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## ***Editorial Words***

*Dear esteemed readers,*

It is my great pleasure to welcome you to the latest edition of ASEJ, the academic journal that brings you the latest research in the fields of law, economics, logistics, finance, psychology, criminology, computer science, and security. This issue features a diverse range of articles from leading experts in these fields, showcasing their latest research and insights into current trends and challenges.

As we continue to face unprecedented challenges and rapidly evolving technological advancements, it is more important than ever to stay up-to-date with the latest research and trends in these fields. This issue of ASEJ offers valuable insights and perspectives that are essential for anyone seeking to stay at the forefront of their respective disciplines.

We would like to take this opportunity to express our sincere gratitude to the authors for their hard work and contributions to the advancement of knowledge. We would also like to acknowledge the invaluable support of the Bielsko-Biala School of Finance and Law for their continued commitment to publishing this journal, which serves as a platform for the exchange of the latest knowledge and insights.

Virtual reality (VR) technology has been advancing at a rapid pace, and with its growth come a range of challenges in various fields, including economics, law, security, and computer science. In the realm of economics, one challenge is determining how to integrate VR technology into existing business models. VR has the potential to revolutionize the way companies conduct business, but it also requires significant investment and infrastructure to do so. Additionally, there are concerns about how VR will impact the job market, as it could potentially eliminate the need for certain types of jobs while creating new ones in the VR industry.

In this issue, we also explore the growing significance of virtual reality in law, economics, finance, and security. As VR technology continues to evolve, it presents both opportunities and challenges in these fields. For example, in economics, VR has the potential to revolutionize the way businesses operate, but it also requires significant investment and infrastructure. In law, the use of VR raises important questions around data protection, privacy, and intellectual property rights. In finance, VR can be used to enhance customer experiences and provide new insights into investment opportunities. In security, VR presents new risks and challenges, such as ensuring the safety of users and protecting sensitive data from cyber threats.

We hope that this issue of ASEJ will prove insightful and informative for our readers, and we look forward to your feedback and contributions in future editions.

Sincerely,

*Dr Muhammad Jammal*  
*Editor of the ASEJ, Issue 4, Volume 26, 2022*

# Determinants of the VAT gap - part 2

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**Abstract**— 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. A thorough understanding of the VAT gap mechanism will facilitate the implementation of appropriate measures to limit the scale of occurrence of tax offenses. 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. (presented are in Part 1 of this article). The size of the gap is also affected by other factors such as methodological errors, cyclical factors, gray area, problems with financial liquidity and bankruptcy of taxpayers. Their importance and problems with estimation will be presented in this part of the article.

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

## I. INTRODUCTION

The VAT gap is an element present in both developing and highly developed countries, in the European Union and beyond. This is due to the very construction of this tax, because the value added tax is closely related to the phenomenon of shifting, i.e., transferring the tax burden to final customers who are buyers of goods and services (Bernal, 2018). The last link in the chain is made up of households that bear the greatest tax burden, they cannot shift the tax, which means that the tax on goods and services plays a significant role in the functioning of the state budget, because it is in no way related to the degree of profitability of individual economic activities (Litwińczuk, 2017, p. 591).

Considering the essence of the value added tax, its positive and negative aspects can be distinguished (Table 1). The basic factor resulting from the very idea of VAT is its neutrality. The principle of neutrality is expressed in Art. 1 sec. 2 of the VAT Directive (VAT 2006/112/EC) and consists in applying to goods and services: general consumption tax, proportional to the price of goods and services, regardless of the number of transactions that take place in the production and distribution process preceding the stage of charging this tax to the final

customer.

VAT neutrality is reserved for taxpayers who purchase goods and services used for taxable activities. It manifests itself in the possibility of reducing the tax due on the sale of goods and services by the tax charged on purchases and the possibility of obtaining a refund of the surplus of input tax over the tax due from the tax office. The right to deduct input tax from the tax due in the previous phases of turnover is one of the basic structural elements of VAT, distinguishing it from other turnover taxes.

VAT neutrality is crucial due to the objectives guiding the European Union, including creating a common market with a high level of competitiveness, which would be characterized by the abolition of obstacles between individual countries in the movement of goods, services, capital and people. Implementation of the concept of a common market, modeled on the internal market, would not be possible without the abolition of tax barriers and the elimination of factors that could interfere with this flow. The structure of VAT affects the shape of the common market and its proper functioning.

One of the biggest benefits is the tax deduction privilege. Entrepreneurs, after meeting the conditions resulting from the Act, are able to deduct tax on goods and services.

As an advantage of VAT, it is emphasized that it is spread over different stages of production. This reduces the possibility of tax evasion that would be likely if production and trade were taxed completely and once.

VAT is double-recorded, both by the buyer of goods and the entrepreneur making the sale - this is conducive to taxpayers' self-control and prevents tax fraud. A positive premise is also the fact that indirect tax is one of the methods of sealing the tax system through self-control of entrepreneurs (Tratkiewicz 2016).

When analyzing the negative aspects of the tax on goods and services, one can distinguish, first of all, the accompanying number of tax obligations that the entrepreneur must comply with. He is obliged to keep accounting records, submit Uniform VAT Control Files. At the same time, it is necessary to ensure that settlements with institutions are carried out correctly.



According to payment Taxes, research carried out by PwC and the World Bank Group (comparative analysis of tax systems conducive to doing business, conducted over 15 years of data in 191 countries - the last study concerns 2018), Poland was ranked 77th - total time in the company, that must be spent on fulfilling tasks related to the fulfilment of tax obligations was estimated at 334 hours a year, of which 172 hours are spent on VAT on average. It is worth pointing out that in 2004 it was 420 hours, of which 116 hours were spent on VAT. Thus, over 15 years, the time for tax services has decreased by approx. 20%, but at the same time it has increased in terms of VAT by 48%. (Paying Taxes, 2020)

The need to constantly monitor changes in legal regulations is one of the disadvantages of the tax on goods and services. It can therefore be concluded that the dynamically changing tax system highlights the disadvantages of VAT. Entrepreneurs are forced to follow new modifications that are introduced day by day. They are aware that ignorance of the rules of law is harmful.

TABLE 1. ADVANTAGES AND DISADVANTAGES OF VAT

ADVANTAGES	DEFECTS
Neutrality	high costs of both taxpayer handling and inspection
possible tax refund	complex records of transactions
positive impact on integration processes taking place in the European Union	occurrence of tax abuses
spreading the tax over the stages of turnover of goods and services	obligation to submit JPK by taxpayers
self-control of entrepreneurs as an element of sealing the tax system	

Source: author own elaboration based on (Pastuszka, 2014, p. 131-133)

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## II. DETERMINANTS VAT GAP

The determinants of the VAT gap (Figure 1) are not only tax frauds and illegal tax avoidance as well as methodological errors, although these factors are listed as the most important (presented in part 1 of this article). The size of the gap is also influenced by such elements as: cyclical factors, shadow economy, problems with financial liquidity and bankruptcy of taxpayers, and others. Their meaning and problems with their estimation will be presented in this part of the article.

## III. CYCLICAL FACTORS RESULTING

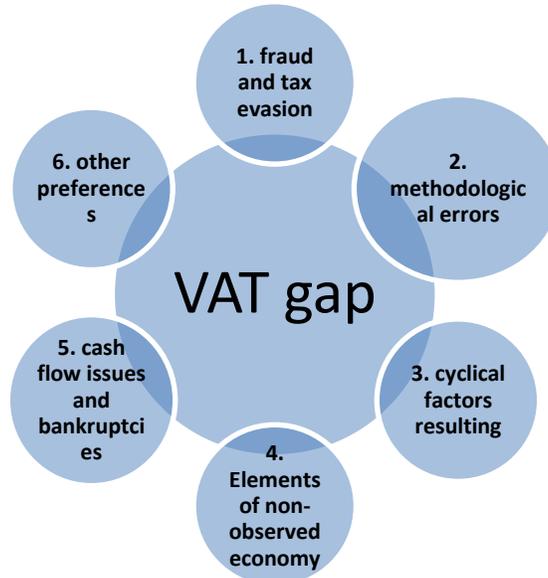
GDP is one of the most important economic information compiled by national statistical offices. The great importance of GDP results from the following reasons (Wyżnikiewicz, 2017):

- this measure informs in a synthetic way about the level of economic development and the structure of production and its distribution, and its dynamics about the economic growth of the country or region,
- thanks to the use of a uniform and coherent methodology agreed on the international forum, it is an important tool for international comparisons, serving as a standard reference point for many economic and social indicators,
- GDP in the applicable formula is information necessary for planning public finances and creating an economic strategy,
- its amount is used to calculate gross national income (gross income of domestic units) used to determine the size of contributions to international organizations, and in the case of the European Union (EU) also to provide financial support,
- the use of the GDP indicator for many years has made it the most popular measure of development, deeply embedded in the consciousness of the public opinion of each country. The components of GDP include: (Łopatka, 2015, p. 46 )
- consumption, which includes expenditure of households on goods and services, with the exception of expenditure on the purchase of new houses or flats,
- investments, which include expenses for the purchase of machinery and equipment, buildings and structures (including purchases of flats and houses by households), i.e. generally speaking - for the purchase of goods that will

- be used in the future to produce other goods and services,
- state expenditure includes expenses for the purchase of goods and services incurred by local authorities and the central government, it includes the salaries of employees employed by the state and expenditure on public works,

- net exports defined as the sum of expenditures made by foreigners on goods produced in the country decreased by expenditures on goods produced abroad incurred by the inhabitants of a given country.

FIGURE 1. DETERMINANTS OF THE VAT GAP



Source: author own elaboration

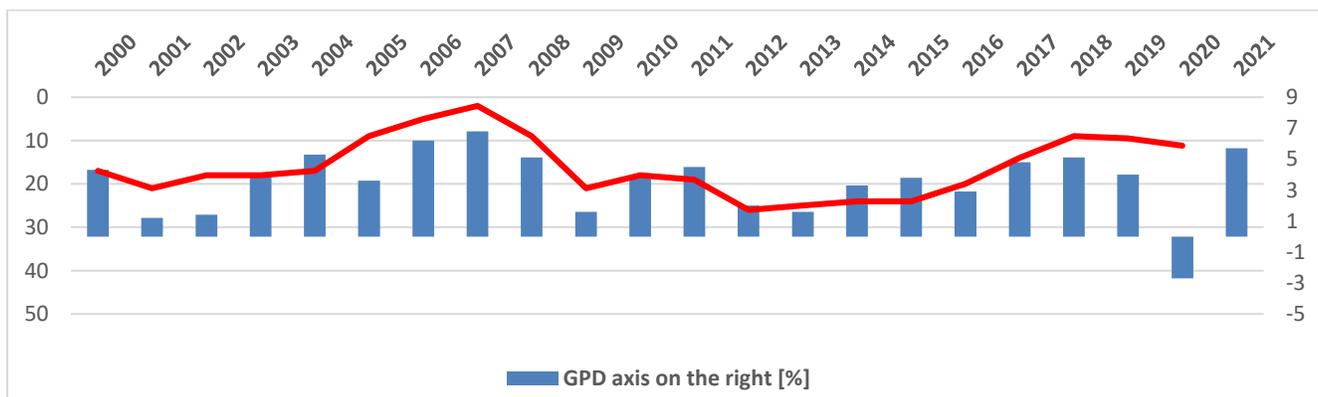
VAT revenues depend on two elements – the tax base, i.e., the goods and services subject to taxation, and the effective tax rate, i.e., the percentage of the tax base that goes to the state budget. The effective VAT rate is a pro-cyclical variable - this means that it grows along with the GDP growth rate and the income of the society, which may be related to the increasing share of spending on luxury goods in the household basket and a smaller scope of the shadow economy in the upper phase of the business cycle. This element is the basis for analyzing the relationship between the VAT gap and GDP dynamics.

The gap estimates presented in subsequent editions of the OECD report are published with a two-year delay compared to the year of publication, which results from the need to collect data from all member countries and analyze them. Therefore, in

Figure 2, the VAT Gap is given until 2020, while the GDP dynamics covers the years until 2021.

In the analyzed period until 2010, VTTL showed an upward trend. In 2011, there was an increase in VAT rates. There were changes 17 in the catalog of goods covered by reduced rates. The 3% rate was raised to 5% and the catalog of goods taxed with it was narrowed down, while the 7% and 22% rates were increased by 1 percentage point. This resulted in a significant increase in the share of VTTL in GDP. In the following years, this share began to decrease, and in 2016 it reached a level similar to that recorded in 2009, when lower VAT rates were in force than at present.

FIGURE 2 RELATIONSHIP OF VAT GAP AND GPD IN THE YEARS 2000-2020



Source: own elaboration based on CASE 2018, 2019, 2022 reports and GUS 2022

The analysis of the VAT gap indicates a connection with the economic situation. This realization is of the opposite nature - the decrease in the VAT gap is clearly visible in the period of strong economic growth - after the accession to the European Union, ie in the years 2004-2007. The situation changed in 2008, when the crisis in the global economy began. Although in the case of Poland there were no such negative consequences of the crisis and our economy recorded economic growth throughout the period, the conditions for the process of collecting income significantly deteriorated. Starting from 2007, the VAT gap in percentage terms has a strong upward trend. The largest percentage increase was recorded in the years of the crisis (2008-2009) and in 2012. In 2013, the value of the VAT gap in percentage terms reached its maximum of PLN 40.4 billion, i.e. 25.7% of theoretical receipts. Starting from 2014, a decrease in the VAT gap has been observed as % of VTTL. In 2019, the VAT gap (9.5%) reached the nominal level from 2005 (9%), while GDP in 2019 amounted to 4% and in 2005 to 3.6%, while in 2020 the gap increased to 11.2% and GDP recorded negative value 2.7%

#### IV. ELEMENTS NON-OBSERVED ECONOMY - ELEMENTS OF THE UNOBSERVED ECONOMY

In Poland, the term "gray economy" or "informal economy" is used quite commonly, but incorrectly, to refer to the entire unobserved economy. Only the introduction of the European System of National Accounts (ESA 2010) made it possible to adopt the terminology "non-observed economy" for general use and its classification in accordance with the European Union regulation.

The components of the unobserved economy can be grouped as follows: (Górka, Łuszczczyk, 2015)

- hidden economy of entities registered by underestimating turnover and artificially increasing costs (e.g., sales outside the invoice, fictitious contracts for the purchase of consulting services);
- production and sale of legal products or services by unregistered entities (e.g., renovation and construction services provided to a person without official employment);
- services that are difficult to identify and of a small scale (such as tutoring), unregistered, but bringing little benefits from budget revenues (especially in relation to the so-called transaction costs and the costs of combating these irregularities);
- the economy of favors provided as part of social relations of a good-neighbourly nature, or - increasingly - also between enterprises.

What occurs in many cases in the unobserved economy is cash flow. Poland is characterized by a relatively low level of non-cash transactions compared to EU countries (Sokołowska, 2015, p. 295), which helps to reduce the VAT gap. In addition, since 2017, entrepreneurs in Poland have been obliged to settle liabilities towards other entrepreneurs in cash only if the transaction does not exceed PLN 15,000. Failure to comply with the regulations results in the inability to classify these

expenses as tax deductible costs in the part in which payments related to the transaction will be made in cash.

The issue of the informal economy is directly related to the taxation of goods and services. However, the payment of salaries to employees outside the official circuit also reduces the tax base for personal income tax and the proceeds from social security contributions. This means that taking action in this area will allow for an increase in budget revenues also from public levies other than just the tax on goods and services.

#### V. CASHFLOW \_ ISSUES AND BANKRUPTCIES LIQUIDITY PROBLEMS AND BANKRUPTCY OF TAXPAYERS

Insolvency is the most common reason for the bankruptcy of enterprises, although they may show a positive financial result in their financial statements (Bradley and Cowdery, 2004. p. 3). The deterioration of the financial condition of enterprises operating in Poland is signaled by statistics showing increasing difficulties in obtaining payments for the products sold . Economic practice shows that most enterprises go bankrupt not because they have lost the ability to generate profits, but because they have lost their financial liquidity. In other words, the most common cause of business failure is insufficient financial control. Research conducted around the world consistently shows that it is the cause of about one third of bankruptcies (Barrow, 2009)

There are about 2.25 million companies in the SME category in Poland. The leading industries in terms of the number of entities include car repair shops, trade, shops and wholesalers, as well as construction and finishing companies. The SME sector accounts for over 99% of companies operating in Poland. According to PARP, it generates almost half of the GDP, and micro-enterprises have the largest share in its creation, nearly 30%. Unfortunately, in recent years, after the first year of operation, 1/3 of them disappear from the market forever (Figure 3). In January 2022, over 31,000 of them were deregistered from the REGON database. This is 46.8% more than in December 2021. (2022)

Untimely payment of receivables by contractors, growing problems with financial liquidity and finally bankruptcy are the elements that are the cause of non-compliance with tax obligations and deepen the tax gap.

Other preferences

The elements that create a VAT gap also include the following:

- solutions resulting from the specificity of the VAT system,
- unconscious mistakes made by taxpayers,
- the quality of the law and the transparency of the functioning of the institution

The solutions resulting from the specificity of the VAT system include various types of preferences and mechanisms that cause, for example, shifts in the receipts of VAT revenues to the state budget. These include: the option to switch from monthly to quarterly VAT settlements.

Some entrepreneurs, under certain conditions, may use the quarterly form of VAT settlement. For example, a new entrepreneur, starting a business, may settle VAT only on a

monthly basis. Only after 12 months, starting from the month of registration for VAT, can he start settling quarterly, if he so wishes.

The right to quarterly settlement can also be lost - for example, the right to quarterly settlement in 2022 will not be exercised by entrepreneurs who:

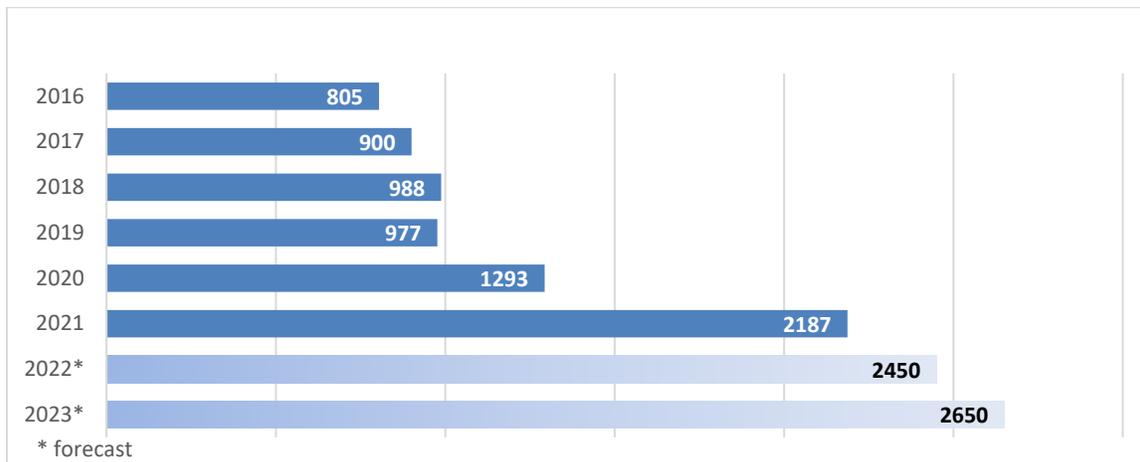
1. make deliveries of goods from Annex 15 to the VAT Act, if the total value of these deliveries, excluding VAT, exceeds PLN 50,000 in any month of the quarter or four quarters preceding it,
2. they do not provide the possibility of making payments using a payment instrument, in every place where business activity is actually carried out.

Another element in this group of causes of the growing VAT gap are human errors resulting from errors and interpretation errors - these are unconscious errors. In the ranking of the competitiveness of tax systems prepared by the American Tax

Foundation, Poland was ranked last but one out of 37 OECD countries, only Italy was ranked worse (International Tax Competitiveness Index, 2022). The biggest problem of the Polish tax system turned out to be the high level of complexity of legal regulations. Poland also performs poorly in terms of the tax base for taxing consumption, which is related to the existence of a wide range of reduced VAT rates.

The quality of the law and the transparency of the functioning of public institutions are also important in explaining the level of the VAT gap, which in turn also affects the greater trust of citizens in the state, which in turn translates into greater tax collection. The appropriate quality of institutions and public trust in the state may contribute to more effective tax collection. Efficient tax administration, characterized by a sufficiently high level of computerization and a specialized staff of officials, may lead to minimizing the scale of tax abuses.

FIGURE 3. NUMBER OF PUBLISHED DECISIONS ON INSOLVENCY OF POLISH COMPANIES IN THE YEARS 2016-2023



Source: Euler Hermes, Allianz, egospodarka.pl

## VI. CONCLUSIONS AND PERSPECTIVES FOR FURTHER RESEARCH

Both developed and developing countries face the problem of the VAT gap. The consequences of this phenomenon are severe for the public and private sectors, which is why an accurate diagnosis of its causes and an effective attempt to combat it are so important. The impact of economic growth on the VAT gap in the case of Poland is the opposite, which means that economic growth is associated with a decrease in the VAT gap. Taking care of stable and possibly high economic growth translates into a gradual reduction of the VAT gap.

Limiting the size of the VAT gap does not only mean higher budget revenues, but above all, fair competition between economic entities.

Conclusions from the conducted research allow for further deepening of research and expanding it with new variables, periods of observation and other EU countries. To sum up, greater emphasis should therefore be placed on the efficiency of the tax system, i.e. better access to data enabling reliable analyses, the implementation of which may contribute to more

effective identification of tax crimes or frauds. Countries that invest significant resources in IT systems in tax administration are also characterized by a low VAT gap, e.g., Sweden, the Netherlands, Denmark, the United Kingdom, Austria and Finland.

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## WSFiP conducts research and educates students in the following fields:

### **Finance and Accounting**

- Treasure Administration
- Banking
- Corporate Finance
- Accountancy
- Accounting and Finance in Public Sector Institutions
- Corporate Accounting and Controlling
- Audit
- Management and Finance in Real Estate

### **Cyberspace and Social Communication**

- Communication and Image Creations
- Safety in the Cyberspace

### **Internal Security**

- Administration and Management in Security
- Security and Public Order
- Security and Development in Euro-region
- Security of Information and Information Systems
- Security in Business
- Criminology and Investigative Studies
- Criminology and Forensics
- Protection of People and Property
- Public Order Agencies

### **Law**

- this program gives strong legal foundations to undertake further professional training for judges, prosecutors, attorneys, notaries, bailiffs.

### **Administration**

- Fiscal Administration
- Local Government Administration

### **Logistics**

- this program gives good preparation for work in logistics companies as well as in other economic and administrative units.

### **Information Technology**

- Databases and Net Systems
- Computer Graphics and Multimedia Techniques
- Design of Applications for Mobile Devices
- IT Services in Public Administration Units

### **Postgraduate courses**

- Administrative studies
- Fiscal Administration
- Law and management in health service

