	–0.048 [–0.354]	–0.045 [–1.96768]	Czech Republic public debt (–1)	–0.1320 [–1.086]	0.125 [1.723]
Cyprus public debt (–2)	–0.1677 [–1.190]	0.002 [0.089]	Czech Republic public debt (–2)	–0.0520 [–0.356]	0.1365 [1.570]
Cyprus public debt (–3)	0.0267 [0.202]	–0.022 [–0.990]	Czech Republic public debt (–3)	–0.0197 [–0.137]	0.004 [0.045]
Cyprus public debt (–4)	–0.135 [–1.044]	0.008 [0.383]	Czech Republic public debt (–4)	0.133 [0.892]	–0.225 [–2.512]
Cyprus GDP (–1)	–1.947 [–3.437]	–0.111 [–1.156]	Czech Republic GDP (–1)	–0.545 [–3.046]	–0.071 [–0.67]
Cyprus GDP (–2)	–1.477 [–2.504]	–0.153 [–1.526]	Czech Republic GDP (–2)	–0.474 [–2.697]	–0.036 [–0.348]
Cyprus GDP (–3)	–0.4165 [–0.671]	–0.130 [–1.233]	Czech Republic GDP (–3)	–0.129 [–0.745]	–0.029 [–0.280]
Cyprus GDP (–4)	0.041 [0.069]	0.771 [7.591]	Czech Republic GDP (–4)	–0.317 [–2.001]	0.813 [8.543]

Table 3, cont.

Specification	Estonia public debt	Estonia GDP	Specification	Lithuania public debt	Lithuania GDP
Estonia public debt (–1)	1.275 [9.892]	–0.649 [–1.514]	Lithuania public debt (–1)	0.757 [5.942]	–0.288 [–2.336]
Estonia public debt (–2)	–0.199 [–0.940]	0.380 [0.544]	Lithuania public debt (–2)	0.200 [1.256]	0.235 [1.517]
Estonia public debt (–3)	–0.108 [–0.516]	0.650 [0.987]	Lithuania public debt (–3)	0.228 [1.308]	0.079 [0.472]
Estonia public debt (–4)	–0.011 [–0.085]	–0.391 [–0.906]	Lithuania public debt (–4)	–0.216 [–1.540]	–0.003 [–0.025]
Estonia GDP (–1)	0.044 [1.257]	0.599 [5.063]	Lithuania GDP (–1)	–0.041 [–0.357]	0.431 [3.850]
Estonia GDP (–2)	–0.046 [–1.163]	0.408 [3.101]	Lithuania GDP (–2)	0.219 [1.689]	–0.144 [–1.144]
Estonia GDP (–3)	–0.0209 [–0.515]	–0.421 [–3.144]	Lithuania GDP (–3)	–0.196 [–1.556]	0.151 [1.232]
Estonia GDP (–4)	0.0467 [1.278]	0.401 [3.287]	Lithuania GDP (–4)	0.119 [1.030]	0.527 [4.700]
Specification	Latvia public debt	Latvia GDP	Specification	Malta public debt	Malta GDP
Latvia public debt (–1)	0.837 [7.124]	–0.493 [–4.090]	Malta public debt (–1)	0.696 [5.350]	–0.039 [–0.750]
Latvia public debt (–2)	0.184 [1.115]	0.226 [1.333]	Malta public debt (–2)	0.125 [0.791]	0.006 [0.098]
Latvia public debt (–3)	0.157 [0.927]	0.053 [0.290]	Malta public debt (–3)	0.062 [0.398]	–0.089 [3.133]
Latvia public debt (–4)	–0.232 [–1.896]	0.203 [1.605]	Malta public debt (–4)	0.183 [1.380]	0.1674 [3.137]
Latvia GDP (–1)	–0.079 [–0.738]	0.517 [4.675]	Malta GDP (–1)	–0.662 [–2.47]	0.533 [4.870]
Latvia GDP (–2)	0.106 [0.837]	0.077 [0.170]	Malta GDP (–2)	0.439 [1.438]	–0.390 [–3.187]
Latvia GDP (–3)	–0.216 [–1.752]	–0.027 [–0.199]	Malta GDP (–3)	–0.091 [–0.304]	0.412 [3.324]
Latvia GDP (–4)	0.346 [3.203]	0.578 [4.755]	Malta GDP (–4)	0.174 [0.663]	0.467 [4.121]
Specification	Poland public debt	Poland GDP	Specification	Romania public debt	Romania GDP
Poland public debt (–1)	0.983 [7.509]	0.331 [3.587]	Romania public debt (–1)	1.068 [8.778]	–0.782 [–2.996]
Poland public debt (–2)	–0.109 [–0.590]	–0.084 [–0.654]	Romania public debt (–2)	0.065 [0.340]	0.386 [1.015]
Poland public debt (–3)	0.176 [0.915]	0.189 [1.448]	Romania public debt (–3)	0.131 [0.704]	0.027 [0.015]
Poland public debt (–4)	–0.075 [–0.550]	–0.360 [–3.642]	Romania public debt (–4)	–0.282 [–2.223]	0.374 [1.384]

Table 3, cont.

Poland GDP (–1)	0.052 [0.314]	0.237 [2.336]	Romania GDP (–1)	0.034 [1.192]	0.099 [1.61]
Poland GDP (–2)	–0.104 [–0.796]	0.019 [0.164]	Romania GDP (–2)	0.038 [1.25533]	–0.009 [–0.146]
Poland GDP (–3)	–0.026 [–0.191]	–0.180 [–1.908]	Romania GDP (–3)	–0.066 [–2.245]	0.038 [0.621]
Poland GDP (–4)	0.119 [0.893]	0.767 [8.154]	Romania GDP (–4)	0.0454 [1.507]	0.931 [14.607]
Specification	Slovakia public debt	Slovakia GDP	Specification	Slovenia public debt	Slovenia GDP
Slovakia public debt (–1)	0.900 [6.928]	–0.033 [–0.353]	Slovenia public debt (–1)	0.943 [6.573]	–0.016 [–0.307]
Slovakia public debt (–2)	0.223 [1.285]	–0.126 [–0.995]	Slovenia public debt (–2)	0.390 [2.029]	–0.020862 [–0.29089]
Slovakia public debt (–3)	–0.058 [–0.320]	–0.089 [–0.690]	Slovenia public debt (–3)	–0.199 [–1.034]	–0.024 [–0.334]
Slovakia public debt (–4)	–0.120 [–0.989]	0.207 [2.343]	Slovenia public debt (–4)	–0.148 [–1.042]	0.073 [1.378]
Slovakia GDP (–1)	–0.287 [–1.938]	0.532 [4.921]	Slovenia GDP (–1)	–0.151 [–0.599]	0.238 [2.544]
Slovakia GDP (–2)	0.320 [1.892]	–0.227 [–1.837]	Slovenia GDP (–2)	0.385 [1.497]	0.007 [0.068]
Slovakia GDP (–3)	0.1919 [1.093]	0.1709 [1.336]	Slovenia GDP (–3)	0.338 [1.266]	–0.115 [–1.152]
Slovakia GDP (–4)	–0.090 [–0.537]	0.606 [4.988]	Slovenia GDP (–4)	–0.445 [–1.828]	0.795 [8.752]
Specification	Hungary public debt	Hungary GDP			
Hungary public debt (–1)	0.679 [5.747]	0.278 [3.583]			
Hungary public debt (–2)	0.095 [0.619]	0.0132 [0.129]			
Hungary public debt (–3)	–0.316 [–2.104]	–0.205 [–2.085]			
Hungary public debt (–4)	0.421 [3.430]	–0.064 [–0.794]			
Hungary GDP (–1)	0.230 [1.979]	0.217 [2.426]			
Hungary GDP (–2)	0.115 [1.336]	0.071 [0.634]			
Hungary GDP (–3)	0.104 [0.816]	–0.188 [–2.069]			
Hungary GDP (–4)	–0.183 [–1.151]	0.744 [9.051]			

First line – parameter value, Student’s T [], delay (), statistically significant parameters – gray (significance level – $\alpha = 0.05$).

Source: calculations and authors’ own study using the Eviews program.

With the VECM estimation of model parameters it was observed that the level of GDP depends on the level of public debt in the following countries: Croatia, Cyprus, Czech Republic, Lithuania, Latvia, Malta, Poland, Romania, Slovakia and Hungary.

In order to characterize the correlation between the level of public debt and GDP, the Granger causality analysis was used. The results of the Granger causality test, presented in Table 4, indicated the impact of public debt on the GDP level in countries such as

Table 4. The Granger causality test results.

Specification	Croatia GDP	Cyprus GDP	Czech Republic GDP	Lithuania GDP	Latvia GDP
Croatia public debt	← 0.1574 → 0.0395				
Cyprus public debt		← 0.6305 → 0.5498			
Czech Republic public debt			← 0.2361 → 0.0162		
Lithuania public debt				← 0.0579 → 0.0257	
Latvia public debt					← 0.0416 → 0.2838
Specification	Malta GDP	Poland GDP	Romania GDP	Slovakia GDP	Hungary GDP
Malta public debt	← 0.1680 → 0.0072				
Poland public debt		← 0.8013 → 3.E-08			
Romania public debt			← 0.0049 → 0.0030		
Slovakia public debt				← 0.0323 → 0.2520	
Hungary public debt					← 0.0108 → 4.E-07

Source: calculations and authors' own study using the Eviews program.

Croatia, the Czech Republic, Lithuania, Malta, Poland, Romania and Hungary.

In the table above, the p -value for the relevant statistic is given, while arrows (\rightarrow) indicate the directions of Granger causality. It should be pointed out that the obtained results are inconclusive, as a causal relationship between public debt and GDP was not found in every case. This can be the result of many factors that influence the development of public debt and GDP, which suggests the legitimacy of continuing research on the subject in order to make the obtained results more detailed. As previously noted, the estimation of the VECM model parameters made it possible to observe the impact of the level of public debt on GDP in the following countries: Croatia, Cyprus, Czech Republic, Lithuania, Latvia, Malta, Poland, Romania, Slovakia and Hungary, while with the Granger causality test in: Croatia, Czech Republic, Lithuania, Malta, Poland, Romania and Hungary. When analyzing the obtained model results, two-way and negative relationships between public debt and GDP were sometimes observed, which may indicate a non-linear relationship between debt and economic growth [Moore 2008].

SUMMARY

To assess the relationship between the level of public debt and economic growth, econometric methods were used, namely the Vector Error Correction Model (VECM) and the Granger causality test. The estimation of the model parameters confirmed the theoretical impact of the public debt level on economic growth in countries such as Croatia, Cyprus, the Czech Republic, Lithuania, Latvia, Malta, Poland, Romania, Slovakia and Hungary. The Granger causality test also indicated that the level of public debt is a cause of economic growth in the Granger sense in selected countries, namely in: Croatia, the Czech Republic, Lithuania, Malta, Poland, Romania and Hungary. It should be noted that the obtained results are ambiguous, as a causal relationship between public debt and economic growth was not found in every case.

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ZALEŻNOŚĆ MIĘDZY POZIOMEM DŁUGU PUBLICZNEGO A WZROSTEM GOSPODARCZYM W WYBRANYCH KRAJACH UNII EUROPEJSKIEJ

STRESZCZENIE

Związek między długiem publicznym a wzrostem gospodarczym charakteryzuje się rosnącym zainteresowaniem zarówno środowiska naukowego, jak i decydentów. Należy wspomnieć, że korelacja pomiędzy wskazanymi zmiennymi jest zjawiskiem złożonym, a jednocześnie bardzo ważna dla decydentów. Głównym celem artykułu była identyfikacja współzależności pomiędzy poziomem długu publicznego a poziomem wzrostu gospodarczego w wybranych krajach Unii Europejskiej. Głównym celem artykułu jest empiryczne badanie mechanizmu transmisji wpływu długu publicznego na wzrost gospodarczy w krajach, które przystąpiły do Unii Europejskiej w 2004 roku i później. Zakres czasowy analiz obejmował lata 2000–2019. Estymacja parametrów modelu potwierdziła teoretyczny wpływ poziomu długu publicznego na wzrost gospodarczy tylko w niektórych krajach.

Słowa kluczowe: dług publiczny, wzrost gospodarczy, transmisja, asymetria, współzależność