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QUANTIFICATION OF VAT GAP IN THE EU MEMBER COUNTRIES

The main function of taxes is to provide tax revenues for national budgets to finance public expenditures. Value added tax (VAT) is a relatively new, but stable and significant source of the EU countries' public revenues. The major problem is the efficiency of the system and VAT collection. In an attempt to increase the collection of that tax, and in the context of the fight against tax evasion on VAT, the European Commission is focused on quantifying the leakage through a specification of VAT gap. The paper focuses on the issue of VAT development in 2000–2012, quantification and comparison of VAT gaps in the EU countries during the crisis period 2009–2012 and an estimate of the rate changes necessary to achieve the VAT revenues in the countries at least at the level of European average and the potential value of increased output when efficient VAT collection is present.
Keywords: value added tax; tax revenues; tax gap; the EU.
JEL classification: H25, H26.

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РОЗРАХУНОК ПОДАТКОВИХ РОЗРИВІВ У ПДВ ДЛЯ КРАЇН ЄС

У статті доведено важливість податків у забезпеченні надходжень до бюджетів країн. ПДВ – стабільний та значний за обсягом таких надходжень, у т.ч. для країн ЄС. Однак його роль багато в чому залежить від ефективності збирання даного податку. Наразі Єврокомісія концентрує зусилля на збільшенні зборів ПДВ та боротьбі з ухиляннями від сплати даного податку. Описано динаміку розвитку ПДВ протягом 2000–2012 рр., проведено окреме порівняння по країнам ЄС для кризових років 2009–2012. Розраховано, які зміни слід внести всім членам ЄС у свої податкові політики для того, щоб зменшити розрив між теоретично розрахованою сумою ПДВ для країни та реальними надходженнями, таким чином підвищуючи ефективність даного податку.
Ключові слова: податок на додану вартість; податкові надходження; податковий розрив; ЄС.
Форм. 1. Рис. 9. Табл. 1. Літ. 22.

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ПОДСЧЁТ НАЛОГОВЫХ РАЗРЫВОВ В НДС ДЛЯ СТРАН ЕС

В статье обоснована важность налогов в обеспечении поступлений в бюджеты стран. НДС – стабильный и значительный по объёму источник таких поступлений, в т.ч. для стран ЕС. Однако его роль во многом зависит от эффективности сбора данного налога. В настоящее время Еврокомиссия концентрирует усилия на повышении сборов НДС и борьбе с уклонениями от уплаты данного налога. Описана динамика развития НДС в течение 2000–2012 гг., проведено отдельное сравнение по странам ЕС для кризисных годов 2009–2012. Просчитано, какие изменения необходимо внести всем членам ЕС в свои налоговые политики, чтобы уменьшить разрыв между теоретически просчитанной суммой НДС по стране и реальными поступлениями, тем самым повысив эффективность сбора данного налога.
Ключевые слова: налог на добавленную стоимость; налоговые поступления; налоговый разрыв; ЕС.

Introduction. Tax gap can be defined as the difference between the tax which has been collected by tax authorities (relating to the year, the accrual principle) and the

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tax that should be collected, the so-called "theoretical tax" (HMRC, 2011; CASE, 2013). Theoretical tax liability is a tax that should have been paid if all tax payers would deflect the tax in accordance with legislation. As Novysedlak and Palkovicova (2012) state, in very simplified terms, tax gap quantifies the size of tax evasion and avoidance. Evasion to pay taxes by some authors (Vancurova and Lachova, 2014; Toder, 2007) is considered immoral because it indirectly increases tax burden for all other tax payers. Interesting is that other authors such as Shenfield (1968) show understanding for tax non-payment within the limits of law (tax avoidance). Most countries involve granted, but unpaid taxes to the tax gap. Cobham (2005) states that unpaid tax constitutes almost 10% of the total tax gap in developing countries, in the US in 2001 it was 16% of their tax gap and in the EU − 13%. It can be assumed, that some tax evasion and avoidance will remain in a quantitative estimate of the volume of shadow economy unquantified.

Scientific literature offers several methods of measuring the tax evasion and avoidance (Table 1). Tax gap estimation can be basically carried out in two ways. The first is called "bottom-up approach" (direct methods) and the second is "top-down approach" (indirect methods). Direct methods are used for tax gap estimation mainly by tax authorities. Fuest and Riedel (2009) consider direct methods better for tax gap estimation as compared to indirect ones. More detail on direct methods can be found in documents of British tax administration HMRC (2011). On the other hand, critics like Fassmann (2002) and Schneider and Enste (2002) consider direct methods incomplete and more beneficial rather in qualitative than quantitative estimating. Using appropriate methods depends on a particular tax, for which are tax evasion and avoidance are measured. In practice, the most common methods for estimating gaps within direct taxes are considered direct methods. For VAT gap estimation indirect methods are mainly used, particularly discrepancy methods (difference between the tax receipts from tax declaration and tax hypothetical calculated from national accounts) (Reckon LLP, 2009).

Table 1. **Overview of methods used for measuring tax evasion,** *own processing*

Methods of measuring tax evasion						
Direct methods (Toder, 2007; Fuest and Riedel, 2009; Pedersen, 2003; Gervais, 1994)		**Indirect methods** (Schneider and Enste, 2002; OECD, 2002; Kaufmann and Kaliberdy, 1996; Fassmann, 2002)				**Combined methods** (model methods) (Fassmann, 2002; Schneider and Enste, 2002)
Sample surveys in different areas	Tax audits	Discrepancy methods	Monetary models	Methods of measuring the physical inputs	Methods of labor market	

The newest work on this matter, published in 2013, was the CASE (2013) study, where for estimation of VAT gap in 27 countries of the EU in the years 2000−2011 indirect "top-down" methods were applied to national accounts. The study states, that the total amount of uncollected revenues from VAT in the EU countries in 2011 was 1.5% of the total GDP of the EU. The average value of VAT gap in member countries is 17% and the median is 13%. CASE (2013) states that the largest value of VAT gap was in Romania (42%), in Lithuania (35%), Greece (30%), Hungary and Italy (26%) and in Slovak Republic (29%). On the other hand, among countries with the lowest VAT gap are Sweden with the average value of VAT gap 4% and the Netherlands, Belgium and Luxembourg, all three with the value of 5%. Below the

threshold of 10% was Ireland with the value of 8%, Portugal with 9% and Slovenia with 7%.

VAT gap estimation is the subject of many research studies such as the Romania Fiscal Council (2011), Reckon LLP (2009), Parsche (2008) etc. In Slovak Republic the estimation of VAT gap value is the subject of research by Novysedlak and Palkovicova (2012), which state, that the value of VAT gap in Slovakia was around 18% in years 2000–2005, and after 2006 it gradually increased reaching 36% in 2010. From the comparison of the VAT gap values in those research we can conclude that values of VAT gap are different for different samples of countries and various periods as well as because different methods to are used estimate the theoretical tax revenue along with different calculation methodologies.

Data and methodology. The main objective of the present paper is the assessment of development and importance of VAT revenues and quantification of VAT gap in the EU countries to estimate changes in tax rates required to reach VAT revenues in individual countries at a level corresponding with the EU average and to estimate the potential value of increase in output by ensuring efficient VAT collection.

In accordance with the primary objective, the analysis is structured in 3 main parts.

The first part of our analysis is focused on the assessment of VAT revenues development expressed as percentage of the total tax revenues and as a percentage of GDP in the EU countries in the period 2000–2012. Based on the analysis can be the tendency of tax burden shifts in countries assessed and the importance of value added tax as the source of revenues for countries' budgets is identified as well as the main changes in the volume of VAT revenues in the context of fiscal consolidation.

The second part of the analysis is focused on quantification and comparison of gaps between the calculated theoretical values and the actual VAT tax revenues during the crisis period of 2009–2012 for the EU countries. The findings highlights the loss of VAT receipts and the ability for efficient VAT collection in individual countries.

The third (proposal) part is concentrated on estimation of changes in the VAT rates when assuming reaching the average effective VAT revenue in the EU-27 and on estimation of the potential increase of GDP ensuring efficient VAT collection. Individual countries are assessed (based on the ceteris paribus condition) in terms of changes in VAT rates, some of these countries would need to cover their tax gap.

In this paper the countries are divided into two groups. In the first group are the countries, which can be considered by the date of the entry into EU as old members (OM 15) (BE, DK, DE, IE, EL, ES, FR, IT, LU, NL, AT, FI, PT, SE and UK) and in the second are the countries, which are the new members (NM 12) (BG, CZ, EE, CY, LT, LV, HU, MT, PL, SI, RO and SK). Data necessary for analysis was obtained from the statistical database of the European Statistical Office (the Eurostat), the OECD reports and the Ministry of Finance of the Slovak Republic.

Key results of the research.

1. Assessment of VAT revenue development. In the context of fiscal consolidation, adjustment of tax systems and improvements in efficient tax collection is the key step for individual countries to obtain sufficient revenues for their national budgets. These sufficient revenues can ensure that the country will be able to avoid excessive deficit, indebtedness and subsequent penalties for non-compliance with the EU rules.

The crisis period of 2009—2014 was characterized by significant deficits of public finance in all European countries. The European Commision (2011) highlighted the necessity of slowing down and stopping of continuous growth of countries' public expenditures, the necessity of decreasing their excessive deficits and very high debt ratio, highlighting also the necessity to handle the increasing impact of population aging and saving models. In the recent years, guidelines of the European Commission (EC) on solving those problems mainly lead to tax changes expressed as recommendations for shifting the tax burden from direct taxation to indirect one. Many repre sentatives of the European Parliament and research like Banociova (2009) pointed to the importance of VAT as the key source of revenues for the Union's budget. Siroky and Kovarova (2011) also pointed to the importance of VAT as the most important instrument of economic policy under crisis.

Tendencies of shifting tax burden to indirect taxes (called "growth-friendly") are present especially since 2009, when within the EU-27, direct taxes have started to decrease and revenues from indirect taxes (including VAT) have increased. During 2009—2012 direct taxes decreased for about 0.2% on average within the EU-27 and indirect taxes increased by about 0.9%, specifically VAT taxes — for about 1%. This development confirm — that the countries have started to prioritize indirect taxes over direct taxes according to the EC recommendations.
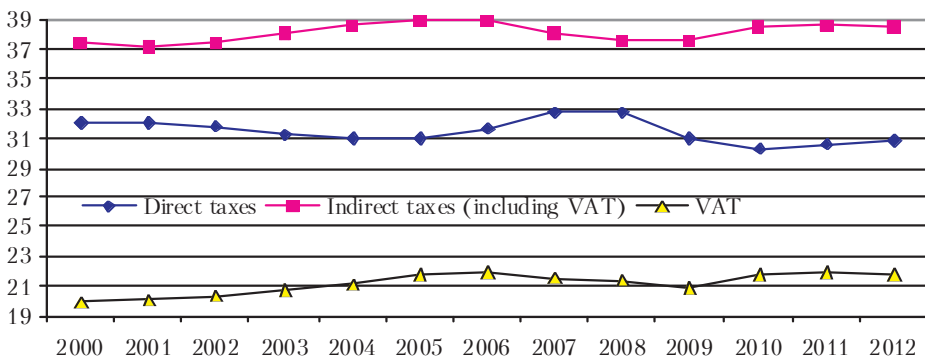
Figure 1. **Development of indirect taxation in % to the total tax revenues during the period 2000–2012 for the EU-27,** *own processing based on the* Eurostat data

Development of VAT revenues as percentage of the total tax revenues. Figure 2 illustrates the development of VAT revenues as percentage of the total tax revenues in both groups of countries. For each group it can be stated that the trend of VAT revenues importance within total revenues has increased. The period 2008—2009 is noted by decrease in these revenues. Revenue reduction was caused by the total consumption of household decrement, economies performance, but also by lower collection efficiency for this tax. The inefficiency can be derived from the immutability of VAT rates, despite that the percentage of revenues started to decline. Since the year 2010 the rising trend of revenues has continued, what can be related especially to the high tendency of increase in standard rates within the countries' consolidating measures.

Old member countries (OM-15) represent a group with the lowest percentage share of VAT revenues on the total tax revenues. Although these countries have the

highest standard tax rates on average, it can be seen that their tax policy is the least dependent on indirect taxation, on VAT especially. Values of their tax revenues are on average between 18.1–19%. During the monitored period revenues have increased for about 1%. Completely different situation can be seen in the new members (NM-12), including Slovakia. These countries represent the group with the highest percentage share of VAT revenues in the total tax revenues. It can be assumed, that their tax policy is more dependent on VAT revenues. Revenues from those taxes reached on average around 24% and during 2000–2012 they increased for about 2,9%.
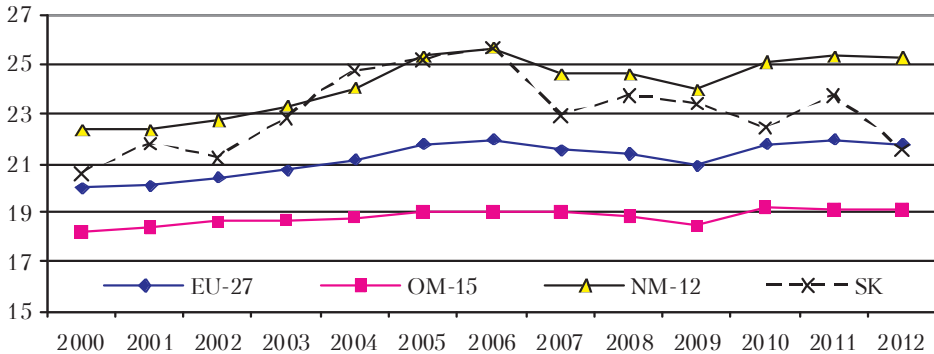

Figure 2. **Development of VAT revenues as % of the total tax revenues during period 2000–2012 for the EU-27,** *own processing based on the* Eurostat data

Figure 3 illustrates the position of countries within indirect taxation. Countries are divided into 4 quadrants. A horizontal ax represents the average percentage value of VAT revenue within the EU-27. Countries in the second quadrant (RO, BG, LV, MT, HU, PL, LT, PT, EL, SK) have the highest VAT share in the total tax revenues and also during the monitored period they had the highest increase in these revenues. This chart confirms the previous differentiation of countries and their tendencies in taxation, as all the countries marked light grey, except Greece and Portugal, belong to new member countries. Among them Slovakia is marked white. Countries in the first quadrant (CY, SE, LU, FI, DE, UK, CZ, DK and NL) marked by dark-grey belong to the states, which have increased their percentage share of VAT revenues, but they belong to a group with the lowest importance of revenues source of this tax. Light-grey marked countries (in the third and fourth quadrants) are those, in which there was a decline in VAT revenues when comparing the year 2000 to 2012. The best position among all these countries has Bulgaria and the worst has Italy, which has the lowest VAT share in the total tax revenues and recorded the largest decline in the period under study.

Development of VAT revenues as percentage of GDP. When monitoring the VAT share, cyclical development in both groups of countries is present. Performance of individual economies during the monitored period varied, and that had also a significant impact on VAT revenues collection. Although it is hard to determine during this cyclical development, if it is an increasing or a decreasing trend, but the total annual change during the 12 monitored consecutive years was positive. Thus, it can be assessed, that VAT has a growing share and impact on public budget, the state of pub-

lic finance and economy in general. The highest VAT shares the studied countries had during 2006−2008. Decline in economic performance during the crisis period caused a slowdown in GDP growth and consumption, and therefore a total fall in VAT revenues was on average about 0.5−0.6%. Since the year 2010 we can see an increase in revenues in each of the countries' groups.
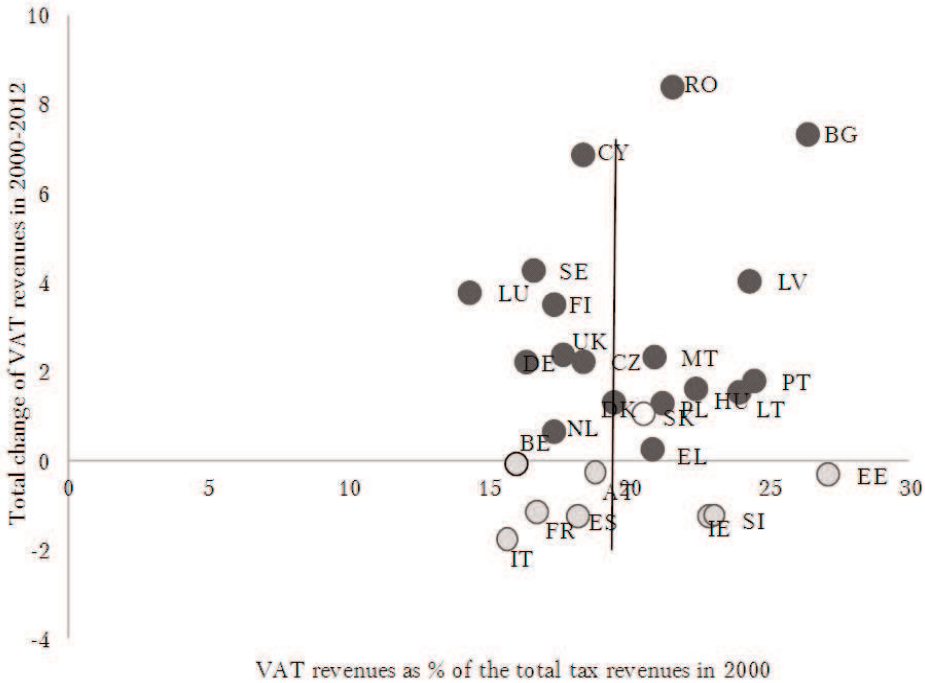

Figure 3. **Change of VAT revenues as % of the total tax revenues during 2000–2012 for the EU-27,** *own processing based on the* Eurostat data
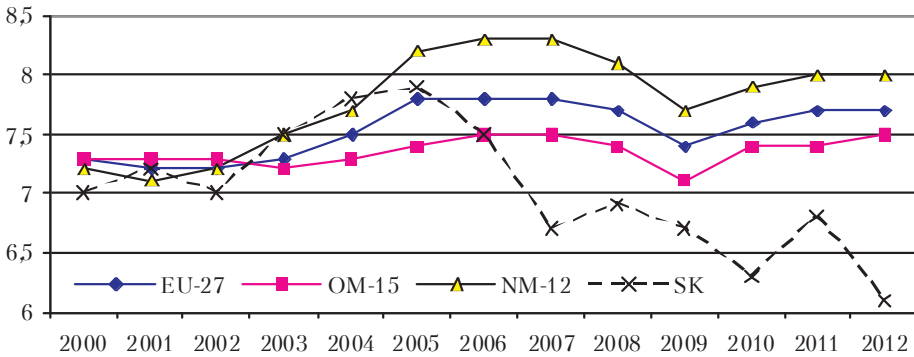

Figure 4. **Development of VAT revenues as % of GDP during the period 2000–2012 for the EU-27,** *own processing based on the* Eurostat data

The highest VAT share on GDP and also the highest impact on economy through VAT revenue had NM-12 countries. As mentioned, in this group is also Slovakia which had 8% VAT share in GDP at the beginning of the monitored period,

but later this revenue has rapidly decreased until 2012. This confirms that as in previous comparison of VAT as a percentage of total tax revenues, this decline is related to inefficient collection of this tax and increasing tax evasion. The average value of NM-12 constitutes 7.8%. The lowest values are recorded in the OM-15 group. Old members have the VAT share in GDP around 7.4%. Based on comparison of the annual changes for OM-15 and NM-12 we can state that old members have more stable development of VAT as percentage of GDP than new ones. The annual change for OM is about 0.2%, while for NM it is about 0.8%.

From the graphical presentation of the map (Figure 5), VAT revenue as a percentage of GDP has the biggest impact within Western and Southern European countries. In Nordic countries VAT has the lowest impact on economic performance, also including Hungary and Belgium.
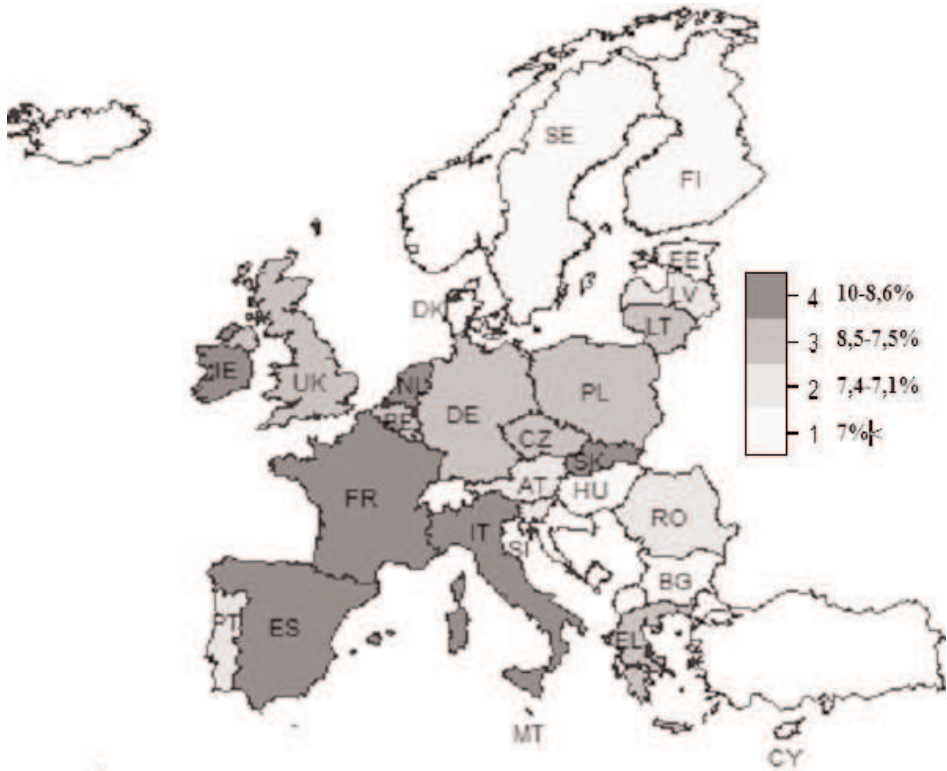

Figure 5. **Map of the EU-27 by the amount of VAT revenues as % in GDP for 2012,** *own processing*

2. *Quantification of gap between theoretical and actual revenue from VAT.* As mentioned, above, tax gap is defined as a difference between actual collected tax and theoretical tax. For estimating the VAT gap it is necessary to quantify the difference between actual VAT receipts and revenue that should be theoretically collected, if the final consumption of households would be taxed by the standard tax rate. For estimating the theoretical value the table method (output tables) is usually used, or the method used by member countries for their weighted VAT tax rate estimation (WAR),

and the so-called raw method (based on nominal GDP adjustments) (CASE, 2013; Reckon LLP, 2009; Novysedlak and Palkovicova, 2012).

For estimation of the theoretical VAT revenue in the analysis we use the so-called raw method (based on the nominal GDP adjustment). When determining the theoretical tax base for VAT the GDP aggregate was gradually adjusted for components of final consumption that are not burdened with VAT and contrary, components burdened by VAT were added. Detailed characteristics can be found in (Novysedlak and Palkovicova, 2012; CASE, 2013).

After estimation of the theoretical tax base (TTB) according to (1) the theoretical VAT liability (VTTL) is estimated. In the formula the standard VAT tax rate is used (TRVAT). Standard rate is used mainly due to its simplicity, data availability and the simplified assumption, that tax systems do have only standard rates, without taking reduced rates and taxes exemptions and shadow economy into account. More appropriate and more accurate would be to use the WAR rate, however, it is not generally available.

$$VTTL = TTB \times \frac{TR_{VAT}}{1 + TR_{VAT}}. \tag{1}$$

The resulting estimates of VTTL in all the countries of the EU-27 confirmed the existence of VAT gap in each of these countries. Significant differences exist among countries. At the beginning of the crisis period, in 2009, the total increase of the EU-27 VAT gap average (estimated as 482 bln EUR) was driven mostly by advanced economies like UK, DE, FR, IT and SE. The average absolute gap value in 2009 was 17867 bln EUR. During the analysis considering VAT gap as % of GDP the countries mentioned before did not belong to the countries with the highest share of gap. These countries with the highest share were Greece (EL), Latvia (LV), Lithuania (LT) and Romania (RO). Negative consequences of the crisis were reflected in VAT gap deepening almost in every country with the exception of BG, CZ or IE, which have decreased the gap in 2012. Despite these exceptions, rising trend of VAT gap is present and has led to the EU-27 VAT average gap increase as a whole (estimated as 603 bln EUR), with the average estimation of 43 bln EUR per country. Among the countries with the lowest share of VAT gap on VTTL during the period 2009—2012 are DK, EE, CY, NL and SE with the average VTTL of 18%. When assessing the estimations it is necessary to consider the fact that the data may not necessary be interpreted as an estimate of VAT evasion, other factors can also play a significant role.

Figure 6 illustrates the share of actual revenues on theoretical revenues for individual European countries. This indicator points to the ability of (efficient) VAT collection in each country. The greater this proportion is, the closer the theoretical revenue to actual revenue is and so the ability of efficient VAT tax collection is growing.

The average value for these countries in 2009 was around 67.028% and for 2012 it was around 66.480%. In 2012, they recorded bigger difference between theoretical revenues, under the condition when the total consumption is taxed by standard rate and there was no shadow economy. The most positive values in 2012 were recorded for Luxembourg (LU) and the worst — for Spain (ES). Slovak Republic was the fifth worst. Since the crisis period the status of VAT tax revenues' collection on average for the entire EU-27 deteriorated, mostly pulled down by the Netherland (NL), Cyprus

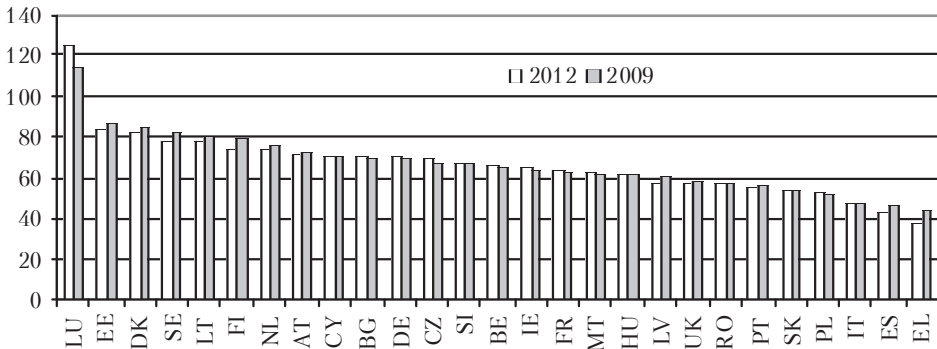(CY), Slovak Republic (SK), Greece (EL) and Poland (PL). These countries record-ed the highest slump.

Figure 6. **Share of the actual revenue to the theoretical revenue for the years 2009 and 2012 for the EU-27,** *own calculations*

3. Indication of changes in VAT rates and the GDP value estimation under the con-dition of VAT efficient collection. Based on the estimated gap between the actual and the theoretical revenues we can move to the third part of the objective set for estima-tion of VAT rates adjustments required for reaching the efficient VAT collection.

The estimation of rates' changes was realized in the following steps:

1) in the first step for the years 2009 and 2012 was the share of actual (S) and the-oretical (T) VAT revenue calculated, which represented the indicator of collection ability (efficient collection) of VAT revenues in the EU-27;

2) in the second step for the year 2009 and 2012 was the average ability of VAT revenues' collection for the EU-27 as whole calculated;

3) by using the indicator of collection ability in the third step "new" actual VAT revenue (S') in each of the EU-27 countries was calculated;

4) estimation of changes in the rates was realized by using the implicit tax rates (IS defined as a share of actual VAT revenues and consumption). With the "new actu-al revenue" (S') a "new implicit rate" (IS') was estimated, with the assumption that countries could reach the average EU-27 efficiency of VAT collection;

5) the last step was the calculation of difference between standard implicit rate, that the country used and the "new implicit rate", which should the country use. This allows estimating by what adjustment should each country increase its rates, respec-tively could decrease its rates for reaching the average ability of VAT collection.

Figure 7 illustrates, by how much (based on the ceteris paribus condition) should the countries theoretically increase their VAT rates with their current ability of VAT collection to reach the average VAT revenues of the EU-27 in 2009 (67.028%) and 2012 (66.480%). In estimation implicit tax rates were used, therefore, it is necessary to consider rates' changes with reduced rates and tax exceptions. For the countries, which are above the EU average the opposite principle is considered. It means by how much could countries decrease their rates to reach the EU average.

In the illustration the countries are ordered according to year 2012 from the country with the highest VAT gap to the country with the lowest one. In comparison

with 2009 a deterioration of the tax collection ability in 2012 occurred in the case of several European countries.
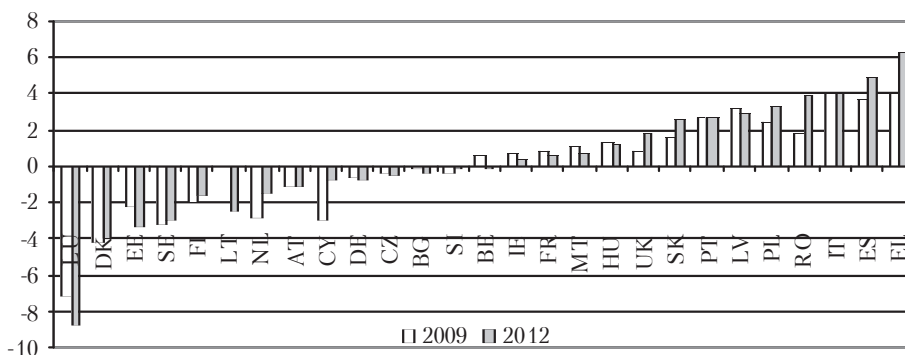

Figure 7. **VAT rates changes required to achieve the average VAT revenue collection for 2009 and 2012 in the EU-27,** *own calculations*

Countries lying on the left side are those which could, according to the considered assumption theoretically decrease their tax rates to reach the average VAT receipts. These are Luxembourg (LU), Denmark (DK) and Sweden (SE), which are characterized by the best VAT receipts. In the case of LU could the change of tax rate be the reduction of about 8.7%, in Denmark − 3.9% and in Sweden − 2.9%. In the group of potential rates' reducing countries can be, except advanced economies, included the states like Estonia (EE), in which a reduction of about 3.25% could be used, Lithuania (LT) with the change for about 2.5% and Finland (FI) with the decrease of 1.65%. In the case of V4 countries, Czech Republic (CZ) is the only country that can according to these findings be include among the countries, which could theoretically reduce VAT rates with the change of 0.5%.

Slovenia (SI) and Belgium (BE) are in terms of the year 2012 "boundary countries", which could according to estimates decrease their tax rates, but only in a minimal extent. Based on this it can be assumed that almost no change is required.

On the right side are the countries, which could theoretically increase their current rates for reaching the average ability to generate VAT revenues at the average level of EU-27. These countries are Greece (EL), Spain (ES) and Italy (IT) (the countries, which had significant difficulties during the crisis period, bankrupt countries) and Romania (RO). The worst position has Greece which should increase its rates for more than 6% in 2012. Spain should increase its rates for about 4.95%, Italy and Romania − for about 4%. To this group also belongs Slovakia (SK) that should increase its rates for almost 3% to reach the EU-27 average. These findings support the recommendations of the European Commission that countries have still enough space for raising their taxes, as well as streamlining tax collection. Countries like Italy, Greece, Spain, France, Belgium and Portugal have the potential for raising VAT revenues.

The next part of this analysis is focused on the impact of VAT gap on individual economies. The analysis is focused on estimation of the potential increase of GDP by ensuring the ability of efficient VAT collection. Using the difference between theo-

retical and actual VAT revenues as % of GDP and the ceteris paribus condition, an estimation of the percentage increase in GDP could be (in theory) achieved with VAT collection being efficient.

Final positions of European countries by percentage share of VAT gap to GDP in year 2009 and 2012 are illustrated in Figure 8. Countries are ordered by their resulting values for the year 2012 from the country with the highest loss on GDP to the country with the lowest one.
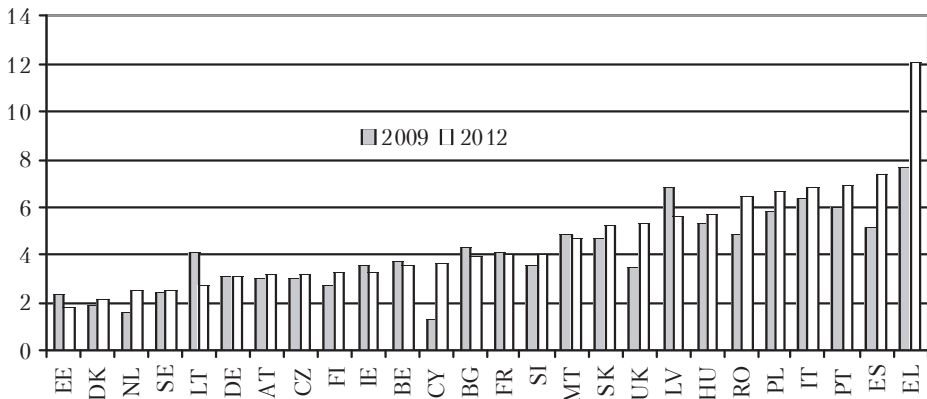

Figure 8. **The values of revenue gaps as % of GDP in 2009 and 2012 for the EU-27,** *own calculations*

When comparing the years 2009 and 2012, it is clear that the negative effects of the crisis were reflected in GDP losses due to inefficient VAT collection. The average estimate of product loss in 2009 for the EU-27 (the average ability of tax collection 67.028%) accounted for 4% of GDP, while in 2012 it increased to 4.6% of GDP (the average ability of tax collection 66.480%). Even though the increase is not significant, the loss of inefficiency is visible. The impact of increasing tax gap during the crisis years in the EU had in 2012 a negative impact on GDP of all the studied economies. According to (Novysedlak and Palkovicova, 2012), the gap in VAT revenues in the EU-27 for 2010 accounted for 3.5% of GDP and 1.5% in the 2011. These results are slightly lower, which mainly depends on the method used in calculations. In the presented analysis implicit rates were used, which have not been weighed for reduced rates. The results are therefore about 1% higher, because they consider the shadow economy and in addition the use of reduced rates, which generally reduce the tax base and the overall final VAT receipts.

The worst position among European countries has Greece (EL) with the loss of output for about 12% in year 2012. Other countries mentioned above, like Spain (ES), Portugal (PT) and Italy (IT) lost in output on average about 6%. The best position reached Estonia (EE) and Denmark (DK) with the lowest loss of output in 2012 (about 1.8% and 2.1%) respectively. Luxembourg (LU) was omitted because of the resulting negative values. Slovak Republic (SK), which was positioned in the middle had the loss of output for about 5% caused by inefficient collection.

Based on the estimated values it can be assumed that the EU-27 countries by keeping the ceteris paribus condition and with assumption of a tax system with stan-

dard rate, reduced rate and absence of shadow economy and specially with an efficient system (100% collection of VAT), could increase GDP by more than 4.6%.

Position of individual EU countries according to the findings on the potential increase of output with ability of efficient VAT collection system are illustrates in Figure 9. The greatest impact on economy as a result in difference between the theoretical and the actual VAT revenues and therefore the greatest potential for growth in the output value ensuring efficient collection system is represented by the darkest color. Among these countries is also Slovakia (SK).

Figure 9. **Map of the EU-27 by the amount of tax revenue gap as % of GDP for the year 2012,** *own processing*

Discussion and conclusions. The loss of tax receipts has, regardless the objective cause for tax gaps, a great impact on economic development of any country.

The aim of this paper was the assessment of development and importance of VAT revenues and quantification of VAT gap in the EU countries, estimating changes in tax rates, that are required to reach VAT revenues in individual countries at a level corresponding to the EU average and to estimate the potential value of increase in output by ensuring efficient VAT collection.

The first part considered the growing tendency of tax burden shifts to indirect taxes represented by VAT, especially since 2009, when in the EU-27 revenues from indirect taxes (including VAT) increased by 0.9% and direct taxes fell by 0.2%. The biggest share of VAT revenues as % in total revenues and GDP as well, was in the new

EU members (NM-12), including Slovakia. Old members (OM-15) impose less importance to receipts from indirect taxes, but their development and rates are more stable than in the new member states.

Comparison of gaps between theoretical and actual VAT revenues during the crisis period 2009–2012 pointed out significant differences between the EU countries. Negative consequences of the crisis were reflected in deepened tax gaps in most of these countries, especially in Greece (EL), Latvia (LV), Lithuania (LT) and Romania (RO). The total loss of VAT receipts in absolute values was on average 43 bln EUR for each country in 2012. At the same time, with the increase of the VAT gap, decreased the ability of tax collection in the EU-27 as a whole, dropping from the average value 67.028% in 2009 to 66.480% in 2012. Assuming that these countries would reach the average VAT revenue and also the ceteris paribus condition, estimation of percentage change in VAT rates was performed. According to these estimations two groups of countries were identified. Countries with potential to decrease their rates (LU, DK, EE, SE, FI, LT, NL, AT, CY, DE, CZ, BG and SI) and with the potential to increase their rates to reach the average VAT collection for EU-27 (BE, IE, FR, MT, HU, UK, SK, PT, LV, PL, RO, IT, ES and EL).

According to the resulting estimations in the third part of analysis, in the year 2012 EU-27 could have increased the output up by 4.6%, if member countries were able to efficiently collect all the revenues considering the use of standard and reduced rates and the absence of shadow economy.

Due to complexity and redundancy of this issue, paper did not deal with the specific causes of the shadow economy, since the efficiency of tax collection was conceived as a whole.

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