Eva Ivanova¹, Sergej Vojtovic² MACROECONOMIC ANALYSIS OF INDICATORS OF ECONOMIC FREEDOM, ECONOMIC SENTIMENT AND GDP: SLOVAKIA CASE STUDY

The study deals with the analysis of coherences in the indicators' development such as economic freedom, economic sentiment and GDP of Slovakia. The goal of the study is by means of time series macroeconomic analysis to identify the links between the indicators of economic freedom, economic sentiment and GDP.

Keywords: macroeconomic analysis; time series; economic freedom; economic sentiment; GDP. JEL classification: 015; 011; F10; F13.

Ева Іванова, Сергій Войтович МАКРОЕКОНОМІЧНИЙ АНАЛІЗ ІНДИКАТОРІВ ЕКОНОМІЧНОЇ СВОБОДИ, ЕКОНОМІЧНИХ НАСТРОЇВ ТА ВВП: НА ПРИКЛАДІ СЛОВАЧЧИНИ

У статті проведено аналіз співпадінь у динаміці розвитку в часі індикаторів економічної свободи, економічних настроїв та ВВП Словаччини. За допомогою аналізу часових рядів встановлено взаємозв'язок між дослідженими трьома індикаторами економічного розвитку.

Ключові слова: макроекономічний аналіз; часові ряди; економічна свобода; економічні настрої; ВВП.

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Эва Иванова, Сергей Войтович МАКРОЭКОНОМИЧЕСКИЙ АНАЛИЗ ИНДИКАТОРОВ ЭКОНОМИЧЕСКОЙ СВОБОДЫ, ЭКОНОМИЧЕСКИХ НАСТРОЕНИЙ И ВВП: НА ПРИМЕРЕ СЛОВАКИИ

В статье проведён анализ совпадений динамики развития во времени индикаторов экономической свободы, экономических настроений и ВВП Словакии. При помощи анализа временных рядов обозначена взаимосвязь между исследуемыми тремя индикаторами экономического развития.

Ключевые слова: макроэкономический анализ; временные ряды; экономическая свобода; экономические настроения; ВВП.

Introduction. Economic growth is one of general indicators for evaluation and comparison of countries' economic performance and it is the source of economic prosperity and living standards growth. Gross domestic product is as an essential indicator of economic growth. For decades of the dominating GDP indicator there has been developing research on its criticism (Stighlitz et al., 2010), as well as the construction of alternative (additional) indicators that would objectively reflect the aggregate economic and social system performance. To economic product other objective partial indicators are added in the field of education, health, environment, and also perceived happiness or satisfaction as the alternative indicators.

Because of that reason it is adequate to understand the concept of economic performance from a wider aspect, anyway the gross domestic product indicator is used to

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assess state performance in combination with other performance and social progress alternative indicators. Human development index, global competitiveness index, prosperity index, the index of economic freedom, the index of economic sentiment and others are classified among them.

The issue of economic performance based on GDP became popular in the second half of the last century, when the theories of economic growth have been accepted. The authors solved the issues related to economic growth in terms of qualitative changes in sources such as innovation (Schumpeter, 1934), technological progress (Kuznets, 1973), the importance of human capital (Lucas, 1988). More intensive economic growth started to be examined in the 1940's of when Keynesian growth models were introduced. These models assume capital accumulation, while not taking into account the effect of technological progress. Growing demand, particularly its component investment, is taken as stimulus for growth. Despite the fact that experts recently have been discussing the objectivity of GDP indicator to express economic performance of a particular country, it still remains the primary indicator to express economic prosperity of a country, but also serves for international comparisons of countries' competitiveness (Kordos, 2012).

The aim of our study is to contribute to the professional discussion in the way that on the basis of GDP indicator time series macroeconomic analysis and its comparison with alternative indicators development such as the Index of economic freedom and Economic sentiment indicator we will be assessing the links in the development.

Gross domestic product as the leading indicator of economic growth. In general, we can state that country's performance depends on the effectiveness of cooperation within 4 macroeconomic sectors, including households, firms, government sector and abroad. Those sectors are involved in country's product creation and affect both the performance of a particular state as well as its economic growth. The overall results of a particular economy can be quantified by means of parameters that globally and comprehensively characterize the status and the development of an economy as a whole or its certain part. Professional literature mentions several macroeconomic variables, despite the criticism; most authors agree that gross domestic product is the fundamental macroeconomic indicator.

Despite many criticisms having been led against the GDP for several decades, from the macroeconomic perspective it is precisely this indicator being presented as the basic one to express economic performance of a particular state. Gross domestic product best represents the performance of an economy based on the outcome of production factors located on its national territory (Masarova, 2014). The primary objective of each state is to ensure high living standards and quality of life for population. The basic factor that affects the living standards growth is GDP creation or GDP growth.

From the long-term point of view each economy usually shows a growth trend. Oscillations are occurring around this trend way be negligible in the long term. The difference between long-term growth trend and short-term fluctuations responds to distinguishing the potential and actual product (Belas et al., 2014). Potential output is the highest possible level of a real output, which can be achieved at a stable price level and the natural rate of unemployment. The problem is that statistics cannot measure potential output. It can be estimated, but GDP long-term time series (for several decades) needs to be monitored and evaluated. Short-term GDP fluctuations are affected by changes in final consumptions of household and government consumption, gross fixed capital formation and net exports. The extent to which individual factors can influence GDP development depends on the size of their share in GDP creation. In the long run these ratios do not change significantly.

Long-term economic growth is the result of both the involvement of a greater number of inputs, e.g. production factors accumulation and also more efficient use of the existing inputs, like increasing production factor productivity. Unless economic growth is achieved through the expansion of production factors, we talk about the socalled extensive growth. If it is the result of improved or better utilization of production factors, we talk about the so-called intensive growth. In reality there is a combination and overlapping between various factors of economic growth, of both extensive as intense characters (Hostak, 2013).

Labor and capital are the main sources for the growth of a potential output, so they allow long-term economic growth. There is a growth accounting to determine particular production factors contributions to long-term growth. It allows distributing the growth production on the growth of labor and capital, technological change, also called the total factors productivity (TFP). Thanks to growth accounting we can find out whether long-term economic growth in a particular country is a result of inputs' accumulation or it is resulting from their more efficient usage (Vojtovic et al., 2014).

GDP growth is an important indicator of a successfully working economy; the basis for its finding is real gross domestic product, i.e. GDP expressed in constant prices of the initial year. For international comparison, due to the objectivity of various big economies comparison, GDP per capita in USD, EUR, PKS is being used. In Table 1 and Figure 1 we can see GDP per capita development in current prices and GDP growth in Slovakia.

in Glovakia, authors 'elaboration based on the Glovak Statistical Onice data											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GDP per capita, ths EUR	8.58	9.36	10.42	11.65	12.61	11.78	12.38	13.00	13.58	13.60	13.88
GDP growth, %	5.25	6.52	8.27	10.67	5.45	-5.29	4.82	2.71	1.61	1.43	2.40

Table 1. GDP per capita development in current prices and GDP growth in Slovakia, authors' elaboration based on the Slovak Statistical Office data

In 2012–2013 all European economies have undergone their "imaginary" second recession bottom; the first substantially deeper one was the year of 2009, as reflected in the rate of economic growth. The post-crisis Slovak GDP development was found at the bottom in 2013 with the value of only 1.43%. In 2014 the situation began to change. Unfavorable development can be observed in Slovak economy at the turn of 2012/2013 when economic growth slowed significantly, but in 2014 it again accelerated and the economic growth rate reached 2.4%.

The economic growth startup been was evoked by changes in the macroeconomic environment such as:

- Much stronger growth in domestic demand, both in consumer and investment one. The increment share of domestic demand in GDP growth negative in 2012 and



2013, GDP growth was accompanied by a decrease in domestic demand, but in 2014 GDP growth is pulled by domestic demand.

- Improvement of several indicators of macroeconomic stability; supporting feature of enhanced economic growth is the improvement of several parameters of macroeconomic stability (equilibrium). In 2014 there was a drop in the unemployment rate, decline in inflation (economic recovery incompatibility fears with zero inflation have not been confirmed, the absence of inflation in Slovak economy worked upward), the government deficit was kept within tolerable limits, and a positive balance of goods and services exports and imports (net exports) was achieved.

- Improved development of employment and population income indicators is a major feature of economic development in 2014. In particular, employment growth was above expectations. In the post-crisis period, after 2009, employment growth was only weakly tied with economy performance growth, but in 2014, acceleration in economic growth was accompanied by a relatively strong increase in employment (and thus income), and not only by labor productivity growth.

- Transfer of growth into other economic sectors (as compared to the previous period). Economic growth was driven by the industries producing goods for intermediate consumption or durable consumer goods (and in both cases for the domestic market mostly). Less favorably developed were the sectors producing capital goods and non-durable consumer goods (e.g. negative sales development of food production). Sales at domestic markets were rising rapidly (this was related to already being mentioned domestic demand recovery) and sales growth from foreign markets was decreasing. This shows that the growth was no longer dependent on export growth. Domestic market and retail (domestic consumption) oriented industrial manufacturers to acquire the most from the economic growth in 2014. The development was less favorable for export-oriented manufacturers and also for the construction sector.

- In terms of total factor productivity (TFP) in the post-crisis period, capital maintains its high contribution to GDP growth, while the overall employment effect on GDP development was relatively low.

Economic growth in Slovakia is impeded by persistent administrative burden that strangles business development, by high tax burden extracting funds from productive economy and by low (mainly) commercial law enforceability (Haviernikova, 2012). These facts are reflected in the indicators' development such as: the index of economic freedom and the economic sentiment indicator. Table 2 and Figure 2 illustrate the comparison of GDP growth development in the V4 countries.



Figure 2. Comparison of GDP growth developments in V4 countries, authors' elaboration on the IMF data

To give an objective view on the economic growth in V4 we present GDP per capita in current prices.

	autions elaboration on the INF data											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014		
EU	23,200	24,500	25,800	25,900	24,300	25,300	26,000	26,500	26,600	27,400		
CZ	10,700	12,100	13,400	15,400	14,100	14,900	15,600	15,300	14,900	14,700		
HU	9,000	9,100	10,100	10,700	9,300	9,800	10,100	10,000	10,200	10,600		
PL	6,400	7,200	8,200	9,500	8,200	9,400	9,900	10,100	10,200	10,700		
SK	7,300	8,400	10,400	12,200	11,800	12,400	13,000	13,400	13,600	13,900		

Table 2. GDP per capita in current prices in V4 countries,

Index of economic freedom and economic sentiment indicator. The structure of GDP indicator does not allow us monitor all economic and social aspects of life, thus, alternative to GDP indicators are emerging. We agree with (Krajnakova and Vojtovic, 2012) that from the GDP indicator, the essence of which is to measure final production, one cannot expect that it can measure and assess all other aspects of life. Regarding more accurate and detailed assessment of society performance and wellbeing it is therefore appropriate to use a combination of several indicators that take

into account other aspects of social functioning. Professional literature suggests alternative indicators to measure economic performance, such as: net economic prosperity, true economic development, human development index, index of human suffering, economic freedom index, prosperity index, global competitiveness index, economic sentiment indicator etc.

The object of this study is to find the link between GDP development and the indicators that reflect some aspects of business environment quality, which acts synergistically with GDP creation, or express the conditions how economic product is being generated. Economic freedom index and Economic sentiment indicator are the indicators of this type.

Economic Freedom Index (EFI) aims to measure the degree of economic freedom in relation to the overall performance of an economy. A comparison results of economic freedom index with others show that prosperity of a country mostly depends on the degree of economic freedom. As F.A. Hayek Foundation stated economic freedom expresses the limit of government influence on economic subjects' decisions. In an economically free society, individuals have a guaranteed right to carry out their work and to manage their assets freely, for example, to invest and governments are supposed to create conditions for this.

Several institutions are engaged in international comparisons of economic freedom. Entitled as the Index of Economic Freedom (IEF) it is annually driven up by the US-based Heritage Foundation. Canadian Fraser Institute complies very similar ranking of countries in the field of economic freedom as the World Index of Economic Freedom.

Currently, this indicator assesses the total 179 countries by means of 10 factors. Index sorts the countries into 5 groups on the scale from 0-100, where 100 represents the complete economic freedom and 0 – complete lack of it. There are also free, moderately free and almost not free countries. When reaching 80 to 100 points a country is considered to be economically free, from 70 to 79.9 – mostly free, 60 to 69.9 – almost free, and 50 to 59.9 – a mostly not free country, 50 points and less – a country is considered as being oppressed.

This index evaluates 10 wider spheres of economic freedom, each is subdivided into several separate items. By making the average of all 10 criteria it reaches the final point score for an economy – ranging from 0 to 100. Economic freedom index compilers are based on the assumption that if institutions are protecting freedom of an individual, this has positive effect on society's prosperity growth. These 10 indicators of freedom are the following ones:

- 1. Property rights.
- 2. The rate of corruption.
- 3. Tax burden.
- 4. Government spending.
- 5. Business environment.
- 6. Labor market.
- 7. Monetary stability.
- 8. International trade.
- 9. Conditions for investment.
- 10. Financial sector.

According to the latest results Slovakia achieved economic freedom at the level of 67.2%, the value higher than the world average (60.4%). After the last year's decline Slovakia has reached above the average value of the region (67.0%). The total score of economic freedom value of our country has been improved by 0.8% yearly, that is 7 steps up in the chart. This result still has not erased yet the last year's decline of 15 steps and it still keeps Slovakia below the economic freedom level in the Eastern bloc. Slovakia's better position in the ranking is associated with the improvements in such areas as corruption, business environment and labor market but on the other hand, worse become the indicators of monetary stability and government spending. Despite this improvement, the situation in Slovakia is getting worse, since over the last 6 years Slovakia has dropped by 1.5 points. There are still reserves in such fields as weak law enforcement and corruption being present especially in healthcare and public procurement. The biggest problem in the judiciary sector is the accumulation of pending lawsuits. Slovakia is lagging behind the world average in the labor market and government spending areas. Table 3 shows the comparison of SR with Hong Kong which is considered to be the best in the longer period of time in rating (though Hong Kong and Singapore are rotating).

Table 3.	ne inde	ех от ес	conomi	c treed	iom de	velopm	ient, S	iovakia	compa	area
with Hon	g Kong	, autho	ors' elat	oration	based	on the	Heritag	e Foun	dation c	lata

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Slovakia	69.8	69.6	70.0	69.4	69.7	69.5	67.0	68.7	66.4	67.2
Hong Kong	88.6	89.9	89.7	90.0	89.7	89.7	89.9	89.3	90.1	89.6

Regarding economic freedom ranking Slovak Republic has a very fluctuating development in comparison with other V4 countries, in 2015 SR was surpassed by all V4 countries, the best values Slovakia reached in 2005–2006 (Table 4). This alternation of positive and negative phases is influenced by government policy in a particular parliamentary term (since 2004 the flat tax in Slovakia has been 19%, inheritance tax and gift tax were abolished).

SR CR HU

Table 4. V4 countries ranking in the Economic freedom index, authors' elaboration based on the Heritage Foundation data

SR - Slovakia, CR - Czech Republic, HU - Hungary, PL - Poland.

Figure 3 shows positive Economic freedom index development in Slovakia during 2004–2011. In 2005–2008 Slovakia reached the best results among the V4 countries. In 2010 Slovakia was replaced in leadership by Czechia improving its position each year during the period. In the recent years Czechia reached the highest value in the Economic freedom index ranking, in 2014 – up to 72.2%. In 2004–2013 Poland

PL

showed the worst results, but gradual improvement can be seen in the index value – from 58.1% to 67% in 2014. Hungary reached the highest index value in 2008 - 67.6%. While in 2000 the differences among the IES results in V4 countries were quite big – up to 14.8%, in 2014 they dropped to 5.8%.



Figure 3. The Economic freedom index development in V4 countries and global avert age, *comparison, authors' elaboration based on the* Heritage Foundation data

Economic sentiment indicator (ESI) is used to express the climate change and expectations in an economy. This is a composite indicator showing the current status of participants' expectations in economic environment. It is aggregated by survey results in industry, construction, retail, services and survey results on consumer opinions regarding current economic situation. The index reflects development in industry, services, retail, construction, and also that of households consumption level. The economic sentiment indicator is calculated as the weighted average of 5 confidence sub-indicators by the formula:

$$IES = a \times ICI + b \times BCI + c \times RCI + d \times SCI + e \times CCI,$$
(1)

wherein *a*, *b*, *c*, *d*, *e* are the weights; *ICI* is the confidence indicator in industry with the weight of 40%; *BCI* is the confidence indicator in construction with the weight of 5%; *RCI* is the confidence indicator in trade with the weighted of 5%; *SCI* is the confidence indicator in services with the weight of 30%; *CCI* is the confidence indicator in consumption with the weight of 20%.

The calculated values are converted into an index form for the basic period. Indicator is published as three-month moving average. Indicator's values can be found in the databases of European Commission and Slovak Statistical Office. In the first part of 2015 most components of this summary indicator showed more favorable development results than in the same period of the previous year. This has been presented as an increased confidence in economy (particularly significant is the difference in construction or consumer confidence). It expresses more favorable development of expectations in the short term. Consumer confidence is related to the employment growth in 2014 and 2015, which was reflected in income and consump-

tion growth, but also in inflation decline. The index reflects the development in industry, services, retail, construction, and also household consumption. Table 5 shows the value of Economic sentiment indicator in 2015.

Indicator		2015 (month)											
Indicator	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.		
ESI and its components	103.7	102.4	101.6	101.8	101.3	101.2	99.2	99.1	99.0	101.7	100.3		
A confidence indicator in industry	2.3	6.0	0.3	6.3	0.0	4.3	-0.7	4.7	0.7	7.3	-3.7		
in construction	-17.5	-19.0	-16.0	-13.0	-9.0	-8.0	-5.0	-9.5	-3.0	2.0	-1.0		
in retail	14.3	15.7	13.3	14.7	15.7	14.7	17.0	15.0	12.0	10.0	9.0		
in services	11.0	7.3	7.7	7.7	16.0	5.7	2.0	7.3	8.3	13.3	0.7		
consumers' confidence	-7.3	-6.1	-6.8	-8.5	-17.9	-15.4	-18.4	-15.4	-14.8	-9.9	-11.8		

Table 5. Economic sentiment indicator, 2015, authors' elaboration on the National Bank of Slovakia data

In November 2015 the Economic sentiment indicator of Slovakia has shown corrections in excessive optimism from the previous month by 7.2 points up to 96.6. The confidence dropped in all indicator components. The sharpest fall was recorded in the services sector especially because of entrepreneurs' dissatisfaction with the demand development in services.

As compared to the average in the entire third quarter the average value of this indicator in two months of the last quarter is above the long-term average. Despite the November sentiment correction Slovak economy growth rate would not has slowed down at the end of the year. Employers' plans regarding recruitment have changed in all the sectors, except services. The economic sentiment indicator in longer time series is shown in Figure 4.



Figure 4. Economic sentiment indicator (Slovak Statistical Office)

In Figure 4 we can observe the fluctuating IES development during this period. The IES decrease to the level of 93% was recorded in July 1999, caused mainly by the decrease in the construction confidence indicator and consumer confidence indica-

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tor. In May 2009 IES showed much more significant decline - down to 71.9%, when the indicator of confidence in industry, trade, services and consumer confidence indicator reached very low levels. Relatively low index values were also found in 2012–2014. Overall, the Economic sentiment indicator reached the highest value in July 2007 – up to 119%. The graphic shows the evolution of IES very clearly capturing the period of economic recession in 1999–2000 and especially in 2009–2010 when the Economic sentiment indicator dropped really low. After the crisis period in 2009 and negative expectations after 2012 there can be seen a gradual improved confidence in the positive economy development.

Conclusion. Previous macroeconomic analyses show that the development of macroeconomic indicators are closely related to each other, we can see it when during the crisis period economic sentiment indicator reached the lowest value (2009) and in 2013, when GDP had the lowest values also the Index of economic freedom showed a slight decrease in all V4 countries, except Czech Republic. The Index of Economic Freedom does not respond to changes in GDP trends as flexibly as the Economic sentiment indicator because its partial indicators do not react to changes in economic growth immediately (in the short term).

Long-term monitoring of economic freedom in 179 countries shows that countries with higher economic freedom have higher economic performance, faster GDP growth and higher GDP per capita than countries with low economic freedom. Economically freer countries, citizens are richer, income is higher, country's economic growth is faster and even the standards of living of the poorest people are incomparably higher than in economically less free countries. Economic freedom does not affect only income, but also life quality. Along with the increasing level of economic freedom also the quality of human life and economic prosperity are increasing.

References:

Belas, J., Bartos, P., Habanik, J., Novak, P. (2014). Significant attributes of the business environment in small and medium-sized enterprises. Economics & Sociology, 7(3): 22-39.

Eurostat. Main GDP aggregates per capita // appsso.eurostat.ec.europa.eu.

Haviernikova, K. (2012). Selected aspects of clusters initiatives in the field of industry in the Slovak Republic. METAL 2012. In: Conference Proceedings, 21st International Conference on Metallurgy and Materials 2012 (pp. 1838-1845).

Heritage Fundation. Economic Freedom // www.heritage.org.

Hostak, P., Lys, T., Yang, Y.G., Carr, E. (2013). An examination of the impact of the Sarbanes-Oxley Act on the attractiveness of U.S. capital markets for foreign firms. Review of Accounting Studies, 18(2): 522-559.

Kordos, M. (2012). US-EU Bilateral Trade Relations – Transatlantic Economic Issues. In: ICEI 2012: Proceedings of the 1st International Conference on European Integration (pp. 131–139). Ostrava: VSB.

Kuznets, S. (1973). Modern economic Growth: Findings and Reflections. The American Economic Review, 63(3): 247-258.

Lucas, R. (1988). On the Mechanics of Economic Development. Journal of Monetary Economics, 22: 3-42.

Masarova, J. (2014). Differences in the performance of the Visegrad group regions, 2014. SGEM conference on political sciences law, finance economics & tourism: Conference Proceedings: STEF92 Technology (pp. 195-202).

Schumpeter, J.A. (1934). The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle. Translated by Redvers Opie. Cambridge, MA: Harvard University // www.worldcat.org.

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Slovak Statistics Office // www.statistics.sk.

Stiglitz, J., Sen, A., Fitoussi, P. (2010). Report of the Commission on the Measurement of Economic Performance and Social Progress. Paris // www.stiglitz-sen-fitoussi.fr.

United Nations Development Programme (2014). Human Development Report 2014. New York: UNDP // hdr.undp.org.

Vojtovic, S., Kontautiene, R., Navickas, V. (2014) Methodological issues in the evaluation of corporate social responsibility as competitiveness factor, 2014. Sylwan, 15(10): 512–518.

Vojtovic, S., Krajnakova, E. (2014). Development of new economy and human capital. Journal of Management (Vadyba), 25(2): 145–150.

World Economic Forum (2014). The Global Competitiveness Report 2014–2015. Geneva: WEF $/\!/$ www.weforum.org.

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