

## Auditing VAT compliance in Poland. Goals, tools and effects

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### Keywords

Tax compliance, tax evasion, VAT audit

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### Abstract

*Diversified schemes of tax non-compliance have their origin in different behaviours and circumstances. They have been continuously explored by the scientist since the 1960s. Classical theories focus on the role played by deterrence as a means to prevent non-compliance. Among deterrence factors tax audit probability is commonly considered to be an important variable explaining the perceived scale of compliance. In the more modern approach tax compliance is analysed while taking into account multiple non-economic factors such as age, gender, religion, attitudes, perceived justice and social norms. This approach is justified especially when tax collection is not negatively affected to a wide extent by the activities of organised crime groups. In the case of VAT the predominant part of revenue loss related to non-compliance is caused by these activities. That is why the efficiency of tax audits is considered a crucial factor to counteract VAT evasion. This article attempts to evaluate the efficiency of VAT audits, reviewing inter alia the audit selection methods. It also addresses the specific factors of VAT non-compliance and demonstrates the scale of this phenomenon in Poland.*

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### Introduction

Tax compliance is a complex phenomenon. The taxpayer decision: to pay or not to pay their tax liability is affected by a wide array of factors. It may be influenced by economic, social and psychological determinants. These determinants and their interactions differ strongly depending on the type of tax, e. g. personal income tax, value-added tax, sales tax. In the case of VAT non-compliance takes very often the form of organized tax crime. This is true especially in the European Union member states where VAT fraud is committed by groups of companies, each entrepreneur being assigned a specific function in the fraudulent scheme. According to the estimations of the European Commission the tax loss due to cross-border VAT fraud in the EU member states reaches nearly 50 billion Euro per year. Preventing this fraud is therefore a top priority for European governments. In the economic literature tax audit is frequently mentioned as an appropriate instrument of fraud counteraction. The efficiency of tax audits is determined by multiple internal and external factors, such as audit coverage or taxpayer selection methods. The basic aim of this article is to answer the question as to whether tax audits in Poland are an effective method of non-compliance detection. It is composed of three parts, the first devoted to factors of VAT non-compliance, second – tax audit selection methods and the last results of tax VAT audits conducted in Poland in recent years.

### Factors influencing VAT compliance

VAT is perceived as one of the taxes markedly vulnerable to non-compliance. An approximate estimate of the extent of general VAT non-compliance is usually presented in the form of the VAT gap. Its scale in the European Union member states is periodically measured and described in one of the publications prepared for the Directorate General Taxation and Customs Union. According to these publications the VAT gap as a percentage of theoretical tax liability was relatively stable in the last ten years. It oscillated around 13,0%. The VAT gap varies significantly across countries (TAXUD, 2017, p. 17). In 2015 it exceeded 37% in Romania, reached nearly 30% in Slovakia, was higher than 25% in Greece, Lithuania or Italy and attained almost 25% in Poland. In the same year it did not surpass 5% in Sweden or Croatia. Due to the comparably high VAT gap in Poland the efficiency indicators of this tax are among the lowest in the European Union (Hybka, 2018, p. 287). Both the VAT gap and c-efficiency indicators for Poland are presented in Table 1.

Specification	Year			
	2012	2013	2014	2015
VAT revenue (million PLN)	116 265	116 607	122 671	125 836
VAT efficiency ratio (%)	40.30	37.64	40.18	38.92
VAT gap as % of theoretical revenue	26.91	26.36	24.10	24.51

Table 1. VAT collection, VAT efficiency ratio and VAT gap in Poland in the years 2012-2015

Source: Own elaboration based on Analiza wykonania budżetu państwa, 2017, p. 85; Analiza wykonania budżetu państwa, 2016, p. 96; Roczne wskaźniki makroekonomiczne, 2017; TAXUD/2015/CC/131, 2017, p. 43.

Tax compliance decisions are usually shaped by a wide range of factors. Extensive literature sources exist addressing these factors. Researchers frequently verify such variables as tax moral, tax fairness and deterrence measures. Apart from these variables some authors analyze more specific determinants that may be classified by using different criteria. In the publication of Marandu, Mbekomize, Ifezue tax compliance determinants are grouped into four categories: attitude, subjective norms, perceived behavioural control and others. This particular classification is based on the Theory of Planned Behaviour. This theory postulates that intentions and behaviours are a function of three determinants: one personal in nature, one reflecting social influence and the last one dealing with issues of control. It was formulated taking into account three assumptions, namely that humans usually behave in a sensible manner, that they take into account available information and that they implicitly or explicitly consider the implications of their actions (Ajzen, 2005, p. 117).

Examples of some factors in the categories mentioned are presented in Table 2. Some of these factors have strong positive or negative effect on tax compliance. In the case of others the results of the conducted analyses are inconclusive. Tax moral and tax fairness, according to multiple studies, affect tax compliance positively. Deterrence measures (e.g. tax audit probability or legal sanctions) however are found to be more controversial. It must be noted that such determinants as a probability of tax audit and legal sanctions are among the most commonly studied determinants of tax compliance. Their analysis started with the development of the deterrence model (Allingham, Sandmo 1972, s. 323). In that model tax compliance may be improved by increasing penalties and detection rates. As it is however emphasized by Murphy the results conducted to verify some aspects of reactance theory demonstrate that legal coercion may lead to opposite behaviour patterns than those expected by the legislator (as for instance further non-compliance, creative compliance or overt opposition) (2008, p. 115). That is why the introduction of severe tax sanctions may, under certain conditions, result in decreased compliance.

Category	Factors of tax compliance	Number of findings which displayed:	
		Positive association	Negative association
Attitudes	Tax knowledge/Tax education	2	-
	Perceived tax burden	-	1
	Expected costs of non-compliance	1	-
	Individualism	-	1
	Assertiveness	1	-
	Affective priming	-	1
Subjective norms	Cognitive priming	1	-
	Normative expectations	1	-
	Referral group	-	1
	High moral norms	1	-
Perceived behavioural control	Known number of tax evaders	-	1
	Corrupt government	-	2
	Legal sanctions	5	1
	Audit probability	5	1
Others	Ability to pay	4	3
	Marital status	-	1
	Age	3	-
	Gender	2	-

Table 2. Selected factors of tax compliance

Source: Marandu, Mbekomize, Ifezue, 2015, s. 210-211.

Although tax compliance in general terms is a popular research topic factors of VAT compliance are addressed in the economic literature rather rarely. Most papers are in fact devoted to income tax compliance. That is why, as it is suggested by Webley, Adams and Elffers, in analyzing causes of VAT non-compliance one can draw conclusions based on general theories, empirical economic and psychological /behavioural economic literature (2006, p. 176). One of the models considered by these authors in this analysis is the WBAD model concentrating on the motives of the taxpayers. Based on this model taxpayers may be divided into those who are willing to, are able to and dare to be non-compliant. Individuals may fall into particular categories as a result of their personality or attitudes (e. g. being community-minded) or because they feel deterred by reputational or financial risk (Webley, Ashby, 2010, p. 249). They may also be encouraged by existing tax regulations, other businesses in the same economy sector committing tax offences on a large scale without being audited or sanctioned, or corrupt government.

In the paper by Webley, Adams and Elffers the authors research the most important factors shaping the VAT compliance decisions taking into account the following determinants: deterrence, equity, personality, satisfaction with tax authorities and mental accounting (2006, p. 177). The analysis of mental accounting as important factor of tax compliance builds on the fundamental ideas of behavioural economics. According to Thaler mental accounting is defined as a set of cognitive operations that are used by individuals and their groups to organize, evaluate and keep track of financial activities (2000, p. 241). As is suggested by Webley, Adams and Elffers if the business owners perceive VAT paid by the customers as part of their business turnover they may be more reluctant to hand it over to the tax authorities (2006, p. 182).

It must be underlined that VAT non-compliance usually takes diversified forms and some non-compliant behaviour patterns may be driven by different motives than the others. The review of VAT evasion schemes makes it possible to divide those using different criteria, the simplest however may be associated with the scale of business activities and type of transactions conducted. According to this criterion non-compliance patterns related to domestic transactions differ from those related to international transactions. In the European Union the latter type of non-compliance poses a constant and serious problem due to the application of the so called destination principle. Pursuant to this principle the supply of goods in the country of the supplier is exempt from tax. At the same time the right to the refund of the input tax is maintained in the country of the buyer where the supply of goods is taxed in accordance with the applicable tax rate. Existence of this principle creates a temptation for abuse. Carousel fraud is currently considered as one of the most serious threats to VAT financial resources. It is based on the exploitation of the VAT refund mechanism and takes the form of organised crime usually with involvement of many businesses. In the case of such fraud such non-compliance variables as the perception of tax fairness play a less important role and their counteraction depends mainly on an efficient tax audit system.

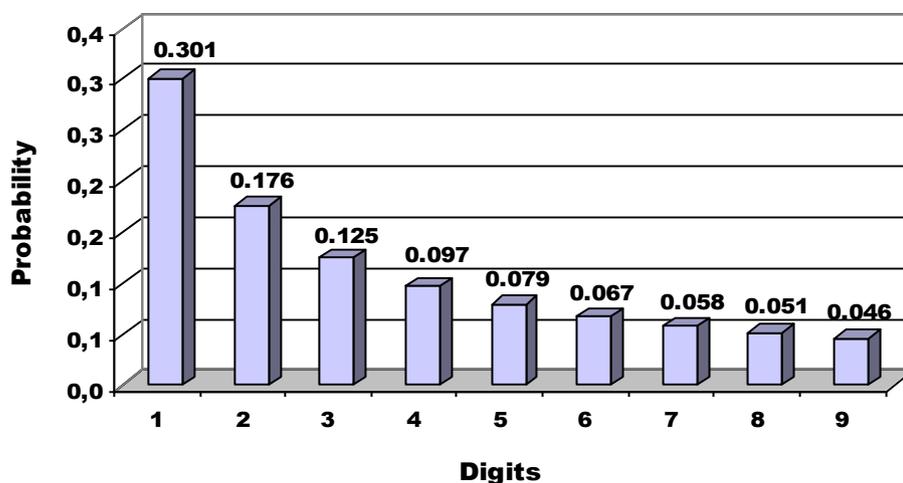
### **Tax audit selection methods**

Proper design of audit selection methods is a prerequisite for audit efficiency. Selection of taxpayers for the purpose of tax audits can be carried out using a number of methods. They especially include: manual screening, random selection and risk-based selection. In practice these methods are applied interchangeably or complement each other. The easiest of them is screening. It involves selecting taxpayer documentation to be verified by an employee of the tax authority based on his professional experience and information held by this authority. It is a traditional method that dates from the time when there was little or no IT support. It enables full use of local knowledge and creates relatively less resistance from the auditors' side. However tax authorities all over the world are departing from this method as it has numerous disadvantages. They are described in particular in the publication of the OECD from 2004 and include (Audit case selection, 2004, pp. 11-12): a strong reliance on a limited data set with no systematic cross reference to other data sources, auditors can miss aspects of tax non-compliance with which they are not familiar, high opportunity costs. In Poland the screening method was widely applied before the country's accession to the European Union. Currently it is generally used as an

auxiliary method. This method was also implemented in certain decentralized tax systems, for example in the United Kingdom (Khwaja, Awasthi, Loeprick, 2011, p. 19).

Another, also less and less frequently applied, method is the random selection, which involves choosing a sample from the taxpayer population. This means that the probability of being drawn for audit is the same for every taxpayer (simple random selection). This method is applied for a variety of purposes, especially in order to develop a new or validate a case selection system currently in use, to identify emerging evasion schemes, to evaluate the scale of tax non-compliance (tax gap) in the population or in the specific sector of the economy and to assess the effect of tax enforcement policies. According to the OECD study most tax authorities use the so-called stratified sampling which divides the population of taxpayers into subgroups according to specified attributes, such as for example the sector of the economy, turnover, income (Use of Random Audit, 2004, p. 19). The probability of selection may be different in each stratum. It is commonly applied while selecting taxpayers for VAT audits. Apart from that method tax authorities may also use systematic and group sampling. In the first taxpayers are selected for tax audit at fixed intervals (e.g. in each group of 100 taxpayers every 57<sup>th</sup> is selected). Group sampling is a convenient sampling technique when the taxpayer population consists of diversified groups exhibiting different patterns of compliance behaviour.

The programme of random selection of taxpayers was first implemented in the USA as early as the 1960's (*Taxpayer Compliance Measurement Program*). It was used by the IRS until 1988. Some OECD member countries continue to apply taxpayers' random selection schemes for tax audit purposes. One of them is the United Kingdom. This programme is used in particular to select small and medium-sized enterprises. However the method of the random selection of taxpayers has some drawbacks. In general high costs of employee training and quality control as well as significant costs directly related to the implementation of random audit programmes are indicated by multiple authors as major weaknesses of this method. Its basic advantage is the direct relationship between the size of the sample and the probability of a tax audit from the perspective of taxpayers.



**Figure 1. Probabilities of each digit on the first position in number according to Benford's Law**

Source: Žgela, Dobša, 2011, p. 217.

Due to the development of IT methods it is becoming increasingly common to base audit selection methodologies on the results obtained from statistical analyses. These usually involve (Audit case selection, 2004, p. 12):

- techniques applied to highlight disparities in tax return data (data matching),
- techniques implemented to predict which classes of tax returns fall into which risk category (high or low risk) (e. g. Discriminant Function Analysis applied in the USA),
- techniques aimed at the identification of patterns of non-compliance in the population on the basis of similar patterns identified in the past (data mining).

One of the tools for selecting taxpayers for tax audit is the IDEA program (*Interactive Data Exploration and Analysis*). It was acquired by tax authorities in Germany, Canada, Great Britain, New Zealand and Poland (Weimann, Eichmann, 2003, p. 45). This program uses Benford's law that takes into account the probability distribution of specific digits in significant positions in natural numbers. Benford's distribution of the digits in the first position is presented in Figure 1. Its use is not justified in every case. Tax or accounting data do not always have the Benford distribution (Durtschi, Hillison, Pacini, 2004, p. 23). Deviations from this distribution occur, for example, when a company conducts a series of identical transactions with the same commodity, the price of the commodity is fixed and the company issues invoices in order to document them. Another example is when Benford's law may not be applied for tax audit purposes and involves certain data related to business activities in a specific area, e.g. data on the amounts of refund on refunded medicines gathered by businesses offering pharmaceutical products. In addition the analysis of the distribution of digits in numbers using Benford's law brings reliable results only in the case of data sets characterized by the unchanging scale and base of mathematical operations. The data included in them should also meet certain additional conditions. Numbers that do not follow Benford's law have the following characteristics (Cho, Gaines, 2007, 219):

- are assigned (e.g. invoice numbers, VAT identification numbers),
- are influenced by human thought (e.g. prices set by psychological thresholds – \$ 1.99),
- are part of a large set of firm-specific numbers,
- are part of accounts with a built-in maximum or minimum.

In OECD member states and the European Union taxpayers are selected for audit also on the basis of identified external risk areas. In order to increase tax compliance these countries have implemented external risk management strategies. These strategies allow the employee of a tax office to identify taxpayers who are most likely to make mistakes or evade taxes. In this method cases for tax audit are selected on the basis of the available data and with the use of specific data analysis techniques.

Risk area	Country					
	Australia	Austria	Canada	Ireland	UK	
Failure to register	H/M*	H	H	-	H/M	
Failure to file returns on time	H	M	M	H/M	H/M	
Failure to correctly report:	Avoidance schemes	H	H	H	H/M	H/M
	Evasion schemes	H	H	H	H/M	H/M
	Practices to inflate refunds	H	M	H	H/M	H/M
	Specific industry issues	H	M	M	H/M	H/M
	Cross border transactions	H	M	H	H/M	H/M
Reporting non-compliance	H/M	M	H	H/M	H/M	
Failure to pay tax on time	H/M	M	H	H/M	H/M	

**Table 3. Specific VAT risk areas in selected OECD countries**

Source: Developments in VAT, 2009, p. 18.

\* H - high risk, M - medium risk

Similarities concerning identified risk areas in different countries may be observed, especially in the case of VAT. Table 3 categorizes VAT risk areas identified in some of these countries. In Poland an external risk management strategy was implemented in 2005. Description of risk areas (VAT risk areas included) is part of compliance plans published by Polish Ministry of Finance. Those identified for VAT audit purposes are presented in Table 4.

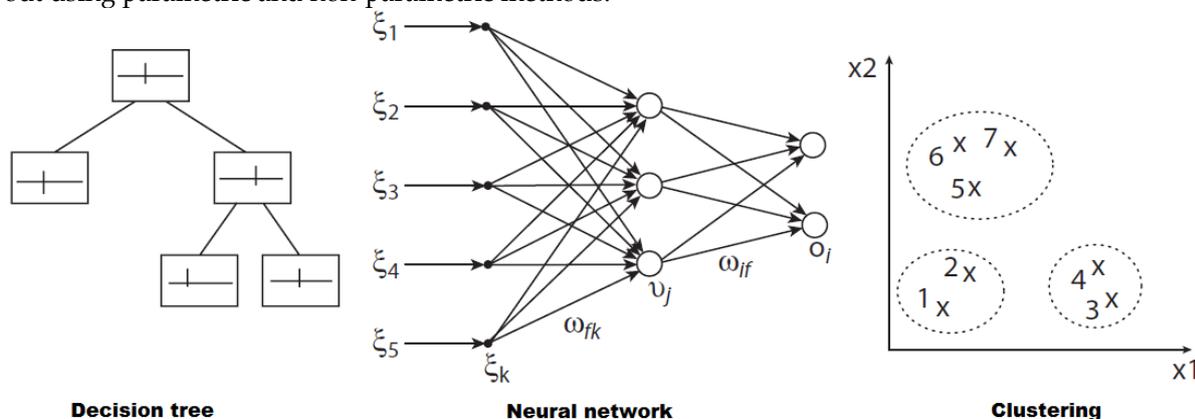
Risk areas	Risk subareas
High VAT refunds or repeatedly declared excess of input tax	Carousel fraud
	Construction services
	Immaterial services
	Fuel sector
	Scrap recycling sector
	Mobile phone trade or trade with other small-sized commodities of high value
	„Readymade” companies
	Virtual offices
Missing registration; missing declaration; missing trader;	Missing registration
	Missing trader and missing declarations

suspension of business activities	Suspension of business activities
	Trade with imported cars
E-commerce	Supply of goods - income taxation
	Supply of services - income taxation
	Supply of goods - VAT taxation
	Supply of goods - stamp duty

Table 4. VAT risk areas and risk subareas in Poland in 2013

Source: Krajowy Plan Dyscypliny, 2013, p. 92.

Another common method used to select taxpayers for audit is risk scoring. This method requires the collection of large sets of data. This data is collected and processed using many techniques. One of them is data matching. It allows the comparison of data contained in the taxpayer's tax declaration with data about the taxpayer and his activities coming from external sources, including customs administration, banks and other financial institutions or insurance companies. Risk scoring can be carried out using parametric and non-parametric methods.



**Figure 2. Data mining techniques applied for audit selection purposes**

Source: Khwaja, Awasthi, Loeprick, 2011, p. 28.

Parametric methods include regression analysis and discriminant analysis. In this case the selection of taxpayers is carried out on the basis of models defining the relationship between the tax non-compliance scale as an dependent variable and the relevant independent variables, such as: scale of business activity, number of employees, age of the enterprise, business sector. Recently, however, tax authorities adopt non-parametric methods more and more frequently. One of these methods is data mining used to search for regular data patterns and systematic interdependencies between them. Data mining is applied, for example, in Canada, the United Kingdom and the USA. It is the Australian Taxation Office that excels in the field of implementing new methods of data mining in order to select taxpayers for tax audit. Three data mining techniques applied to select taxpayers for tax audits are illustrated in Figure 2.

Decision trees allow the identification of homogenous groups of taxpayers based on previously defined criteria. Their identification involves application of appropriate algorithms allowing data separation. For example, in the case of the CART method this identification is carried out on the basis of the Gini index. Neural networks also enable the identification of taxpayers based on predefined criteria but this method does not require a hierarchy of variables. Nodes in a neural network can be simultaneously determined by more than one variable. Data clustering also allows for the simultaneous inclusion of several potential variables in order to segment the taxpayers.

#### 4. Efficiency of VAT audits in Poland – measures and main findings

Due to its collection efficiency value added tax is of particular interest to tax audit authorities both in Poland and in other EU Member States. According to data published by the Polish Ministry of Finance in the years 2005-2016 tax authorities initiated almost 1.4 million audits. Verification of the accuracy and completeness of value added tax declaration accounted for almost 75% of all field audits carried out by

tax authorities. In the years 2005-2016 the audit coverage rate decreased systematically. In 2005 nearly 5,94% of all taxpayers were audited, while in 2016 this did not exceed 1.00%.

Years	Number of audited tax periods	Audit selection efficiency (%)	Additional VAT liability (thousands PLN)	Additional VAT liability as % of additional tax liability in total	Audit efficiency (thousands PLN)
2005	312 798	34,99	541 036	66,06	172,97
2006	307 620	39,50	458 895	65,24	149,18
2007	306 333	42,72	486 948	69,80	158,96
2008	299 963	46,66	503 361	61,03	167,81
2009	304 493	47,38	531 248	67,27	174,47
2010	281 979	55,89	847 562	68,07	300,58
2011	261 865	60,42	1 110 792	75,97	424,18
2012	238 896	58,13	1 279 768	76,23	535,70
2013	200 283	61,79	1 953 988	82,69	975,61
2014	177 993	66,00	3 383 696	87,31	1901,03
2015	150 915	69,33	5 048 968	89,18	3345,57
2016	123 662	68,60	7 475 071	92,59	6044,76

Table 5. VAT comprehensive audits in Poland in the years 2005-2016

Source: Own elaboration based on MF-9Ps, 2006-2017, pp. 2-5.

The efficiency of tax audits is generally assessed using two indicators. The first allows the assessment of the applied selection systems and is the relation of the audits in the course of which non-compliance was detected to all the audits conducted. The second provides information on the amount of additional tax liability assessed as a result of one tax audit. Both indicators for Poland and the years 2005-2016 are included in Table 5.

Years	Comprehensive audits			Targeted audits		
	Number of audited tax periods	Audits detecting offence	Audit selection efficiency (%)	Audits in total	Audits detecting offence	Audit selection efficiency (%)
2005	81 024	25 651	31,66	1194	141	11,81
2006	75 018	26 450	35,26	1246	175	14,04
2007	69 883	27 743	39,70	1384	227	16,40
2008	64 390	26 118	40,56	966	169	17,49
2009	68 869	27 253	39,57	1118	241	21,56
2010	67 309	30 356	45,10	1026	261	25,44
2011	64 360	31 417	48,81	772	275	35,62
2012	58 698	27 094	46,16	563	191	33,93
2013	48 020	22 347	46,54	462	111	24,03
2014	37 149	19 691	53,01	150	67	44,67
2015	21 321	13 550	63,55	34	15	44,12
2016	18 940	11 785	62,22	45	15	33,33

Table 6. Audits verifying VAT refund claims in Poland in the years 2005-2016

Source: Own elaboration based on Kontrole właściwe i doraźne, 2017, p. 4.

In the years 2005-2016 the efficiency of audit selection and efficiency of the audits themselves significantly increased. Indicators for both grew almost every year (except for 2006 when there was a slight decrease in the audit efficiency index in comparison to the previous year and in 2012, when the audit selection index decreased slightly when compared to the previous year). This phenomenon occurred despite the decrease in the percentage of taxpayers and tax periods subject to audits. The increase in these indicators was inter alia the result of two factors:

- the application of new selection methods, supported by an increased use of information technologies and especially the introduction of a selection system based on identified risk areas,
- the systematic growth of the value added tax fraud – both the number and the value of detected fraud cases grew significantly.

In 2005-2016 on average 45.0% of audits were carried out on the basis of identified risk areas. At the same time it should be emphasized that non-compliance in declaring and paying VAT was also

observed as a result of tax audits initiated on the basis of risk areas related to taxes other than value added tax. The data for 2013 illustrates, for example, that as much as 91.5% of the total number of VAT non-compliance cases as a result of all tax audits conducted were discovered during audits carried out in the VAT-related risk areas. In the case of audits initiated in the VAT-related risk areas relatively high amounts of additional tax per audit were assessed. The most common VAT non-compliance behaviour in Poland covers inter alia: fictitious intra-Community transactions, disguising domestic sales as international transactions (export, intra-Community supply), underreporting sales in order to avoid registration for VAT purposes, missing trader fraud, falsifying refund claims, forging invoices, purposely misclassifying commodities in order to increase the proportion of sales subject to lower tax rates.

In Poland taxpayers may be subject to two types of audits: comprehensive and targeted. The first involve in-depth investigation into taxpayer's liabilities related to all applicable taxes. Targeted audits, on the other hand, concentrate on limited issues, such as selected tax liability or a selected tax period. One of the key VAT-related risk areas in Poland are VAT refunds. Declaring a high amount of refund involves the need to verify its validity. In 2005-2016, nearly 675,000 accounting periods were audited in this risk area and about 8.9 thousand targeted audits were conducted. Since 2005 both the number of audited accounting periods by comprehensive audits and number of targeted audits conducted has been systematically decreasing. There was however a clear increase in the selection efficiency indicators in the case of both types of audits – comprehensive and targeted (Table 6).

## 5. Discussions and conclusions

Tax audit plays a key role as an instrument of government fiscal policy. It enables the counteraction of tax crime and increases general tax compliance. It can affect the collection efficiency of public revenue and guarantee the resources necessary for the supply of public services. It is especially important for ensuring compliance with value added tax obligations. There are two reasons for that: the key role VAT plays as a source of public revenue and the serious scale of the VAT fraud which leads to significant losses of this revenue. In the last decade the VAT gap in Poland due to evasion and avoidance increased from 1% to 2.5% of GDP. VAT fraud is mainly a consequence of the EU's destination principle applicable in the case of intra-Community transactions.

Poland's accession to the European Union has contributed not only to the harmonization of VAT law, but also to the implementation of instruments aimed at more effectively combatting of tax evasion. This applies in particular to the methods of selecting taxpayers for tax audits. Identifying external risk areas for the purpose of these audits allows a focus of examination activities on particular groups of taxpayers and the particular obligations that are most often associated with fraud cases. In order to increase the efficiency of tax audits tax authorities identified the following sub-areas of tax risk: registration for the purposes of this tax, intra-community transactions or VAT refunds. In the years 2005-2016 there was a significant improvement in the results of tax audits in this particular area. Not only the efficiency indicators of the VAT audits but also the scope of the application of risk areas as an instrument of selecting entities for these audits increased significantly. VAT non-compliance is a very rarely approached topic in the economic literature. Further research is needed not only to define specific non-compliance factors in different countries but also to design more efficient tax audit methods to detect and counteract VAT evasion (sales tax evasion) on the global scale.

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