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**Value added tax phenomenon and consequences of carousels frauds
as a result of fictive business relations**

Abstract

Value added tax phenomenon is considered as highly actual and complex topic. Value added tax, VAT abbreviated, touches every aspect of nation's, entrepreneur's and non-entrepreneur's economy. VAT is one of the national budget's main income, from the point of view of a country. At the moment, every single European country has its system of VAT mechanism. Regrettably, large VAT frauds are committed within EU due to VAT administration and its bureaucracy system which is considered very complicated. Since last 6 years, EU average annual leak of VAT income is estimated at 150 EUR billion. Therefore, one of this article objective is to demonstrate the lack of VAT, that causes such enormous tax frauds and to propose a tax system which could be much efficient than the current system and could reduce tax frauds. A suitable tax that could be a substitution of the VAT is a turnover tax, based on our calculations showed below. Consequently, secondary article's objective is scientific reasoning the benefits of turnover taxation.

Keywords: value-added tax; fraud; carousel; turnover tax.

**Zjawisko podatku od wartości dodanej i konsekwencje oszustw karuzelowych
w wyniku fikcyjnych relacji biznesowych**

Abstrakt

Zjawisko podatku od wartości dodanej jest uważane za wysoce aktualne i złożone zagadnienie. Podatek od wartości dodanej, w skrócie VAT, dotyka każdego aspektu gospodarki kraju, przedsiębiorstwa, jak i jednostki nieprowadzącej działalności gospodarczej. Podatek VAT jest jednym z głównych dochodów budżetu państwa. Obecnie każdy europejski kraj posiada swój własny system naliczania podatku VAT. W UE dochodzi jednak do istotnych oszustw związanych z podatkiem VAT, ze względu na niewłaściwą administrację skarbową i skomplikowany system biurokracji. Szacuje się, że w ostatnich sześciu latach średni roczny wyciek dochodów z tytułu podatku VAT w UE wyniósł 150 mld EUR. Dlatego też jednym z celów tego artykułu jest identyfikacja przyczyn tak poważnych oszustw

podatkowych i zaproponowanie systemu podatkowego, który mógłby być znacznie skuteczniejszy od obecnego oraz który mógłby zredukować skalę dokonywanych oszustw. Zgodnie z przeprowadzonymi w artykule obliczeniami, podatkiem, który mógłby potencjalnie zastąpić VAT, jest podatek obrotowy. W związku z tym, drugorzędym celem artykułu jest naukowe uzasadnienie korzyści płynących z opodatkowania z tytułu obrotów.

Słowa kluczowe: podatek od wartości dodanej (VAT); oszustwo; karuzela; podatek obrotowy.

JEL: H25, H26.

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Introduction

Evolution of taxation is bounded to the evolution of a society. The society is under the control of Government. One of the Government's role is to purchase public goods. A public good is a commodity or service that is provided without profit to all members of a society. In order to purchase this particular commodity Government needs to secure its income. The state income is represented in the tax system. Even the fact that each nation has its own system of taxation, value-added tax is considered as a tax that provides main income to national budget. Value added tax, abbreviated VAT, is indirect tax invented in 1953 in the state of Michigan (USA). France was the first country that established VAT in 1967. Nowadays, every modern economy has applied VAT, that became a cornerstone of the national budget's income. VAT is defined as a universal and indirect tax. Even though, VAT is considered as national budget's main income there are several defects. First, the main inconvenience is that VAT bureaucracy is enormously complicated. For instance, VAT payer is obliged to communicate with tax authority each month in order to declare VAT liability or VAT claim. To fulfill this duty, the tax payer has to provide VAT declaration, control reports where are noticed all commercial realities that were realized in particular month. Thank the complicated administration, second VAT's defect is that system offers a possibility to commit frauds.

VAT frauds

Standard VAT rate in EU varies from 17% (Luxembourg) to 27% (Hungary). Average standard VAT rate in EU is 20%. There are two most common frauds known in the region of EU. The first a simpler one is committed in one country of EU, where are two VAT payers in

business relationships. VAT payer A sells its service or goods to the VAT payer B. VAT payer A is obliged to pay tax to the tax authority, while VAT payer B has a right to get refund VAT from the tax authority. VAT mechanism is based on a fact that payer A, called “missing trader“, has to pay its tax liability even though reimbursement of the invoice has not been realized whereas payer B, called “broker“ has a right to demand tax authority to refund the VAT. Therefore, there is no service or goods being sold even the reimbursement is not realized, in this kind of fraud. When this fraud is committed, the missing trader does not redeem VAT to the tax authority and disappear, e.g. missing trader is mailbox company. Fraud continues when the broker demands tax authority to payback VAT. Tax authority pays VAT to the broker but does not receive VAT from the missing trader. That means the national budget is in a loss. The following figure visualizes described fraud (EPP GROUP, 2017; Nerudová, 2014).



Figure 1. VAT fraud visualised mechanism within one EU Member State

Source: authors' own elaboration based on data from European Commission (2014).

Carousel frauds

Carousel frauds are founded on the previous fraud's mechanism, where one subject with an obligation to pay VAT does not fulfill its duty whereas the second subject demands VAT from the tax authority. The difference is that this fraud is committed in two and more EU countries. Its system is following, a service or a good is fictitiously sold from one EU country to the another EU country. Subjects in business relationships are VAT payers in their own country, therefore intra-community delivery and acquisition are being done. Intra-community delivery and acquisition is a situation when a supplier, VAT payer from a country X provides its service or goods with VAT rate equal to 0% (Reverse Charge) to the purchaser who is a VAT payer from country Y. The purchaser receives the goods in Reverse Charge regime, that means the purchaser is obligated to pay domestic VAT to its domestic tax authority while

the purchaser has a claim to demand VAT from its domestic tax authority at the same time. In other words, domestic purchaser does not pay or receive any VAT. Therefore we can say that intra-community delivery and acquisition is a situation where VAT is equal to 0 EUR. To sum up the facts above, carousel consists of a supplier A from a country X who fictitiously sells goods to the purchaser B from a country Y with no VAT. The fraud continues in a country of the purchaser's where the purchaser is now in the role in supplier, named as the missing trader that sells the goods to another subject that is VAT payer in the same country, called a broker. Trade among them is fictitious, again. Now the mechanism is the same as it is in the previous chapter – VAT frauds. The reason why this fraud is named as carousel fraud is that committed in a web of companies in several EU member countries over again and again. In order to visualize the carousel, the following figure is shown (Holubová, 2006).

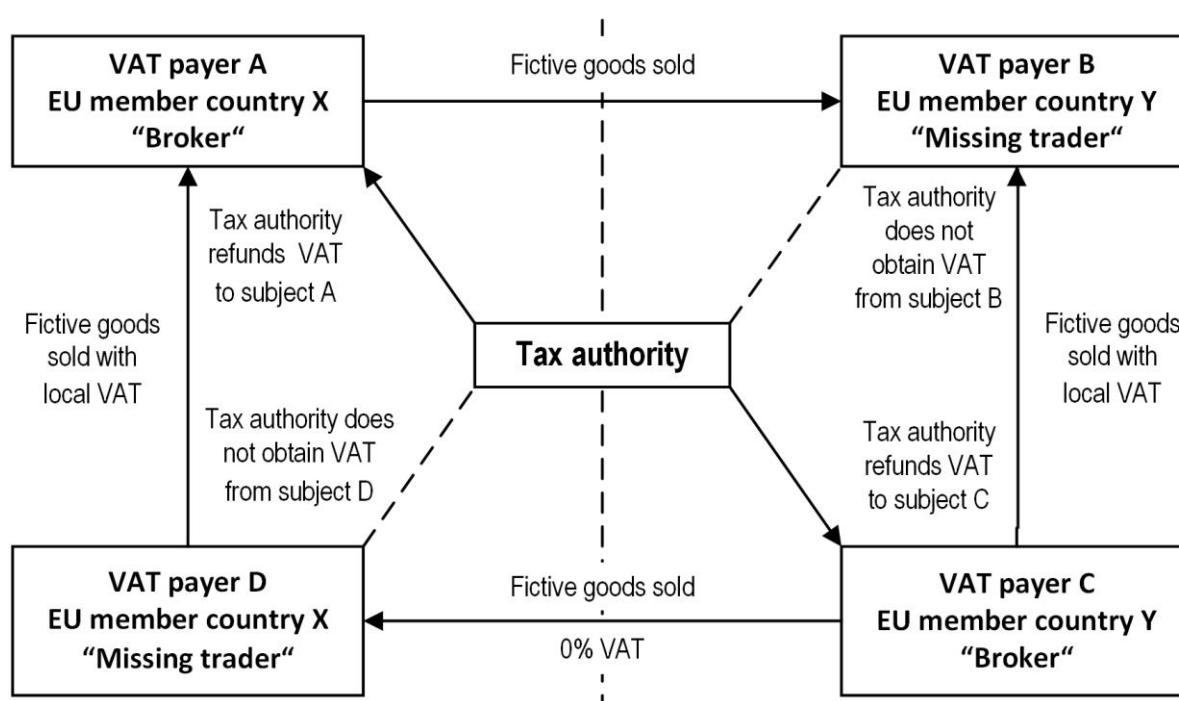


Figure 2. Carousel fraud visualised mechanism within two EU Member State

Source: authors' own elaboration based on data from European Commission (2014).

VAT Gap

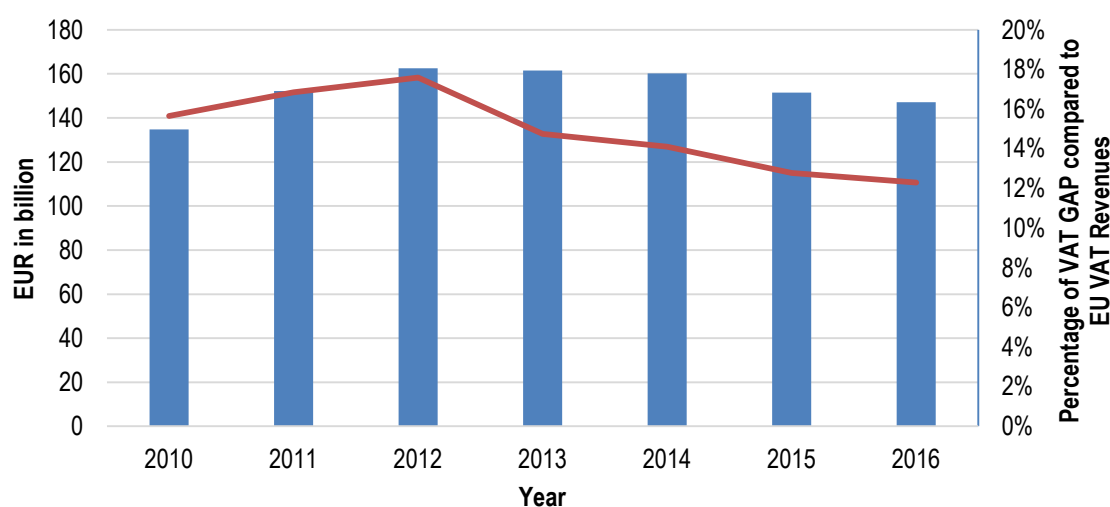
As a result of VAT frauds, the VAT Gap represents the loss of unpaid VAT within the EU Member States. In the last 7 years, estimated VAT Gap is approximately 150 billion EUR. The Figure 1 summarizes VAT Gap evolution of a period 2010-2016.

Table 1. EU VAT Gap

Year	VAT Gap (EUR billion)	Percentage of VAT Gap compared to EU VAT Revenues
2010	134,81	15,65
2011	152,24	16,84
2012	162,54	17,59
2013	161,44	14,75
2014	160,20	14,10
2015	151,50	12,77
2016	147,10	12,30

Source: authors' own elaboration based on data from European Commission (2018).

According to the data shown above, annual approximate VAT Gap is about 14,85% in a period from 2010 to 2016. The percentage is quite unpleasant because the sum that is missing – VAT Gap can be interpreted as a sum of several EU Member States' annual national budgets combined together. The following chart is shown in order to visualize data above (*Study and Reports...*, 2017; *Study and Reports...*, 2018).

**Figure 1. EU VAT Gap visualised of a period 2010-2016**

Source: authors' own elaboration based on data from European Commission (2018).

The current EU VAT revenues' situation is unpleasant. More than 10% of EU VAT revenues disappears due to frauds. For instance, over 50 billion EUR disappeared in carousel frauds in 2015, according to the European Commission. VAT Gaps varies in each EU Member State. In 2016, Member States' estimated VAT Gaps ranged from 0,85% (Luxembourg) to 35,88% in Romania. Overall, the VAT Gap decreased in the majority of Member States, with the largest improvements noted in Bulgaria, Latvia, Cyprus, and the

Netherlands. On the other hand, VAT Gap increased in Romania, Finland, Ireland, Estonia, France, and the United Kingdom (*Study and Reports...*, 2013).

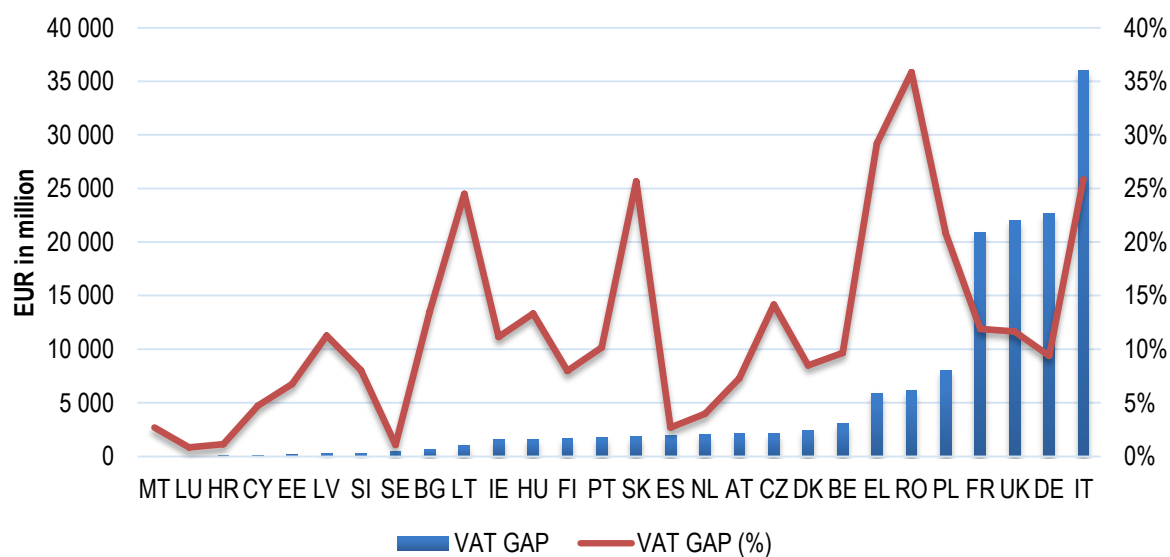


Figure 2. VAT Gap of each EU Member State

Source: authors' own elaboration based on data from European Commission (2018).

Based on the data shown in the Figure 2, the European Commission noticed Italy as the biggest VAT Gap Member State compared to the EU VAT total tax liability (VTTL) in 2016. Italy's VAT Gap in 2016 is equal to 35,98 EUR billion. Second Member State represents Germany (22,68 EUR billion) and a third Member State is the UK (22,04 EUR billion). Sweden (0,47 EUR billion), Malta (0,02 EUR billion) Luxembourg (0,03 EUR billion) and Croatia (0,07 EUR billion) are the Member States with the lowest VAT Gap and the lowest VAT Gap as a percent of the VTTL (*Study and Reports...*, 2018; European Commission, 2014; European Commission, 2018).

Turnover tax

In order to reduce VAT Gap, a new tax system is needed which would be a suitable substitution of the current value-added tax system, that offers various possibility to commit a fraud due to its bureaucracy and administration difficulty. Our analysis of a possible substitution of the VAT is focused on turnover tax (TOT).

The turnover tax is not a new invention. This type of tax is a predecessor of the VAT. The analysis and speculations below show that turnover tax would be a suitable replacement of VAT, with an aim to reduce the frauds, reduce the tax rate and to increase the state revenues. In order to demonstrate the potential of the turnover tax, section "Methodology" serves for

scientific calculations of turnover tax rate and section “Speculations“ serves as a guide for understanding the benefits of the tax.

Methodology

Our whole analysis concentrates on one EU Member State – Slovakia (SK). The analysis is based on data obtained from Slovak tax authority from 1993 to 2017. In order to estimate the rate of turnover tax, the analysis is built in the following steps. At first, a comparison is made between the SK VAT budget revenues and SK VAT real revenues. Next, the aim is to determine total VAT received by the tax authority and total VAT claims from VAT real revenues. The following chart represents the data mentioned above (Financial Administration..., 2018).

Table 2. Slovak VAT budget, real revenues, total VAT received and total VAT claims

Year	SK VAT budget revenues	SK VAT real revenues	Budget fulfillment (%)	Total VAT received	Total VAT claims
1993	1 012 414 525,66 €	911 744 284,69 €	90,06	1 634 673 317,25 €	- 722 929 032,57 €
1994	1 286 596 295,56 €	1 224 913 103,91 €	95,21	2 293 030 053,16 €	- 1 068 116 949,25 €
1995	1 433 977 295,36 €	1 736 497 515,85 €	121,10	3 531 208 495,02 €	- 1 794 710 979,17 €
1996	1 792 471 619,20 €	1 615 842 288,32 €	90,15	3 661 478 173,45 €	- 2 048 003 813,07 €
1997	1 825 665 538,07 €	1 823 514 801,45 €	99,88	4 080 782 379,17 €	- 2 259 188 357,43 €
1998	1 875 456 416,38 €	1 833 915 059,44 €	97,79	4 225 831 211,20 €	- 2 391 401 630,57 €
1999	1 925 247 294,70 €	1 956 586 819,89 €	101,63	4 174 550 625,78 €	- 2 218 172 792,15 €
2000	2 087 897 497,18 €	2 343 073 074,09 €	112,22	4 710 292 383,44 €	- 2 367 570 018,28 €
2001	2 155 945 030,87 €	2 441 971 479,24 €	113,27	5 495 178 396,58 €	- 3 053 497 342,66 €
2002	2 721 901 347,67 €	2 729 891 300,59 €	100,29	6 085 584 952,24 €	- 3 355 757 627,89 €
2003	3 299 475 536,08 €	2 781 627 378,27 €	84,31	6 206 210 732,72 €	- 3 424 735 492,92 €
2004	3 243 045 874,00 €	3 305 302 990,58 €	101,92	6 452 738 933,02 €	- 3 147 559 975,65 €
2005	3 894 932 616,34 €	4 088 231 639,53 €	104,96	6 744 575 451,65 €	- 3 200 076 297,13 €
2006	3 983 170 683,13 €	4 264 185 477,77 €	107,06	8 818 370 149,60 €	- 4 554 184 671,83 €
2007	4 502 887 870,94 €	4 513 650 255,61 €	100,24	9 926 027 020,83 €	- 5 412 376 765,22 €
2008	4 714 399 522,01 €	4 632 524 392,80 €	98,26	10 825 103 368,58 €	- 6 192 578 975,78 €
2009	3 734 025 000,00 €	3 846 396 236,36 €	103,01	9 128 921 660,87 €	- 5 282 525 424,51 €
2010	4 410 605 000,00 €	4 431 539 377,56 €	100,47	9 804 943 710,63 €	- 5 373 404 333,07 €
2011	4 668 006 000,00 €	4 753 094 400,35 €	101,82	10 994 083 891,74 €	- 6 240 989 491,39 €
2012	4 817 988 000,00 €	4 307 165 584,63 €	89,40	10 723 176 514,78 €	- 6 416 010 000,00 €
2013	4 474 878 000,00 €	4 734 781 531,12 €	105,81	10 705 892 618,74 €	- 5 971 110 000,00 €
2014	4 912 002 000,00 €	4 919 286 858,62 €	100,15	10 969 060 827,64 €	- 6 049 770 000,00 €
2015	5 268 503 000,00 €	5 510 341 139,94 €	104,59	11 749 097 512,28 €	- 6 238 970 000,00 €
2016	5 654 677 000,00 €	5 368 697 206,54 €	94,94	11 497 989 222,87 €	- 6 128 840 000,00 €
2017	5 757 636 000,00 €	5 922 712 632,58 €	102,87	12 188 154 743,79 €	- 6 265 210 000,00 €

Source: authors' own elaboration based on data from Financial Administration Slovak Republic (2018).

Regarding turnover tax mechanism, our main speculation is that there would not be any possibility to claim any tax from the tax authority. That means that every taxable subject would have a duty to pay TOT and tax authority would not refund tax to any subject. This would lead to frauds' prevention as well. Developing the speculation, in 2017 there are 1 441 285 registered subjects in Slovakia (self-employed, profits and non-profits organizations). According to the Slovak tax authority in 2017, there were 221 515 VAT registered payers. That means that average VAT sum paid to the tax authority by one VAT payer compared to the SK VAT budget revenues was approximately 27 479,75 EUR. Furthermore, if considering data of total VAT received by the tax authority, we can determine the approximated turnover of all VAT payers subjects. The total turnover of all VAT payers subject in 2017 is 60 940 773 718,95 EUR. The total turnover of all VAT payers equation's methodology is attached below (Financial Administration..., 2018).

$$TTVP = \frac{TVR}{SVR}$$

$$TTVP = \frac{12\,188\,154\,743,79\text{ EUR}}{20\%} = 60\,940\,773\,718,95\text{ EUR}$$

- *TTVP* – Total Turnover of all VAT payers,
- *TVR* – Total VAT received,
- *SVR* – Standard VAT rate.

Continuing in our speculation, all taxable subjects would be the TOT payers. There are 1 284 384 self-employed and profit organizations after purifying data of all Slovak registered subjects (for the year 2017 sum of all registered subjects is equal to 1 441 285). Data mining has shown that in 2017 total turnover of all non-VAT payers (excluded non-profit and government's organizations, funds, church and etc.) is 49 839 823 126,57 EUR. According to the data, average annual turnover of a non-VAT payer subject is app. 38 804,46 EUR. Data are provided by FinStat s. r. o. (FinStat s.r.o., 2018).

If the total VAT received is divided to the standard VAT rate (20%) the approximate turnover of all VAT payer profit organizations and self-employed subjects for the year 2017 is estimated 60 940 773 718,95 EUR. If the sum of VAT payer subjects' turnover is merged with non-VAT payer subjects' turnover we can estimate the approximated turnover of all profit organizations in Slovakia in 2017. The estimated turnover is equal to 110 780 596 845,52 EUR. When this turnover is divided by SK VAT real revenues a new standard rate is calculated – turnover tax rate. For the year 2017 and 2016, 2015 as testing years (the sum of profit organization a self-employed is the same as in 2017 due to lack of

data) the results are following. The TOT rate of 2015 is 5,07%, 2016 is equal to 5,00% and 2017 is equal to 5,35%. A suitable turnover tax rate would be 5,14%, in order to have a simple standardized rate. The methodology of the results mentioned above is attached below (Financial Administration..., 2018).

$$ETO = TOTVP + TOTNVP$$

$$ETO = 60\,940\,773\,718,95 + 49\,839\,823\,126,57 \text{ EUR} = 110\,780\,596\,845,52 \text{ EUR}$$

- *ETO* – Estimated turnover,
- *TOTVP* – Total turnover of all VAT payers,
- *TOTNVP* – Total turnover of all non-VAT payers,

$$TOTr = \frac{SVRR}{ETO}$$

$$TOTr = \frac{5\,922\,712\,632,58 \text{ EUR}}{110\,780\,596\,845,52 \text{ EUR}} = 5,34\%$$

- *TOTr* – Turnover tax rate,
- *ETO* – Estimated turnover,
- *SVRR* – SK VAT real revenues.

Speculations

This section is dedicated to developing the speculations targeted on turnover tax and its benefits. As it was already mentioned in the previous section, one of the cornerstones of our calculations and speculations regarding turnover tax is a hypothesis that all subjects (except of the nonprofit organizations, government's organizations, funds, church and so on) would be a taxable person from a view of turnover tax. This hypothesis leads to a situation where there would be more than 6 times more taxable persons than nowadays. This is a significant condition that offers a possible reduction of the tax ratio (from 20% VAT to app. 5% TOT), according to our calculations.

Secondly, because of the fact that there are only taxpayers without a possibility of the tax refund, the most common value-added frauds, such as carousel fraud and so on, would not be accomplishable any more. To be realistic, subjects that are willing to commit a tax fraud would seek for a new option how to cheat and to rob the turnover tax system, but current most common tax frauds would be eliminated for good.

Based on preventing the possibility of committing tax frauds, a new speculation is offered. In the current VAT system, every VAT payer is obligated to provide control reports to the tax

authority. The control reports contain every business relations that are taxable from the VAT point of view. Those business relations that are not VAT's matter are not noticed in these control reports. Because of our speculation that there is taxable subject only (except of non-profit organizations, government's organizations, church, funds and so on), every business transaction should be registered in the control reports. A higher administration difficulty would occur, from one point of the view. From another point of view, this mechanism is not a new invention, there would not be any changing in the mechanism, only the scope of declared business relations would be wide.

A new benefit is offered by this speculation. The benefit is based on a fact that the more data tax authority has in chronological time horizon, the better control would be ensured by the tax authority even for the turnover tax, furthermore for the income tax itself. From a point of view of income tax, usually, the biggest frauds are committed in a period from December till March, or till the date when the income tax has to be paid. Subjects willing to lower their income tax liability uses this period to optimize the tax base. If the mechanism of control reports would force every taxable subject to monthly declare their turnover, the frauds committed on income tax would be much more difficult to be realized. Therefore, to ensure the idea that every taxable business relations would be declared in time, we propose that only those business relations would be accepted as a tax expense that lowers the income tax, that is declared to the tax authority in control reports. This would lead to the reporting in time, reduce the time period when subjects have space to commit income tax frauds and to an effort to report every taxable business relations.

The last speculation that is needed to be developed is the intra-community delivery and acquisition in the EU Member States when calculating with the turnover tax system. Currently, the intra-community mechanism is based on 0% VAT (Reverse Charge) when two VAT payers from different EU Member State are in business relationships. The intra-community mechanism is based on identifying in which EU Member State the delivery is realized. According to this significant aspect, the 0% VAT (Reverse Charge) is determined. Our speculation the turnover tax's mechanism would be founded on a fact that every EU Member State business subject would have to pay the TOT to the subject that provides the goods, even though the supplier and the purchaser are from two different EU Member States. In one way this would lead to the situation when foreign goods become more expensive to the domestic market. On another hand, the more expensive foreign goods are the better competitiveness have domestic suppliers. For instance, in Slovakia, the situation nowadays is

critical in the food market. The foreign food suppliers are cheaper than domestic producers, therefore the Slovak agriculture stagnates.

Conclusion

To conclude, the main objective of the article is to describe the current situation regarding VAT, its system, defects, and frauds. The importance of a need for a new tax system is highly actual, based on data collected from the European Commission. Due to the lack of the VAT mechanism about 150 EUR billion is annually stolen by tax frauds, such as the carousel and so on.

The possible better international trade could be if the current tax system in EU is changed. Therefore the article reflected the potential of the turnover tax, its rate, impacts on domestic and international trade. Based on data provided by Slovak tax authority the calculations were made, especially the turnover tax rate. In the condition of the Slovak Republic, the turnover tax rate could be equal to app. 5%.

Calculation only is not sufficient, therefore we speculated about the mechanism of the turnover tax system. Several conclusions and findings were made, some were developed from the current VAT mechanism.

The main benefits of the turnover tax are lower tax rate, better control provided by the tax authority, significant elimination of the tax frauds and helping the domestic suppliers being more competitive towards the foreign suppliers. Even though the turnover tax includes several defects, such as higher administration and negative effect to the international trade in form of making the foreign goods more expensive, we still propose to change the current VAT system into the turnover tax system.

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