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Olsztyn Economic Journal 3/2, 181-195

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2008

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## **PUBLIC SPENDING AND THE ECONOMIC GROWTH RATE IN THE EUROPEAN UNION COUNTRIES**

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Key words: public spending, economic growth, European Union, GDP.

### **Abstract**

The aim of this study is to make an assessment of the relationship between the total amount of public spending and the economic growth rate. According to the study results, an increase in total amount of public spending (expressed as % of GDP) brings about a decrease in the real gross domestic product. An analysis of the public spending in selected EU countries in the period from 1996 to 2005, measured as its percentage of GDP, reveals its relationship with a change in real GDP value. The relationship is negative, which means that a 1% increase in public spending is accompanied by an average decrease in the real GDP growth rate by 0.151312%. The actual GDP growth rate differs from that estimated by the model by  $\pm 0.13823\%$ .

## **WYDATKI PUBLICZNE A TEMPO WZROSTU GOSPODARCZEGO W KRAJACH UNII EUROPEJSKIEJ**

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Słowa kluczowe: wydatki publiczne, wzrost gospodarczy, Unia Europejska, PKB.

### **Abstract**

Celem opracowania jest ocena zależności między ogólną wielkością wydatków a tempem wzrostu gospodarczego. Badania wykazały, że wzrost całkowitych wydatków publicznych (wyrażonych jako %PKB) wpływa na spadek realnego produktu krajowego brutto. Przeanalizowane wydatki publiczne wybranych krajów członkowskich Unii Europejskiej w okresie 1996–2005, mierzone udziałem procentowym w PKB, zależą od procentowej zmiany realnego produktu krajowego brutto. Zależność ta jest negatywna, co oznacza, że wraz ze wzrostem wydatków publicznych o 1% tempo zmian realnego PKB maleje przeciętnie o 0,151312%. Dane rzeczywiste tempa zmian realnego PKB różnią się od oszacowanych o  $\pm 0,13823\%$ .

## Introduction

Economic growth is the foundation for improvement of living conditions and for general welfare, as well as one of the necessary conditions for the progress of civilisation. Owing to all this, economic growth has become one of the key objectives of economic policy of all EU countries. One of the factors which leads to economic growth is an active fiscal policy in which public spending plays a special role.

The aim of this study is to assess the relationships (connection) between the amount (level) of public spending and the economic growth rate. Such an assessment can provide the basis for a more general postulate on the role of public spending in economic growth of EU countries.

The paper presents the following research hypothesis: there is a negative relationship between the amount of public spending and the economic growth rate, i.e. the lower the level of spending, the higher the growth rate. Hence the question: what should be the level of spending be for the economy to be best stimulated for growth?

## Subject, scope and method of research

The study covered the overall level of public spending, expressed as the percentage of gross domestic product in an annual perspective. Public spending is understood to denote monies spent from the national budget and from local budgets. The study included a group of 15 member states from the “old EU”. The purpose was to make such selection of countries which would ensure full comparability of methods of public spending calculation, not only from the formal perspective (*ex post* calculation comparison), but also taking into account the current situation<sup>1</sup>. Such conditions did not appear in the group of 15 EU states until 1996, i.e. after the Community was expanded by Austria, Finland and Sweden. Hence, the study covered the period from 1996 to 2005.

The study used the growth rate of the real GDP as the measure which can be used to express the country’s economic growth rate and to compare the economic growth rate in different countries. The data on the level of spending and the GDP change rate were obtained from Eurostat – Statistical Office of the European Communities. In this study, basic statistical measures were employed, i.e. correlation coefficients which can be used in preliminary analysis, and an econometric model which was used to present the basic links between economic phenomena.

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<sup>1</sup> As late as in mid-2007 Poland was in dispute with the European Commission about including – or not – the costs related to open pension funds in public spending.

Statistical analysis was performed with the use of Pearson's linear correlation coefficient and Spearman's rank correlation coefficient, which determine the level and tendency of linear relationship between random variables. The process of understanding reality with econometric methods in this study consists in selecting explaining and explained variables, gathering and arranging data, creating a linear model, statistical estimation of the model based on the observation results and in practical application of the model in an analysis of the contemplated economic phenomena<sup>2</sup>.

### **Selected elements of the theory of spending**

There are several premises from which ineffectiveness of a high level of government spending arises (GWARTNEY, HOLCOMBE, LAWSON 1998, p. 168–169):

**The public sector is less effective than the private sector.** In its actions, the government does not see maximisation of profit as its main goal, as the private sector does, nor does it act according to the market principles, which make a private entrepreneur strive to improve product quality, to seek innovativeness, to conduct research and make investments, owing to which the private sector accelerates technological and economic progress.

**A high level of spending requires high taxes and assuming debts, which encumbers the whole economy.** The government derives its income mainly from taxes and by assuming debts. Taxes encumber individuals' and legal persons' budgets, which reduces their investment outlays or savings which, in turn, adversely affects the GDP growth in a country.

**An increase in public spending which goes beyond the basic government functions results in ineffective redistribution of income.** Government spends public money in the less effective branches of the economy, such as agriculture, mining, etc. Subsidies cause their beneficiaries to act ineffectively as they, e.g. farmers, count on more public money rather than develop their production capacity. The same refers to tax relief and exemptions. Due to excessive and ineffective subsidies or poorly-allotted tax relief, public resources are transferred from the wealth-creating areas to those which do not make full use of their potential.

There are two general principles of the effect that the amount of public spending has on economic growth (SCHAEFER 2006, p. 1):

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<sup>2</sup> In the part referring to statistical analysis, elements of the following work have been used: D. Roman 2007. *Wydatki publiczne a tempo wzrostu gospodarczego*, manuscript at KM WNE UWM Olsztyn.

- a certain amount of public spending is necessary to support the basic social, legal and economic structures of the economy,
- excessive public spending transfers resources from the private sector, thereby inhibiting economic growth.

Between the two principles there is a vast area of diverse and varied effects. It is vital that the cost of the state activities not to exceed the benefits. This refers to the “dead weight loss” concept, used by economists to determine the economic loss caused by ineffectiveness of state-financed projects (SCHAEFER 2006, p. 1).

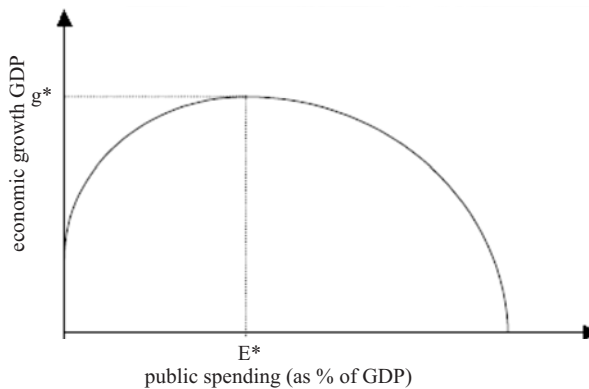


Fig. 1. Public spending vs. economic growth. Armey curve

Source: PEVCIN (2004, p. 4).

The concept of the optimum amount of public spending has been popularised by ARMEY (1995), who created **Armey curve**. He claimed that lack of government intervention in the economy would provoke anarchy and the level of production would be low as there would be no law or protection of property rights. Consequently, there would be no motivation for saving or investing for fear of forfeiture. Conversely, if all the decisions in a country were taken by the government, the production output would also be low. The most effective is a market economy with a low level of government intervention. In each economy there is some amount of public spending (point  $E^*$  in Fig. 1); an excess results in a decrease in productivity of state-financed projects and in encumbering the society by taxes and national debts. At this level, the marginal benefit from public spending is equal to zero (PEVCIN 2004, p. 4). The shape of Armey curve is that of a reversed square function; it is described by the following formula (PEVCIN 2004, p. 6):

$$\Delta PKB_{it} = \beta_1 + \beta_2 SPENDING_{it} + \beta_3 SPENDING_{it}^2 + u_{it}$$

$$\text{for } \beta_1 \in R, \beta_2 \in R_+, \beta_3 \in R_-,$$

where:

- $\Delta PKB_{it}$  – explained variable – the annual change rate of the real gross domestic product, for country  $i$  in the year  $t$ ,  
 $SPENDING_{it}$  – explaining variable – the level of total public spending, expressed as percent of GDP for country  $i$  in the year  $t$ ,  
 $i$  – Belgium, Denmark, ..., Italy,  
 $t$  – 1996, 1997, ..., 2005,  
 $\beta_1, \beta_2, \beta_3$  – unknown parameters,  
 $u_{it}$  – random component

Parameter  $\beta_2$  is a positive real number and it reflects a positive effect of a low level of public spending on economic growth. Whereas parameter  $\beta_3$  is a negative real number and it reflects a negative effect of a high level of public spending. When the values of parameters  $\beta_1, \beta_2$  and  $\beta_3$  are known, it is possible to calculate the amount of public spending, measured as its share in GDP, for which the real GDP growth is the highest (PEVCIN 2004, p. 6).

The subject of economic growth and its determinants is a very interesting part of macroeconomics. One of its particularly interesting factors is public spending, whose effect on GDP has been examined by many people and teams and the results they have achieved are apparently ambiguous. Table 1 contains various results of studies in the field, where: G – denotes the total amount of public spending; GC – public spending on consumer/non-productive goods; GI – investment/productive spending; I – total investment.

Table 1  
Results of studies into the effect of the level and structure of public spending on economic growth

Author	Subject of the study	Explaining variables	Main results of the effect that the explaining variables have on GDP growth
1	2	3	4
LANDAU (1983)	27 LDC	Categories of G	GC has a negative effect on GDP.
KORMENDI and MEGUIRE (1985)	47 countries	GC	GC does not affect GDP.
LANDAU (1986) Cross-section	65 LDC in the years 1960–80	Total G and spending by type	GC and GI have a significant negative effect. The effect of spending on education is very small.
RAM (1986)	115 countries in the years 1960–80	GC	GC has a negative effect.

cont. table 1

1	2	3	4
GRIER and TULLOCK (1989)	113 countries in the years 1951–80	GC	GC has a considerable negative effect, but it is positive for Asian countries.
ROMER (1990)	112 countries in the years 1960–85	G, CG, GI and human resources	GC has a negative effect, while the effect of GI is positive.
ALEKSANDER (1990)	13 OECD countries in the years 1995–84	GC, GI	GC has a negative effect on economic growth.
BARRO (1991)	98 countries in the years 1960–85	GC	GC has a negative effect on economic growth.
DEVARAJAN (1993)	14 OECD countries in the years 1970–90	G according to functional division (health care, education, transport, etc.)	Spending on health care and infrastructure have a positive effect on economic growth; spending on education and national defence have a negative effect.
EASTERLY and REBELLIO (1993)	100 ADC and LDC in the years 1970–88	G, GC, GI, and all other types of G as well as taxes and human resources	GI has a negative effect and GC has a negative effect, but GC, like infrastructure spending, has a positive effect in private investment.
LIN (1994)	62 ADC and LDC countries in the years 1960–85	I, G	In ADC countries, G does not have a significant effect; in LDC countries the effect is positive.
HANSON and HENREKSON (1994)	14 OECD countries in the years 1970–87	G, GC, GI, education sending, transfers	Transfers and G have a negative effect, the effect for education spending is positive, GI does not have a significant effect on economic growth.
DEVARAJAN (1996)	43 LDC countries in the years 1970–90	GC, GI and G according to functional division	The effect of GC is positive, that of GI – negative.
KELLER (1998)	22 OECD countries in the years 1970–95	GI, GC	GI consolidate growth, GC have a negative effect.
DUNNE and NIKOLAIDOU (1999)	Greece in the years 1960–96	Military and national defence spending, GC	Military and national defence spending has a negative effect, GC does not affect economic growth.
BATCHELOR (1999)	South Africa in the years 1964–95	Military spending	Military spending has a negative effect.
TANNIEN (1999)	52 countries in the years 1970–92	I, categories of G	GC has a negative effect. Spending on public goods hamper growth when G is high, national security spending has a positive effect.
FÖLSTER and HENREKSON (1999)	23 OECD countries in the years 1970–95	G	G has a significantly negative effect on economic growth.

Source: KWEKA, MORRISSEY (2000, p. 4-5).

The studies presented in Table 1 indicate that the effect of public spending and particular types of spending on GDP growth may vary. A negative effect of public spending increase was recorded in 56% of the presented studies; it was positive in 32%, while 12% of the studies indicate that there is no link between the examined variables.

This apparent discrepancy of results may mean that in the countries under study, where the effect on GDP was positive, the level of spending was below the optimum point on Armey curve. In the countries where the effect was negative, the level of public spending exceeded the optimum amount for those countries. The optimum level is different for each country, therefore the GDP growth rate may increase in one country and it may decrease in another with the same level of public spending; the summary examination may show a lack of correlation in the examined variables.

### **The level of public spending and economic growth in the EU countries**

In the 15 EU countries, the public spending decreased by 2.1 percentage points on average. However, there were 4 countries in the group where the share of public spending in GDP was shown to have increased. The highest growth was observed in Portugal – by 5.1 percentage points, in Luxembourg by 3.1 and in Greece and in the UK by 2.6 and 1.6 points, respectively. It seems to be difficult to find common features which would justify such actions of governments and parliaments. But it appears that in all the four countries the level of public spending was very low as early as 1996; together with Ireland and Spain they made up a group in which the level did not exceed 45% of GDP. A real increase in spending was only observed in the countries where its level was the lowest in 1996.

The largest decrease in public spending was observed in three countries which in 1996 had the highest share of public spending in GDP. Finland reduced its level of spending by 8.7 percentage points (from 58.8% of GDP in 1996 to 50.1% of GDP in 2005), Sweden – by 8.2 points (from 64.8% of GDP in 1996) and Denmark – by 6.2 (from 59.3% of GDP in 1996). It is noteworthy that there are two countries in the group for which it was also the first year of their EU membership (Finland and Sweden). The third country in the group, whose membership began in 1996 – Austria – also recorded a large decrease in public spending: from 54.1% of GDP in 1996 to 49.9% of GDP in 2005, that is by 4.2 percentage points. In 1996, public spending was reduced not only in those countries where its level had been high. A relatively large decrease was recorded in Ireland – by 5.5 points – and in Spain – by 3.5 points – that is in two



countries which in 1996 were already among the countries with the lowest level of public spending.

Table 2  
Public spending and the economic growth rate in 15 EU countries

Year	Annual average level of spending as the percentage of GDP	Annual average economic growth rate in the 15 EU countries (GDP, %)
1996	49.6	2.6
1997	48.4	4.0
1998	48.0	4.0
1999	47.3	4.3
2000	45.9	4.7
2001	46.4	2.3
2002	47.1	1.8
2003	47.7	1.5
2004	47.5	2.7
2005	47.2	2.3
EU countries on average 1996–2005	47.5	3.0

Source: The author's analysis based on data from Eurostat.

Undoubtedly, the results show a relationship between a level of public spending and the GDP level in a given year in a given country; hence, the changes may have been a reason of faster or slower GDP growth. This opinion may be supported by some data from Table 2. Taking into account the average level of spending for all the countries, it appears that it was the lowest (45.9% of GDP) in 2000, that is in the same year when the economic growth rate was recorded to be the highest – by 4.7% of GDP. However, this does not mean only real changes in public spending – nominal changes are also possible. Which may be indicated, for example, by a comparison of the first and the last three years included in the study. In the first period (the years 1996–1998) the average annual level of spending was about 48.7% of GDP, with the average annual growth rate equalling 3.5% of GDP. The same values for the last three years included in the study (2003–2005) are: spending – 47.5% of GDP, economic growth rate – 2.2% of GDP. Therefore, an average decrease in the spending with simultaneous decrease in the economic growth rate is observed, which may mean not only real, but also a nominal decrease in public spending.

Apart from the distinct decrease in the real level of public spending, it should be stressed that its unification in the countries included in the study is clearly observable. The distance between the extreme countries may have still

been considerably great in 2005 (22.5 percentage points), but it was lower than the difference in 1996, which was then equal to 25.2 points. On the one hand, the influence of the European Union on efforts to decrease the level of public spending is obvious (Austria, Finland, Denmark and Sweden), on the other, these are autonomous decisions taken by the governments and parliaments in such countries, as Ireland and Spain. From the perspective of this study, the progressive unification of public spending restricts the area of observation, leaving outside the scope of analysis the cases below 35% of GDP and those over 60% of GDP.

Economic growth as an increase in the real gross domestic product has been observed in all the countries included in the study. The mean value for all the countries in the period was close to 3% annually. The highest annual average growth was recorded in Ireland – 7.8%. Among the countries with the lowest growth rate values were Germany – 0.9% and Italy – 1.3%. A general analysis of GDP growth in subsequent years has shown that the period covered by the study saw progressive unification also in this field; however, the relationship with the economic cycle is more easily observable. The data in Table 2 show that initially (before 2000) the growth rate accelerated, which was followed by a significant slow-down in GDP growth rate in 3 subsequent years and unstable growth in the last two years – by 2.7% and by 2.3%.

### **The effect of public spending on the economic growth rate**

The study of a relationship between the level of public spending and the economic growth rate was begun with a simple tabular method. Table 3 contains data which indicate the connection between a real public spending level and the economic growth rate. The figures in the table provide grounds for certain conclusions. The most characteristic relationship seems the one between a low level of public spending (below 45% of GDP) and the highest economic growth rate (4.2% GDP). An increase in public spending in turn reduces the growth rate, but the relationship does not seem to be non-linear. It should be clearly underlined that in both groups with a higher level of public spending, the annual economic growth rate is similar and equals 2.2% of GDP and 2.3% of GDP.

The analysis indicates that the relationship is close to linear. This may have several reasons, the most important of them probably being a relatively small area of differentiation of public spending, which makes it impossible to fully map the Armey curve. But the observation can be located in a section of the curve. The section is close to a straight line, which indicates that an increase in public spending is accompanied by a decrease in the economic growth rate.

Table 3

The effect of public spending on the real economic growth rate in 15 EU countries  
in the years 1996–2005

Annual average level of public spending (as % of GDP)		Number of countries	Annual average GDP growth rate (%)
Interval	average level of spending in the group		
Below 45%	40.1	5	4.2
45% – 55%	47.7	4	2.2
Over 55%	53.5	6	2.3
Average in the EU	47.5	15	3.0

Source: The author's study.

On the other hand, however, one should be warned against drawing too unambiguous and general conclusions. Studies only confirm the relationships that are present in the 15 EU countries in 1996–2005. The analysed set of data is not so large and the period covered by the study could have been longer too. In addition, due to their EU membership, the countries are being progressively more and more unified, hence the area of differentiation of real public spending is decreasing. In none of the countries is it either lower than 35% or higher than 65%. All the individual observations made over the period of 10 years indicate that as many as 60% lie within a smaller interval between 45% and 55% of GDP. All these reservations and conditions include justification of the further procedures of the presented studies.

### **Analysis of the correlation between the real GDP growth rate and the level of public spending**

An analysis of correlation has been performed with the two basic statistic coefficients: Pearson's correlation coefficient and Spearman's rank correlation coefficient.

The following is the formula for Pearson's correlation coefficient (PAWŁOWSKI 1969, p. 23):

$$r_{xy} = \frac{\text{cov}(x,y)}{s_x s_y} = \frac{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2} \sqrt{\frac{1}{n} \sum_{i=1}^n (y_i - \bar{y})^2}}$$

where:

- $x$  – level of public spending in 15 EU countries in the years 1996–2005,
- $y$  – the real GDP growth rate in 15 EU countries in the years 1996–2005,
- $n$  – sample size,
- $\text{cov}(x,y)$  – covariance (co-variability between  $x$  and  $y$ ),
- $s_x, s_y,$  – standard deviations of variable  $x$  and  $y$ .

The correlation coefficient of the examined variables is equal to -0.4664 and lies within the range [-1, 1], which means that there is a correlation between the variables. The coefficient is negative, which means that in the 15 EU countries during the period under study, an increase in the level of public spending negatively affected the real GDP growth rate.

*Spearman's rank correlation coefficient* is used to describe the correlation strength of two features if the features are measurable, and the examined population is small and when the features are qualitative and they can be arranged in an order.

The following is the formula for the rank correlation coefficient (PAWŁOWSKI 1969, p. 36):

$$r = 1 - \frac{6 \sum_{i=1}^n d_i^2}{n(n^2 - 1)}$$

where:

- $d_i$  – differences between the ranks of corresponding values of the variables,
- $n$  – sample size.

The correlation coefficient of the examined variables is equal to -0.354306 and lies within the interval [-1, 1], which means that there is a correlation between the variables, although the correlation is not exact, as the coefficient is closer to 0 than to -1. The coefficient is negative, which also confirms the negative effect of public spending on the real GDP growth rate in 15 EU countries in the years 1996–2005.

### **The econometric model**

The model was developed with the statistical program by the name of GRETL, created by Allin Cottrell, Wake Forest University, North Carolina, USA. The program – an econometric software pack – has been under develop-

ment for several years. It is a GNU-licensed program, with free access for all users.

A linear relationship model was developed:

$$\Delta PKB_{it} = \beta_1 + \beta_2 WYDATKI_{it} + u_{it}$$

where:

- $\Delta PKB_{it}$  – explained variable – the annual change rate of the real gross domestic product, expressed in percent for country  $i$  in the year  $t$ ,
- $SPENDING_{it}$  – explaining variable – the level of total public spending, expressed as percent of GDP for country  $i$  in the year  $t$ ,
- $i$  – Belgium, Denmark, ..., Italy,
- $t$  – 1996, 1997, ..., 2005,
- $\beta_1, \beta_2$  – unknown parameters
- $u_{it}$  – random component

The model parameters were estimated by the classic least square method with the use of data presented in Table 2 and 3, using 150 observations, from 1 to 150.

Printout of the model estimation

Table 4

Variable	Parameter	Standard deviation	Statistics t	Value of p
Const	10.2019	1.13141	9.017	< 0.00001
WYDATKI	-0.151312	0.0235907	-6.414	<0.00001
Arithmetic mean of the dependent variable = 3.01333				
Standard deviation of the dependent variable = 0.13823				
Sum of squares of remainders = 533.057				
Standard deviation of remainders = 1.89782				
Determination coefficient R-square = 0.59899				

Source: The author's own study.

In the estimated form, the model has the following form:

$$\Delta PKB_{it} = 10.2019 - 0.151312 SPENDING_{it}$$

(1.13141) (0.0235907)

The model is well-fitted to reality. The theoretical values of GDP growth rates in selected EU countries differ from the actual values by 0.13823% on

average, which accounts for 4.58% of the average GDP growth rate in 15 EU countries during the period under study.

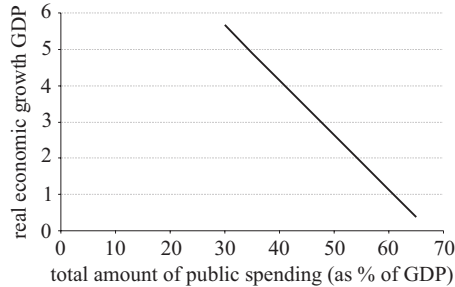


Fig. 2. The relationship  $\Delta PKB_{it} = 10,2019 - 0,151312 WYDATKI_{it}$   
Source: The author's own study.

Figure 2 shows a linear relationship of the effect of total public spending – measured as the percent share in the GDP – on the annual real growth rate of the gross domestic product in 15 EU countries in the years 1996–2005. The relationship is expressed by the formula  $\Delta PKB_{it} = 10,2019 - 0,151312 SPENDING_{it}$ , where the value of parameter at  $SPENDING_{it}$  (-0.151312) informs, that **an increase in the level of public spending by 1% corresponds to a decrease in the real GDP growth rate by 0.151312% on average**. The estimated model confirms the hypothesis of a negative effect of an increase in public spending on the real GDP growth rate in 15 countries of the European Union.

## Summary and conclusions

The study shows that an increase in the real level of public spending in 15 EU countries reduced the real gross domestic product growth rate. However, the relationship between the contemplated economic phenomena is not like a reversed letter U. Conversely, it is more similar to a straight line.

1. The studies into the effect of public spending on the gross domestic product growth rate have produced conclusions that may seem contradictory, or even mutually exclusive. They mainly indicate that there is a negative relationship, i.e. an increase in the level of public spending reduces the GDP growth rate. However, some of the studies have led to quite an opposite conclusion, i.e. that an increase in the level of public spending results in an increase in the GDP growth rate. Few of the studies have concluded that there is no cause-effect relationship. Such discrepancies may mean that in the

countries where increasing the level of spending positively affects the GDP growth rate, its level so far has been below the optimum point on the Armey curve. On the other hand, where the effect was negative, the level of public spending could exceed the optimum values for the given group of countries. The third group includes the countries where the current level of spending is close to the optimum.

2. The overall level of public spending in the EU countries may vary, but the majority lies within the interval from 45 to 55% of GDP. The study has shown further restriction (unification) of this, relatively small, area. One should not think that those were the autonomous decisions of governments and parliaments of the countries – among other factors, the changes have been caused by the influence of the European Union. The examples of Finland, Denmark, Austria and Sweden reveal the distinct role of the European Community in reducing public spending, whereas in Spain and Ireland, the process has resulted from a conscious decision of their governments and parliaments.

3. The economic growth rate in the EU countries coincides with the course of the economic cycle. Hence, it is relatively high for the years 1997–2000 and distinctly lower for the three subsequent years (2001–2003). In the last two years covered by the study (2004–2005), the growth returned, but it was unstable. Another feature is progressive unification, which means that the EU countries are within an increasingly narrow interval in terms of their GDP growth rate values.

4. The study found that the relationship between the level of public spending and the economic growth rate in the 15 EU countries is close to linear. This is justified by a narrow field of observation, covering a relatively small range of the public spending level, a short period of study and a small number of countries. The study also found that an increase in the public spending level is accompanied by a decrease in the real GDP growth rate by 0.151312% on average. The actual growth rate of the real GDP differ from those estimated by the model by  $\pm 0.13823\%$ . The most effective countries in terms of the GDP growth rate were those countries in which the level of public spending was the lowest. In the examined population the level is close to 40% of GDP.

5. This study has provided important contribution for justification of fiscal criteria of convergence, defined in the Maastricht Treaty. Establishing the lowest acceptable level of the public finance deficit at 3% of GDP is aimed at maintaining the economic stability not only in the particular member states, but across the entire European Community. Observance of such criteria will be achieved by streamlining – i.e. relative reduction – of public spending. In consequence, the economic policy achieves two goals: the economic stability is

maintained and the economic growth rate increases. Efforts should be made to achieve both goals for each of the member states and for the entire European Union as an economic community.

Translated by JOANNA JENSEN

Accepted for print 27.04.2008

## Reference

- GWARTNEY J., HOLCOMBE R., LAWSON R. 1998. *The Scope of Government and Wealth of Nations*. Cato Journal, 18(2): 163-190.
- KWEKA J.P., MORRISSEY O. 2000. *Government Spending and Economic Growth In Tanzania, 1965-1996*. 2000. Credit, Nottingham, 00/6.
- PAWŁOWSKI Z. 1969. *Ekonometria*. PWE, Warszawa.
- Przegląd wymogów w zakresie statystyki ogólnogospodarczej. 2004. COFOG.
- PEVCIN P. 2004. *Does optimal size of government spending exist?* University of Ljubljana.
- ROMAN D. 2007. *Wydatki publiczne a tempo wzrostu gospodarczego*. Maszynopis w KM WNE UWM Olsztyn.
- SCHAEFER B.D. 2006. *How the Scope of Government Shapes the Wealth of Nations*. Heritage Foundation, Washington, 925.
- [http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid=1090,30070682,1090\\_30298591&\\_dad=portal&\\_schema=PORTAL](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_30298591&_dad=portal&_schema=PORTAL)
- <http://www.oecd.org/dataoecd/18/0/2666146.pdf>