SILESIAN UNIVERSITY OF TECHNOLOGY PUBLISHING HOUSE

SCIENTIFIC PAPERS OF SILESIAN UNIVERSITY OF TECHNOLOGY 2021
ORGANIZATION AND MANAGEMENT SERIES NO. 153

DETERMINANTS OF THE VAT GAP – PART 1

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Purpose: The purpose of the paper is to identify the determinants of the gap in Value Added Tax and to assess the measures already taken in order to seal this gap.
Design/methodology/approach: The authors used statistical data derived from CASE reports prepared for the European Commission and numerical data contained in the Supreme Audit Office's (NIK) reports on audits carried out by tax administration authorities.
Findings: A thorough understanding of the VAT gap mechanism will facilitate implementation of appropriate measures to limit the scale of occurrence of tax offences. Systematic data collection, reliable research and interinstitutional cooperation in the field of tax fraud can significantly reduce this phenomenon. Determinants of the VAT gap do not only embrace tax fraud and tax evasion, although these two factors are the most important and are sometimes even identified with the concept of VAT gap. The size of the gap is also affected by other factors such as methodological errors, cyclical factors, grey area, problems with financial liquidity and bankruptcy of taxpayers.
Research limitations/implications: The study is divided into two parts – the first one contains the definition and interpretation of the tax gap phenomenon and shows some tax frauds which are frequently cited as the main factor contributing to VAT gap. The second part contains a presentation of the remaining determinants of the gap such as methodological errors, cyclical factors, the grey area, problems with cash flow and bankruptcy of taxpayers.
Practical implications: The aforementioned considerations were conducted to find the answer to the following questions: to what extent the state can limit the size of the tax gap and whether the factors shaping the size of the gap result only from the structure of this tax.
Social implications: Identification of tax gap determinants can help design a set of effective tools which will reduce the size of this phenomenon.
Originality/value: The article is addressed to all tax services responsible for the architecture of tax system and services responsible for tax collection.

Keywords: tax gap, VAT gap, Value Added Tax (VAT), tax frauds.

Category of the paper: technical paper, case study.

1. Introduction

The VAT gap is a phenomenon that occurs in both developing and highly developed countries, in and outside of the European Union. The consequences of a large tax gap are severe for both public and private sector. From the perspective of the national economy, tax gap hurts the state budget as reduced tax revenues result in reduced expenditure and an increased budget deficit. In the private sector, companies which are not tax compliant may push away from the market law abiding entities who duly fulfil their tax obligations.

Between 2016 and 2017, many legislative initiatives were undertaken in Poland in order to reduce the size of the tax gap. The initiatives include:

- Standard Audit File for Tax (SAF-T)- obligation to report in the standardized format. A package of structured data about business transactions is handed over to the tax authorities in electronic form. The data is downloaded directly from the company's financial and accounting systems.
- Fuel package – only locally registered entities have the right to trade fuel in Poland. Buyers are obliged to make VAT payments for imported fuel within 5 days of its import to Poland.
- Split payment mechanism – the transfer made by the buyer is divided into: net value, which goes directly to the creditor's settlement account and the amount of the Value Added Tax which goes to the taxpayer’s VAT subaccount which is permanently supervised by the tax authorities.
- Communication and Information System of the Clearing House (STIR) – a tool used by the tax authorities to control and monitor banking operations carried out by business entities (Hoza, Żabka).

According to reports from the European Commission, between 2006 and 2011, the state budget in Poland lost between 0.4 percent and 1.5 percent of the GDP per year as a result of unpaid Value Added Tax. The biggest VAT gap was recorded in 2012 when it amounted to 43.1 billion PLN (CASE, 2014). The 2013-2015 audits of the Supreme Audit Office (NIK) clearly indicated that the Polish tax authorities had counteracted this phenomenon only to a small extent and the speed and effectiveness of their operations were insufficient.

2. Tax gap – definition and interpretation

The analysis of tax gap should start with the definition of the concept, however, an unequivocal definition of this phenomenon is nowhere to be found in literature. The term ‘tax gap’ was created, and then the methodology followed as it was needed for the purposes of reporting, scientific studies and comparative analyses of the OECD. The tax gap can be defined in at least two ways. Firstly, as a gap arising from tax preferences (policy gap) or secondly, as a gap in the compliance of inflows, which is the result of tax revenue lower than revenue from the full implementation of the tax obligation (compliance gap or VAT gap in case of Value Added Tax).

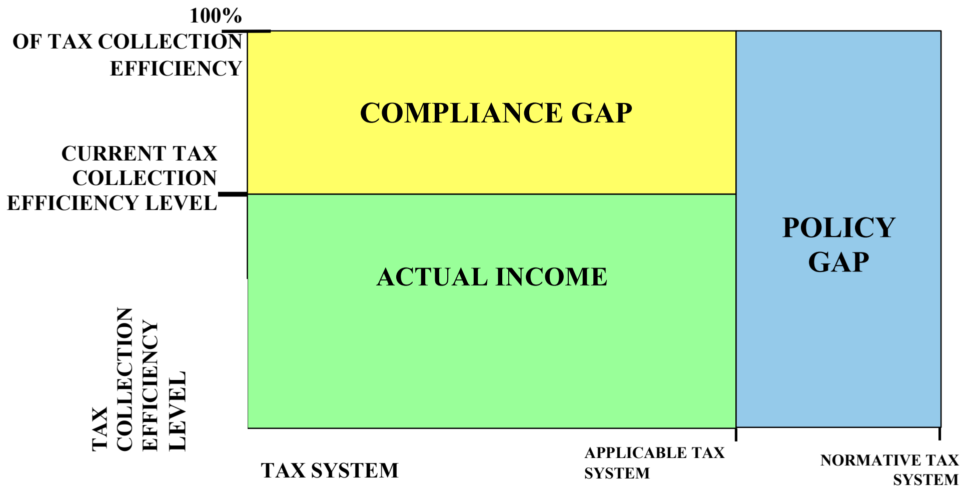

Figure 1. Compliance gap. Adapted from: own elaboration based on CASE 2019 report.

The concept of policy gap includes the potential loss of tax revenue from the application of various tax advantages, exemptions or preferences. In other words, policy gap is the disparity between actual tax revenue and theoretical revenue that would have been gained, had the tax system had neither preferences nor tax advantages. In case of VAT, policy gap includes, among others, reduced VAT rates, exemptions and legal tax optimization. Policy gap is a purely theoretical value and is important from the point of view of the EU as it enables comparison of tax systems of various Member States and facilitates harmonization processes.

The average policy gap in the EU in 2017 amounted to 44.5%. According to the European Commission estimates, the lowest level of policy gap is recorded in Bulgaria (29%) and Lithuania (33.5%), Spain is on the other side of the spectrum (nearly 60%) along with Italy, France and the United Kingdom (53%). In Poland, this figure amounted to 48.4% (CASE 2019).

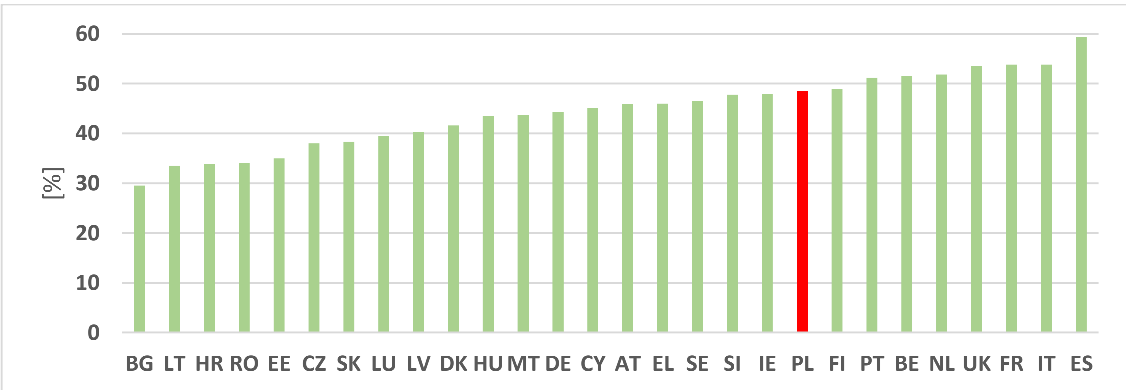

Figure 2. Policy gap of Value Added Tax in European Union countries in 2017. Source: own elaboration based on CASE 2019 report.

The gap caused by VAT exemptions (the exemption gap) averaged at 35% in the EU countries and was highest in Spain (46%) and Great Britain (44%), and the lowest in Cyprus (15.9%). The gap caused by the application of reduced rates (the rate gap) was the lowest in Denmark (0.77%) and Estonia (2.91%), and the highest in Cyprus (29.55%), Malta (16.46%) and Poland (14.61%).

While policy gap and its structure does not constitute a major problem for the EU Member States, compliance gap is a phenomenon that requires both research and action in order to reduce it. According to the most general and thus universal definition used by both the European Commission and entities estimating the size of this phenomenon, such as PWC: *compliance gap is the disparity between tax revenue which should theoretically be achieved assuming full fulfilment of obligations by taxpayers and the revenue actually achieved*. Adopting such a general definition of the tax gap has such an advantage that it does not impose a specific methodology for its measurement and it remains valid regardless of the type of tax in which the gap exists. In the further part of the paper, the definition of tax gap is synonymous with the gap in the compliance of inflows defined above.

In case of Value Added Tax, compliance gap is referred to as $\boldsymbol{VAT\ gap}$ and is defined as follows:

$$\boldsymbol{VAT\ gap} = \boldsymbol{VTTL} - \boldsymbol{VAT} \quad (1)$$

where:

VTTL – VAT Total Tax Liability – theoretical VAT income resulting from the implementation of the tax obligations,

VAT – actual gained income from Value Added Tax i.e. according to ESA (the European System of National and Regional Accounts).

VAT gap is not a typically Polish problem, most EU countries are struggling with it to a greater or lesser extent. According to data published by the European Commission, in 2017 the EU countries lost 137.5 billion Euro of Value Added Tax revenue. The VAT gap ranged from 35.5% of uncollected VAT in Romania, to 0.6% in Cyprus and 0.7% in Luxembourg. In Poland the gap amounted to 13.7% (CASE 2019).

In absolute values, the largest gap of 33.6 billion Euro was recorded in Italy, 25 billion Euro in Germany. The gap in Poland in 2017 was estimated at 5.7 billion Euro. The European Commission quoted the preliminary estimated value of the gap for 2018 on the level of 9 percent. The countries with notoriously highest tax gap are Romania, Greece, Lithuania, Italy and Slovakia.

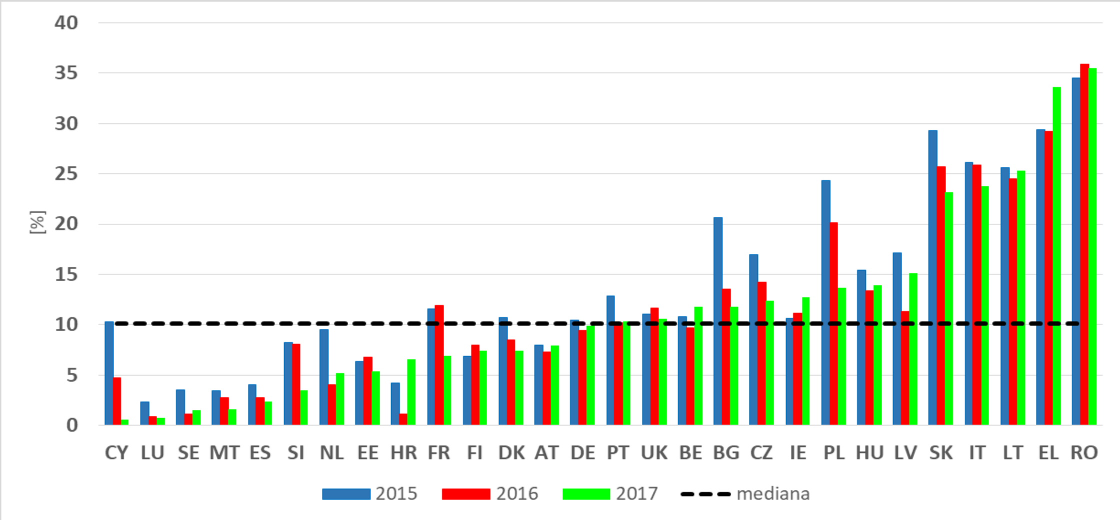

Figure 3. VAT Gap in the European Union between 2015 and 2017. Source: own elaboration based on CASE 2018, 2019 reports.

3. Determinants of the VAT gap

In common view, VAT gap is often synonymous with tax fraud, however, however such perception of the phenomenon is not accurate. In reality VAT gap consists of:

1. fraud and tax evasion,
2. methodological errors – part of the estimated VAT gap resulting from errors and inconsistencies in data or methodological errors, including errors in assumptions, hundreds of which are made in the process of estimation of the VAT gap,
3. cyclical factors resulting, among others, from changes in taxpayers' behaviour depending on the phase of the economic cycle, changes in prices and the demand pattern that are not reflected in macroeconomic data,
4. grey market: activities that are not considered tax crimes, especially in case of VAT, including, for example, neighbourly help, one-to-one tutoring or tips,
5. cash flow issues and bankruptcies of taxpayers who, for financial reasons, are not able to discharge their tax obligations (and to a large extent will never discharge them),
6. other preferences, solutions and mechanisms resulting from the specifics of the VAT system, which cause, for example, shifts in VAT revenue e.g. the option of switching from monthly to quarterly settlement of VAT.

3.1. Tax frauds

Due to its construction, Value Added Tax is particularly vulnerable to attempts of fraud. Tax fraud can take many forms (from conducting undisclosed business to fraud involving fake invoices) and scale (from several fake invoices to organized criminal structures). According to NIK, the most common tax frauds include:

1. Fake intra-community supply of goods, which allows taxpayer to demand a VAT refund or reducing the tax amount due to the state budget, because of the zero VAT rate applicable in intra-community supply. The system of taxing intra-community transactions is based on the model of taxation of transactions in the country of destination. Therefore, the taxpayer delivers the goods and settles it with 0% VAT rate, while the buyer, who has the full right to deduct input VAT, presents this transaction as both purchase and sale, and the tax related to it – as input and output tax. The method of settling intra-community transactions, based on the parties' independent determination of taxation combined with the absence of effective control system on the part of the Member States opens door not only to petty abuses but also to more complex ones such as tax carousels (Michalik, 2017).
2. 'Carousel' fraud is fake flow of goods between several EU countries with the assumption that these goods will finally 'return' to the country of origin and to the first link in the supply chain. The transactions in the carousel are carried out very quickly, they 'pass' through a number of companies in different EU countries within 1-2 days. 'Carousel' is a deliberate and organised crime making use of systems and mechanisms that enable to evade the VAT obligation by either not paying VAT or falsely demanding its return by companies operating internationally (the Chancellery of the Prime Minister of Poland, 2010, p. 82). The tax carousel is a network of a dozen (sometimes several dozen) entities that conclude several hundred transactions of purchase of goods which are immediately resold to another entity. However, the related payments are not reflected in the actual flow of goods (Ożóg, 2017). What is worth mentioning, very often carousel frauds simultaneously operate in several EU countries, creating the so-called 'olympic circle'. This means that fraud is carried out in a selected group of countries where tax regulations are easier to circumvent or inspection authorities are less efficient.
3. Fake exports i.e. deliveries to countries outside the EU, in particular to those with whom cooperation in the field of combating tax fraud is difficult or underdeveloped.

The analysis of the data from reports prepared by CASE for the European Commission, shows the convergence in the shape of the diagrams of the tax gap in various EU countries and makes it possible to conclude which groups of countries appear in this procedure. For example, similar trends can be observed regarding the increase and decrease of the tax gap in the following countries: Greece, Italy, Romania. Particular compliance is noticeable between 2008 and 2010, when the size of the gap in each of the analysed countries first increased by 5% in

Italy and in Romania by 12%, and then decreased by 8% in Romania and by 6% in Italy and Greece (Figure 4).

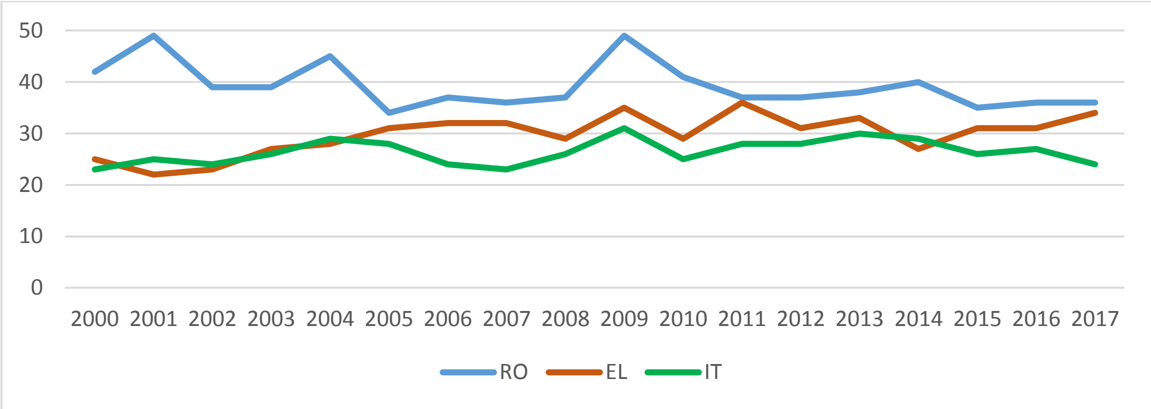

Figure 4. VAT Gap in Romania, Greece and in Italy between 2000 and 2017. Source: own elaboration based on CASE 2018, 2019 reports.

An interesting phenomenon can be observed when juxtaposing three Baltic countries: Lithuania, Latvia and Estonia (Figure 5). Between 2000 and 2006, each of these countries had a different level of VAT gap – Estonia had the smallest gap of 10%, Latvia's gap was between 11% and 23%, while the biggest gap was in Lithuania – between 30% and 42%. Between 2007 and 2009, a dynamic increase in the gap in Estonia could be observed – from 10% to 34%. A similar process could be seen in Latvia in the same period – the gap rose from 10% in 2007 to 42% in 2009 making Latvia the state with the second highest tax gap in the European Union (barely behind Romania). In the following years, Estonia relatively quickly returned to values oscillating around 10%, to finally reach the value of 2-3% in 2016-2017. In case of Latvia, this process was more difficult – between 2011 and 2013 the level of tax gap was very high – over 30%, while in 2015 it fell to 7% levelling with Estonia in 2017. In the same period the gap was also reduced in Lithuania, however, the decline stopped at 25% (Figure 5).

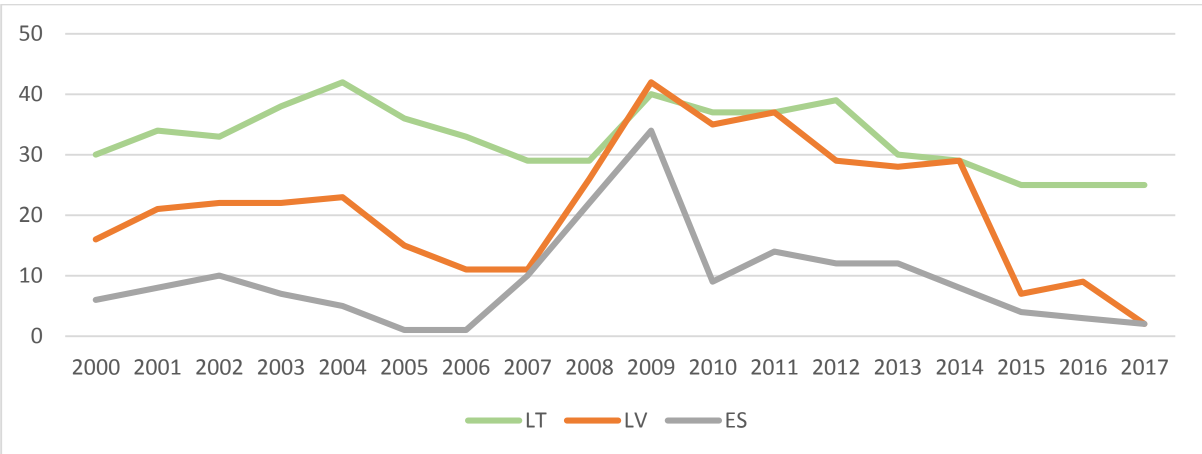

Figure 5. VAT GAP in Lithuania, Latvia and Estonia between 2000 and 2017**.** Source: own elaboration based on CASE 2012-2019 reports.

When it comes to Poland, there is an observable convergence with Slovakia and the Czech Republic in the period between 2009 and 2017 (Figure 6).

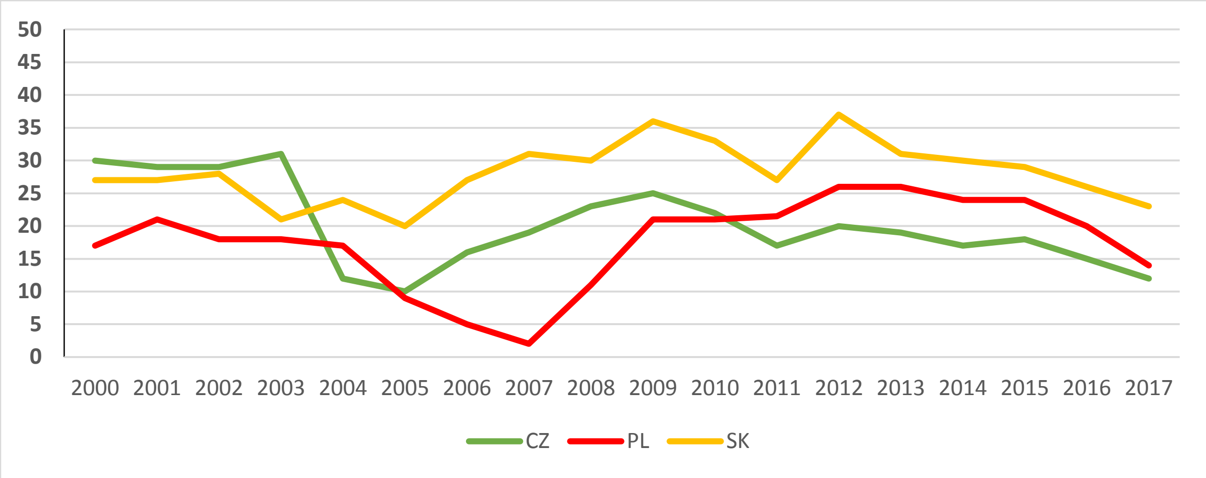

Figure 6. VAT Gap in Poland, Czech Republic and Slovakia between 2000 and 2017. Source: own elaboration based on CASE 2012-2019 reports.

In case of the Czech Republic, the gap started to increase in 2006 and rose gradually by 3-4 percentage points per year. The maximum level of 25% was reached in 2009 and from that moment decreased gradually to 12% in 2017. In Poland, four periods can be distinguished in which the VAT gap was changing dynamically:

- between 2004 and 2007 – a decrease from 15% to 2%,
- between 2008 and 2013 – a teep increase to 26%,
- between 2014 and 2015 – a slowdown of the upward trend – the process of increasing the VAT gap was reversed but it remained at a level oscillating around 25%,
- between 2016 and 2017 – a period of a very strong decrease of the VAT gap (to 14%) which brought Poland closer to the EU average.

Tax criminals modify their "operating technique" in response to the steps taken by the EU Member States to counteract VAT frauds. They increase dynamics of operations by trading goods between entities within a few hours, increasing the value of goods being subject of a single transaction and choosing different types of goods being subject of a transaction. Carousel frauds performed in the form of "olympic circles" are made with the active participation of companies from several countries but the real losses for the budget are recorded only in one country – the one where the carousel fraud begins and ends and where the leading company coordinating the tax fraud procedure is located. The task of companies from other countries is to authenticate the transaction chain and impede access to the leading company. Thus, it is very important to involve all European Union countries in the fight against this type of fraud. Only through cooperation and creation of a unified community information systems will it be possible to really reduce the scope of tax offences. Otherwise, the budgets of affected countries will continue to suffer real losses because criminals always modify their techniques of action and find more weak points in the national VAT systems.

An example of active cooperation between EU Member States to combat tax fraud and to seal VAT gap is using e-invoices. In Poland, the initial concept assumes that an entrepreneur will issue an electronic, standardized invoice in XML format which is sent to an electronic platform, where it receives the approval of tax authorities and only after this approval the contractor is allowed to download the invoice. So far, only a few EU countries have decided to implement mandatory e-invoice reporting in real time. This solution is already in use for example in Italy and, to a limited extent, in Spain and Hungary. In Italy, entrepreneurs send e-invoices in XML format, with an electronic signature to the Sistema di Interscambio (SDI) platform managed by the Italian equivalent of the National Tax Administration. The system is mandatory and paper invoices or invoices issued without the use of SDI are considered invalid. In Spain, e-invoices are reported every four days and this obligation applies to the largest taxpayers with a turnover exceeding 6 million Euro, while for other taxpayers the system is voluntary. In Hungary, e-invoices are transferred to a platform within 24 hours only if their value exceeds 100,000 Forints (approx. 1260 PLN).

In case of e-invoicing, it is highly recommended for all EU countries to cooperate and to establish a uniform format for this document. Only then, e-invoicing could translate into a reduction of VAT frauds committed throughout the EU and in Poland. Otherwise, there will be a need for yet another revolution after the one which already happened in Poland with the introduction of the Standard Audit File for Tax [SAF-T] and split payment, but this new revolution will only bring about limited results because it will still be impossible to cross-check intra-Community transactions and utilise the full potential of the concept of e-invoicing.

A thorough understanding of the VAT gap mechanism will facilitate implementation of appropriate measures to limit the scale of occurrence of tax offences. Systematic data collection, reliable research and interinstitutional cooperation in the field of tax fraud can significantly reduce this phenomenon. In addition, widespread cashless payments, an electronic register of invoices and bills, as well as increased transparency of public institutions' activities can significantly reduce the scale of the VAT gap.

It should be mentioned that higher efficiency of tax collection was not the only cause of an increased VAT revenues in Poland between 2016 and 2019. The good economic situation meant that the tax base and thus the value of taxable goods and services has been raised. It should also be emphasized that the main driver of economic growth in 2017 was private consumption which increased by 4.8% due to good situation on the labour market, increased minimum wage and the implementation of the social welfare programme ‘Family 500+’. These factors boosted consumption which translated into an increase in indirect tax revenues.

Determinants of the VAT gap do not only embrace tax fraud and tax evasion, although these two factors are the most important and are sometimes even identified with the concept of VAT gap. The size of the gap is also affected by other factors such as methodological errors, cyclical factors, grey area, problems with financial liquidity and bankruptcy of taxpayers. Effective sealing of VAT gap may result in an increased inflows to the state budgets and the resources can be then redistributed for the benefit of societies and development of national economies.

References

1. CASE (2012). Update Report to the Study to quantify and analyse the VAT Gap in the EU-27 Member States.
2. CASE (2013). Study to quantify and analyse the VAT Gap in the EU-27 Member States.
3. CASE (2015). Study to quantify and analyse the VAT Gap in the EU Member States.
4. CASE (2016). Study and Reports on the VAT Gap in the EU-28 Member States: 2016 Final Report.
5. CASE (2017). Study and Reports on the VAT Gap in the EU-28 Member States: 2017 Final Report.
6. CASE (2018). Study and Reports on the VAT Gap in the EU-28 Member States: 2018 Final Report.
7. CASE (2019). Study and Reports on the VAT Gap in the EU-28 Member States: 2019 Final Report.
8. Hoza, B., Żabka, A. (2018). IT Tools Used to Reduce the VAT Loophole – JPK_VAT, STIR, Split Payment Mechanism. *The Scientific Journal of Bielsko-Biala School of Finance and Law, No. 3*.
9. https://ec.europa.eu/taxation_customs/sites/taxation/files/resources/documents/taxation/tax_cooperation/combating_tax_fraud/reckon_report_sep2009.pdf, 18.04.2020.
10. Michalik, T. (2017). How the European Commission and European countries fight VAT fraud. *CASE Seminar Proceedings/Zeszyty mBank CASE, no. 147*, p. 16, http://www.case-research.eu/uploads/zalacznik/2017-06-27/How_the_European_Commission_and_European_countries_fight_VAT_fraud.pdf, 18.04.2020.
11. Ożog, I. (ed.) (2017). *Przestępstwa karuzelowe i inne oszustwa w VAT.* Wolters Kluwer, Warsaw.
12. Raport na temat wielkości luki podatkowej w podatku VAT w Polsce w latach 2004-2017. *MF Opracowania i Analizy no 3/2019*, https://www.gov.pl/web/finanse/no-3-2019.
13. Reckon, L.L.P. (2009). *Study to Quantify and Analyze the VAT Gap in the EU-25 Member States*. Report commissioned by the European Commission, Directorate-General for Taxation and Customs Union.
14. Szczypińska, A. (2018). Co powoduje lukę w podatku VAT w Unii Europejskiej? *MF Working Papers, 30.* Ministerstwo Finansów w Polsce, ammended on June 14, 2019, https://www.gov.pl/web/finanse/luka-vat-w-ue-agnieszka-szczypinska, 18.04.2020.
15. The Chancellery of the Prime Minister of Poland (2010). *Transakcje wewnątrzwspólnotowe ze szczególnym uwzględnieniem transakcji trójstronnych i łańcuchowych oraz dentyfikacja oszustw karuzelowych w handlu wewnątrzwspólnotowym.* Warsaw, https://dsc.kprm.gov.pl/sites/default/files/f38.pdf.