TAX GAP AND AN ASSESSMENT OF FACTORS AFFECTING IT IN LATVIA

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Abstract.
***Purpose and aim of the study**: The purpose of the study is to analyse the theoretical aspects of the tax gap and to investigate its extent in Latvia, emphasizing the main factors affecting the tax gap concerning the shadow economy index.*
***Design / Methodology / Approach**: The research employed the following methods: descriptive and graphic, statistical analysis, the comparison method, logical construction, and correlation analysis.*
***Main Findings:** The results of the study showed that there was a relationship between the tax gap and the shadow economy because as the undeclared or unpaid income to the state budget (the element forming the tax gap) increases, the indicator of the shadow economy index increases. Of the factors affecting the tax gap, the quality of regulation, government efficiency, tax revenue, and gross domestic product per capita have a greater impact on it. It is important to improve tax administration procedures by promoting cooperation with taxpayers to reduce the tax gap.*
***Originality:** The research has carried out a scientific discussion regarding components of the tax gap, calculation methods influencing factors, and performed a mutual analysis of Latvian tax gap-related indicators to identify the main causes.*
***Implications:** Due to the tax gap, the budget does not receive revenues that could be directed to other sectors of the economy and creates competition distortions between honest and dishonest taxpayers, so it is important to study the factors influencing it and look for ways to reduce it.*

***Keywords:** complete/partial non-disclosure of tax income, macro approach, micro approach, shadow economy, tax gap, tax revenue.*

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Introduction

The tax gap is an indirect economic activity that is difficult to observe or measure and has not been fully explored. The State Revenue Service (SRS) and the state administration have taken measures and preventive actions aimed at reducing the tax gap; therefore, in general, the amount of the tax gap has been reduced, but it has not been possible to reach the Organization for Economic Cooperation and Development (OECD) indicators of high-income countries. The indicator of "political stability" is especially different, which in 2020 was 73.1 percentile in OECD high-income countries, but in Latvian it reached only 60.9 percentile (Baklouti & Boujelbene, 2020). This

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fact is the reason for the tax gap and the size of the shadow economy because the institutional quality of Latvia is at a low level. Despite the fact, that taxpayers remain more satisfied with the actions and measures taken by the SRS, trust in it is still variable. In Latvia, issues related to the tax gap have been studied by A. Sauka and T. Putnins (2024), M. Juruss et al. (2018), A. Joppe (2009), E. Brekis (2007), but it has not been fully explored.

The authors believe that the problem of the research results from the negative consequences of the tax gap felt by both the state and the economic actors, i.e. unfair competition, inequality between taxpayers, negative impact on the overall economy and development of the country, directly on government revenues, which is the justification for the present study.

The purpose of the study is to analyse the theoretical aspects of the tax gap and to investigate its extent in Latvia, emphasizing the main factors affecting the tax gap concerning the shadow economy index.

To achieve the goal, the following research tasks have been set:

1. To evaluate the essence of the concept of the tax gap, its constituent components, and calculation methods.
2. Identify the main factors influencing the tax gap.
3. To study the interrelationship between the tax gap and the shadow economy index in Latvia.

The novelty of the research: a scientific discussion has been conducted regarding the components of the tax gap, calculation methods, and influencing factors, and a cross-analysis of the Latvian tax gap and related indicators has been performed.

The research employed the following methods: descriptive and graphic, statistical analysis, the comparison method, logical construction, and correlation analysis.

Study period: from 2009 to 2022.

Research results and discussion

1. Theoretical analysis of the tax gap and related concepts

Before exploring the concept of the tax gap and, within the framework of this study, the objectives related to this phenomenon, it is necessary to identify the understanding of the concept of the shadow economy.

In Latvia, various methods are used to identify and evaluate the extent of the shadow economy:

1. The shadow economy index, as a % of gross domestic product (hereinafter - GDP) - according to F. Schneider's methodology.
2. The shadow economy index (% of GDP) based on calculations and data obtained from studies by Latvian researchers A. Sauka and T. Putnins.
3. Assessment of the tax gap (% of potential revenues) – the DG TAXUD of the

European Commission - specifically a value added tax (VAT) shortfall (Brusbarde, 2023).

The shadow economy has an impact on differences in tax revenues, having the impact on the tax gap as well. If economic transactions are not registered at all, this contributes to the reduction of the amount of tax collected and the creation of a larger tax gap.

The authors collected explanations of the concept of the tax gap, emphasizing the differences and common features (Table 1).

Table 1 Definitions of the tax gap (compiled by the authors)

Author	Definition
B. Russell (2010)	Tax revenue foregone as a result of the "shadow economy" represents a very significant component of the total tax gap (i.e. the difference between actual and potential tax revenues)
M.S. Khwaja & I. Iyer (2016)	The difference between the revenue potential (legal) and the actual revenue collected is common
HM Revenue & Customs (2024)	The difference between the amount of "theoretical tax liability", in theory, be paid if all individuals, businesses, and companies complied with the letter of the law and the amount that is paid
E. Toder (2007)	The gross tax gap is the difference between tax liability in any year and the amount of tax that is paid voluntarily and on time. The net tax gap is the gross tax gap in any tax year, less the current year's tax liability payments that occurred later as a result of voluntary late payments or enforcement actions by the responsible authority.
J. Andreoni et al. (1998)	A popular measure of tax evasion, which reflects the difference between taxes collected and taxes owed to the state budget
H. Elffer et al. (1987)	Deliberate non-compliance resulting in paying less tax than is owed to the government
State Revenue Service (2023)	The ratio of the amount of undeclared and declared but unpaid taxes to the potential tax revenue that would be calculated and collected under the condition that all taxpayers fulfil their tax obligations in full
L. Darzina (2023)	The difference between the taxes collected and the amounts that the government would collect if it lived in an ideal world where all taxpayers were very strict in fulfilling their statutory obligations

The authors want to emphasize that there are different approaches to the definitions of the tax gap. B. Russell (2010) emphasizes the great connection between the emergence of the tax gap with the shadow economy and the manifestation of its consequences because it occurs when taxpayers do not report part of their tax revenues. Similarly, the tax gap is defined by M.S. Khwaja & I. Iyer (2016), but in their study, they use “tax space”, where a positive difference between the tax gap and the tax space indicates that the legally imposed tax regimes in a country are significantly higher than what the country's economy could afford. In Latvia, the revenue potential is higher than the actual revenue, thus a tax gap arises.

HM Revenue & Customs (2024) defines potential income as 'notional tax liability' and highlights the main cause of the tax gap - individuals and businesses not complying with national tax laws.

E. Toder (2007) classifies this phenomenon as a gross tax gap and a net tax gap, with these two concepts together depicting the tax gap.

J. Andreoni et al. (1998) emphasize that the tax gap is the figure that the taxpayer "owes to the public budget". H. Elffer et al. (1987) suggest that this tax evasion is deliberate and depends mainly on the behaviour of the taxpayer. The definition of the SRS (2023) also provides for influencing factors, which mainly relate to the taxpayer's financial condition, the complexity of tax legislation and the "circumvention possibility", the organizational structure of the tax authority, ethics, and tax moral norms. The tax gap relates to gaps that are not directly physically observable and that taxpayers do not disclose to the tax authority (Guo-Hawkins, 2023).

R. Murphy (2019) divides the tax gap into three parts, covering all the reasons and purposes for not reporting tax income, which can be considered as components of the tax gap. To determine whether the tax debt of the particular taxpayer is observed, the SRS has tax declarations; the author of the research created a tax gap component scheme according to the object of measurement - the tax declaration (Fig. 1).

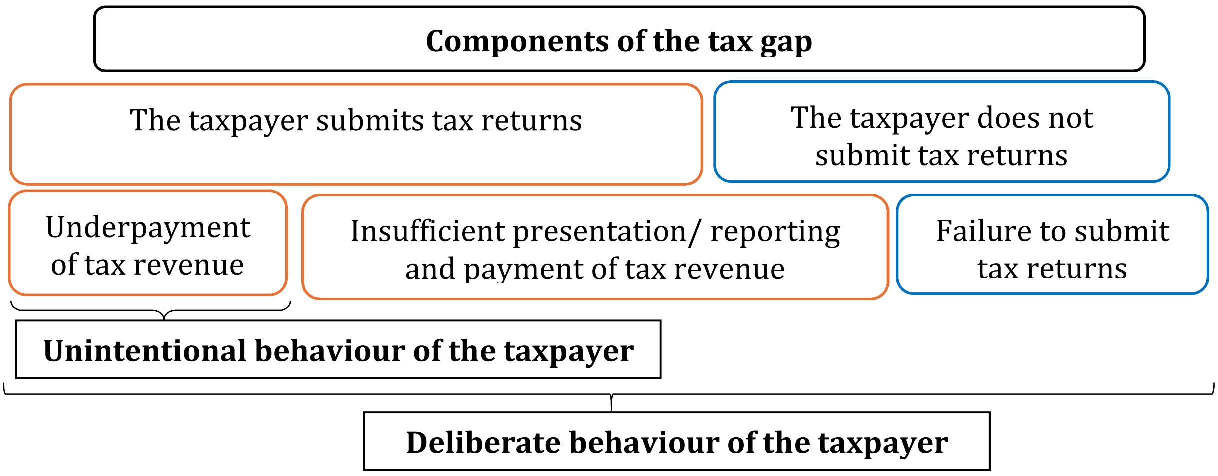

Fig.1 Components of the tax gap (compiled by the authors based on Murphy, 2014)

The authors conclude that these three tax gap-forming components are not mutually exclusive and form the total tax gap/difference.

So, from the definitions in the compilation, the author concludes that the tax gap is, in a sense, the country's strategic indicator, with the help of which the SRS determines the quality of tax administration, as well as how widespread tax evasion is among taxpayers, determining the scale of this gap. This has consequences for the trends and changes in the tax collection rate - how much of the potentially expected the state has received in its budget from all taxes.

2. Methods of measuring the tax gap

The tax gap is not a precise indicator because, just like the shadow economy, its extent is difficult to determine because one of the main factors is the behaviour and transparency of taxpayers. Its detection methods require a detailed study of information, and these data are also mostly used to draw additional attention to problematic areas and thus support the development of methods to combat the risks of tax evasion.

In Latvia, the total annual tax gap is calculated taking into account the following tax gaps: personal income tax (PIN), social insurance contribution (SIC), enterprise income tax (CIT), property tax, VAT, excise (alcohol/tobacco/ fuel) other (vehicle, gambling, import) tax gaps (Putnins, 2023). However, data on the extent of tax gaps for the following taxes are available on the SRS website:

- VAT;
- mandatory state social insurance contributions and PIT (National Revenue Service, 2022).

The VAT gap is the difference between the potential VAT under the current tax policy and the VAT collected (Barra, 2023). There is a similar explanation and definition for all other types of taxes, only taking the amount of tax income expected from the specific tax and paid by taxpayers.

Both employees and employers might be interested in entering the informal economy by paying less (or not paying at all) SIC to increase disposable income and reduce labour costs accordingly (Dybka et al., 2016). Those European Union (EU) Member States that publish estimates of the tax gap do so in a too-limited way in an attempt to produce a sufficiently comprehensive estimate of the tax gap (Murphy, 2019).

There are no direct calculation methods for calculating the tax gap, so the tax gap is assessed using analytical methods, comparing the number of tax liabilities declared by taxpayers with the number of tax liabilities resulting from macroeconomic indicators (macro analysis method) or specific industry-specific development trends (microanalysis method).

One of two approaches is usually used to estimate the tax gap:

1) the macro approach (top-down) uses aggregate data, with two alternatives: the tax gap may be estimated by taking data from the underground economy and applying an effective tax rate; or by using macroeconomic indicators, such as national consumption or gross domestic product;
2) the micro approach (bottom-up) uses microeconomic data based on the reported returns by taxpayers and, based on the results from audits

implemented by the tax administration, it is possible to infer the amount that should have been declared by each taxpayer. For this, it is necessary to have the results of the enforcement efforts stratified by tax brackets (Durán-Cabré et al., 2019).

The top-down approach often, which is used for indirect domestic taxes, uses aggregate data to estimate the tax base. This base is then used to calculate a theoretical value of tax that should be paid and collected, by applying an effective tax rate. The actual amount of tax paid and collected is then subtracted from the theoretical value to estimate the tax gap. The bottom-up approach, which is often used for direct taxes, uses administrative tax data to estimate a tax gap. In general, non-compliance is measured using a statistically representative sample of taxpayers that have been audited, which is then extrapolated to the entire taxpayer population to produce a tax gap estimate. This estimate of non-compliance is often based on data from audits or surveys (Canada Revenue Agency, 2020).

It can be concluded that both methods are similar, the only difference is in the initial stage, as data are collected on the potential tax income of a given type of tax in the state budget.

The author's methods of determining the tax gap were more transparently summarized in the table, separating direct and indirect methods (Table 2).

Table 2 Indirect and direct methods in tax gap measurement (compiled by the authors based on Joppe, 2008; Raczkowski, 2015)

Group	Method	Description
Indirect methods	Disposable income method	Disbursements from the bank account and savings in the household sector are compared with the income reported on the tax return
	GDP method	Estimated GDP using the expenditure method is compared with estimated GDP using the revenue method
	Unexplained differences in financial accounts	Savings, which are calculated from income and consumption, are compared with reports from financial institutions. Funds deposited abroad can be identified using this method.
	VAT non-compliance	The theoretically calculated VAT is compared with the VAT tax returns
	Monetary methods	Calculation of "surplus" cash
Direct methods	Surveys, interviews	Taxpayer surveys (mail and interviews)
	Audits	Randomized audits designed for systematic appropriateness of results analysis.

It can be concluded that to achieve reliable results, it is necessary to combine several methods that will help the tax administration to address the reduction of the tax gap. For example, M. Juruss et al. (2018) conducted a study on the gap in the excise tax on cigarettes, using a top-down methodology and choosing certain stages of research. The research method used in Latvia for the analysis of the labour tax gap includes the analysis of each workplace. If it is visible that there are significant deviations from the norm in the workplace, then the amount of undeclared income can also be perceived (Darzina, 2023).

A small tax gap is even healthy for a country, as too much positive tax space indicates that the country is not fully utilizing its revenue potential to its full economic capacity. Likewise, weak tax administration leads to reduced productivity. On the other hand, if a country taxes its economy well above its inherent capacity, it creates a greater incentive to avoid paying taxes because, in fact, the economy imposes more taxes on people than they can afford (Khwaja & Iyer, 2016).

According to the authors, the purpose of combating the SRS tax gap is to reduce the economic inequality between those who follow the law and those who do not. Therefore, it can be argued that the tax gap is and remains an unsolved problem of tax administration, where great attention should be paid to reducing the main contributing factors.

3. Factors affecting the tax gap

To be able to reduce the tax gap, it is essential to identify the contributing factors. They can be divided into two groups: economically based factors and understanding and knowledge factors. Economically based factors include the desire to save on unpaid tax revenue in the budget, and the ability to easily get involved in creating a tax gap - all that is needed is the taxpayer's own will and skill, as well as low risk if you act economically and wisely. Awareness and knowledge factors include a lack of guilt, ignorance about the use of tax revenues paid to the national budget, and low trust in the country (Hassan & Schneider, 2016). On the other hand, M. Kiani et al. (2015) divide them further into monetary, regulatory, institutional, socio-ethical, and economic factors.

Monetary factors include tax evasion due to their volume, regulatory factors include avoiding the burden of legislation and regulatory regulation, while institutional factors include corruption, low quality of political institutions and the weak rule of law, mistrust of government, and effective use of public budgets (Hassan & Schneider, 2016). They are further divided into socio-ethical factors, which include bribery, increasing self-employment, and actions that depend on the way of thinking of the society, as well as economic factors, which are the unemployment rate in the country, recession, national debt, and other economic indicators. Among the monetary reasons, the most important reason for the increase in the tax gap indicator is the increase in the tax revenue, as well as the related high bureaucracy and the inefficiency of the legal framework (Kiani et al., 2015; Bayar et al., 2020).

The Allingham-Sandmo model predicts that if the total income of taxpayers increases, then taxpayers automatically have a greater tendency to avoid taxes (Brekis, 2007). However, this is not a uniform decision because, according to the authors, it depends on the taxpayers' mindset. D. Nerudova & M. Dobranschi (2019) note that the most important drivers of the tax gap arise from the shadow economy. The authors have already pointed out the close connection and dependence between the shadow economy and the tax gap.

It is important to assess the influence of the quality of state institutions on the size and development of the tax gap, which is linked to the factor category "quality of regulation". The complexity of tax legislation can help to achieve tax policy goals, but it also imposes accounting, planning, calculation, and recordkeeping requirements on taxpayers and can lead to errors and underpayments (US Government Accountability Office, 2023). The authors recognize that intense and overly strict tax regulation and the complexity of tax legislation create limited freedom in the business environment, as well as bureaucracy, as a result of which the desire to create a tax gap is increasing.

To reduce the level of the tax gap in Latvia, it is necessary to focus mainly on factors contributing to its reduction. Understanding how and why taxpayers do not comply is important to help maintain the integrity of the tax system and protect the government's revenue base (Canada Revenue Agency, 2023). The authors believe that the more effective the government's support for entrepreneurs will be, the more favourable the relationship between the members of the business environment and the government will be, and the more the taxpayers will be deterred from getting involved in creating a tax gap.

4. Comparative analysis of the tax gap and the shadow economy in Latvia

Although the tax gap has existed for a long time, its measurements and available statistical data are relatively limited, so the authors of the paper considered it necessary to conduct a comparative analysis of the tax gap and the shadow economy (Table 3).

Table 3 shows that the indicators of the shadow economy index decreased more rapidly only in 2023 than in 2022, by 3.6 percentage points. Although tax gaps in 2022, compared with 2020, showed a tendency to decrease (PIN gap by 0.6 percentage points, SIC gap by 0.3 percentage points, VAT gap by 5.0 percentage points), the authors would still like to note that the connection between these phenomena exists because the shadow economy is made up of many different components, and one of the components is the non-disclosure of tax income; therefore, if there is a connection, it is worth observing the influence of the factors causing the tax gap in the continuation of the research.

Table 3 SIC, PIN, VAT, and the shadow economy index in Latvia in 2020-2022 (compiled by the authors based on SRS, 2023; European Commission, 2023; Putnins & Sauka, 2024)

Pointer	2020	2021	2022	2023
Shadow economy index, % of GDP	25.5	26.6	26.5	22.9
VSAOI gap, %	17.8	18.0	17.5	...
IIN gap, %	20.0	20.0	19.4	...
VAT gap, %	9.0	7.3	4.0(forecast)	...

The authors examined four influencing factors (quality of regulation, government efficiency, GDP per capita, and tax burden), which, according to the correlation calculations, have had a greater impact on the changes in the size of the shadow economy in Latvia and which have influenced the changes in the size of the tax gap. The regulatory quality indicator indicates the government's ability to formulate and implement sound policies and regulations that enable and promote the development of the private sector (Apaza, 2009). "Regulation quality" is viewed concerning taxpayers' satisfaction - with the government's tax policy, with the quality of business legislation, and with government support for entrepreneurs (Fig. 2).

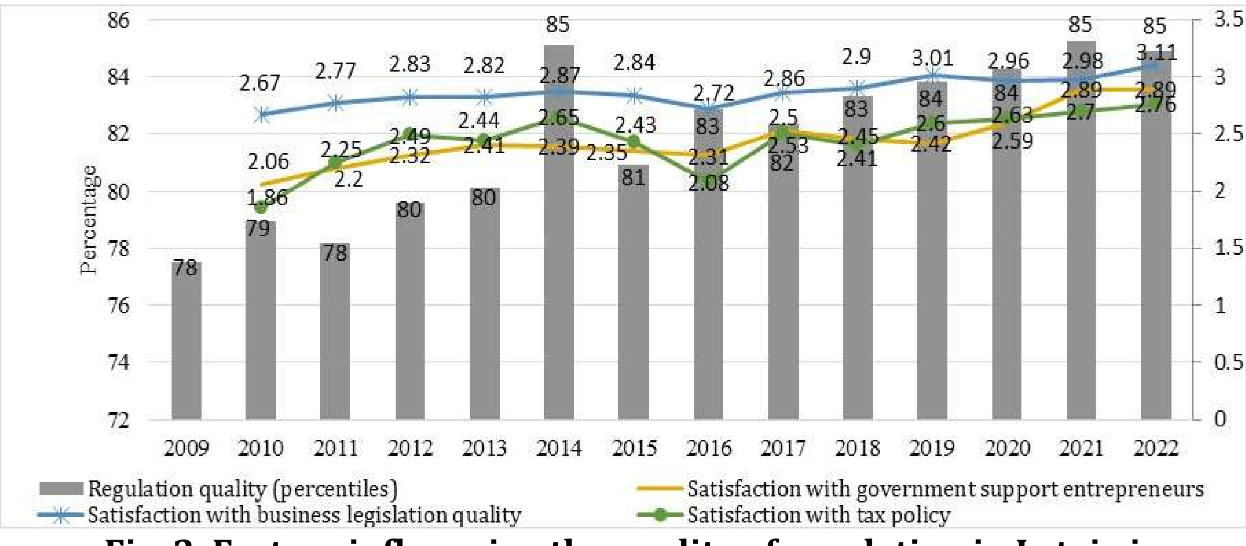

Fig. 2. Factors influencing the quality of regulation in Latvia in 2009- 2022(compiled by the authors based on Putnins & Sauka, 2023; World Bank, 2023)

The quality of regulation has a growing trend, as fairer, more transparent and fairly applied tax regulations and other indicators of regulatory factors, as well as the initiative shown by the state and support for business participants affect changes in the size of the shadow economy and the tax gap. The taxpayer rating system introduced in 2024 can improve the situation, as it allows taxpayers to become familiar with the risks that arise in connection with tax issues.

The next influencing factor to be analysed is government efficiency - corruption control and political stability, as well as their impact on the index of the shadow economy, which has an impact on the tax gap (Fig. 3).

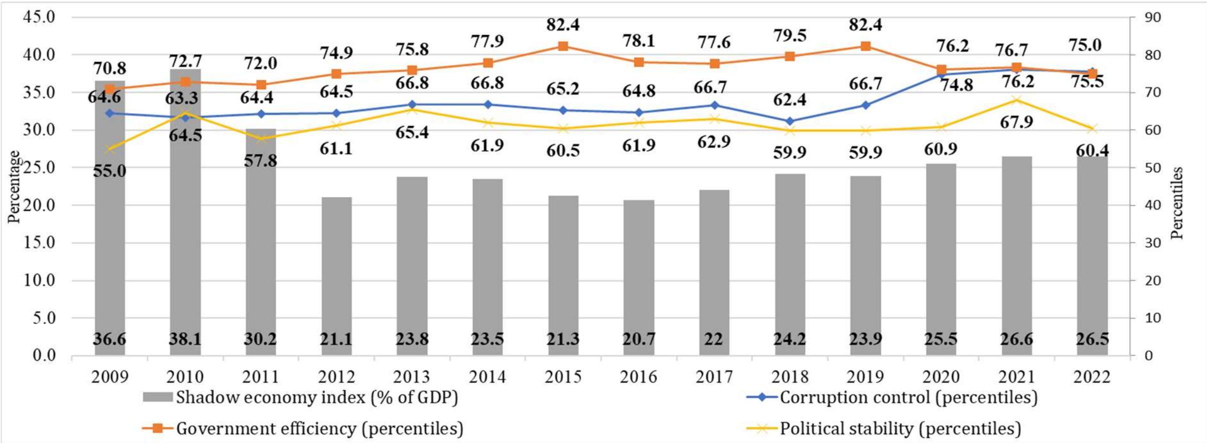

Fig. 3 Government efficiency, corruption control, political stability, and the shadow economy index in Latvia in 2009-2022 (compiled by the authors based on Putnins & Sauka, 2023; World Bank, 2023)

The government efficiency indicator is visible when this indicator increases, causing a decrease in the shadow economy index, and vice versa, as observed in 2012, 2014, 2015, 2017, and 2020. The indicator of political stability has been the most fluctuating one, for example, in 2018 compared with 2017 when political stability decreased by 3 percentage points, the shadow economy index increased by 2.2 percentage points. The change in the corruption control index has been relatively steady until 2018, but in 2021, the value of this indicator increased sharply to 76.2 percentiles, which was a positive trend. The authors concluded that the 3 aggregated governance indicators affected changes in the size of the shadow economy index and thus the tax gap, but this effect may vary depending on the type of indicator and was not as pronounced over the entire period.

However, the influence of institutional factors is important for reducing the size of the tax gap, so the authors compared the data obtained in the study by A. Sauka & T. Putnins and the customer satisfaction study conducted by the SRS (Table 4).

Table 4 Satisfaction with the operation of the SRS and trust in the SRS in Latvia for 2020-2022 (compiled by the authors based on Putnins & Sauka, 2023; SRS, 2023)

Ways	A. Saukas & T. Putnins study				SRS study					
					2020		2021		2022	
	2010	2020	2021	2022	%	balls	%	balls	%	balls
Satisfaction with the activity of the SRS	3.21	3.41	3.56	3.60	65.8	3.29	66.9	3.35	67.1	3.36
Confidence in the SRS	x	x	x	x	39.3	1.97	51.0	2.55	41.7	2.09

In general, satisfaction with the SRS has increased by 0.39 points from 2010 to 2022 when the size of the tax gap also decreased. Public trust in the SRS was fluctuating and in 2022 compared with 2021, it decreased by 0.46 points. As a positive factor for the increase in satisfaction, we can mention the SRS' consultation and communication remotely, developing technological skills and their application for process development, which was mostly facilitated by the limitations caused by Covid 19.

Next, the tax revenue is evaluated, which is considered an important factor affecting changes in the size of the tax gap (Fig. 4).

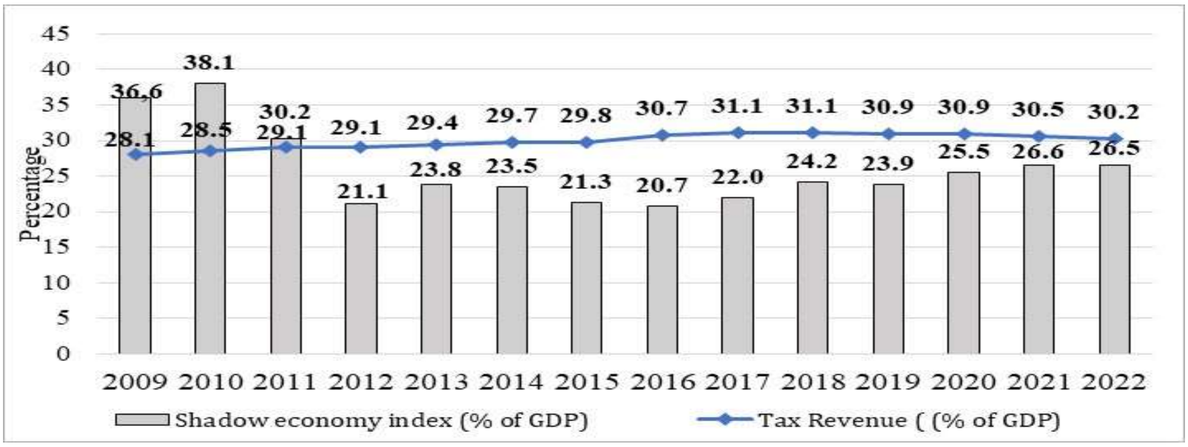

Fig.4 Tax revenue and shadow economy index in Latvia 2009 - 2022.
(compiled by the authors based on Putnins & Sauka, 2023; OECD, 2023)

However, the aggregated indicators did not show that the tax revenue had a significant impact on the tax gap. Rather, we should refer again to the socio-ethical factors, taxpayers' opinions, character traits, and tax morals, because it can be concluded that taxpayers will never be satisfied with the tax revenue and there will always be a section of taxpayers who will want to not report their incomes and avoid paying taxes fully or partially.

The size of GDP and GDP per capita are also factors affecting the tax gap (Fig. 5).

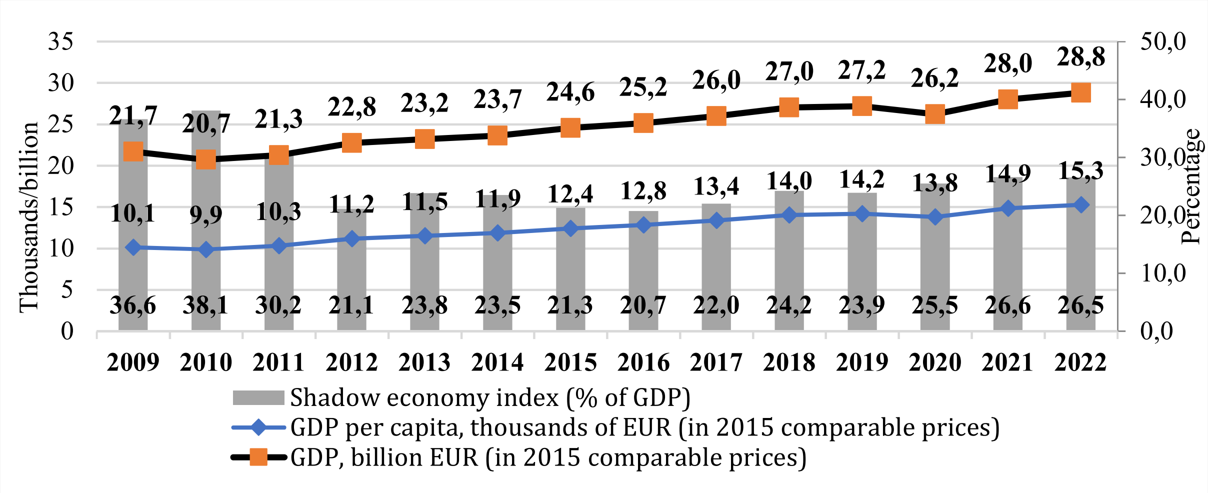

Fig. 5. **GDP, GDP per capita, the shadow economy index in Latvia in 2009-2022** (compiled by the authors based on Putnins & Sauka, 2023; Central Statistical Board, 2023)

Fig. 5 shows that the GDP and the GDP per capita increased steadily every year, except in 2020, increasing by 8.1 percentage points in the studied period, while the shadow economy index fluctuated. As prosperity increases, business participants are less interested in engaging in shadow economy activities to obtain additional funds and improve their current position, thus the tax gap also decreases. Baklouti and Boujelbene (2020) note that this relationship is bidirectional, meaning that changes in the shadow economy can also lead to changes in economic growth.

The authors concluded that the Covid-19 pandemic had and still hurts the country's economy, as the country's economic indicators worsened as a whole, the economic factors affecting the tax gap also hurt the increase in the size of the tax gap. For the reduction of the share of factors affecting the tax gap, the authors note the attention of the responsible authorities of the state not only to the economic factors of the state but also to the opinion of taxpayers, developing a friendlier, more suitable, and viable environment for the business environment.

Conclusions and suggestions

1. The tax gap is an indirect economic activity that is difficult to observe or measure, and the phenomenon is not yet fully explored and understood. The shadow economy interacts with the tax gap and is a consequence of the shadow economy.
2. No matter which of the methods the SRS chooses, it is still impossible to accurately determine the extent of the tax gap; therefore, to achieve reliable results, it is necessary to combine several methods that will help the tax administration to solve the reduction of the tax gap.

3. The factors affecting the tax gap are not mutually exclusive, so it would be more correct to examine the impact of these factors on the shadow economy and thus on the tax gap combined.
4. The quality of regulation has a growing trend, as fairer, more transparent and fairly applied tax regulations, as well as the initiative shown by the state and support for business participants affect changes in the size of the shadow economy and the tax gap.
5. The effect of government efficiency is seen when it increases, leading to a decrease in the shadow economy index. Satisfaction with the SRS increased by 0.39 points from 2010 to 2022 when the size of the tax gap also decreased.
6. A higher tax revenue leads to less after-tax income, which is one of the factors in the shadow economy that contributes to avoiding paying taxes and increasing the size of the tax gap. The influence of socio-ethical factors also appears here.
7. As prosperity increases, business participants are less interested in engaging in shadow economy activities to obtain additional funds and improve their current position, thus the tax gap also decreases.
8. The Ministry of Finance, the SRS, and other state institutions should pay more attention to the provision of government support to entrepreneurs, tax regulation, and regulatory factors, creating an efficient and favourable business environment and reducing the tax revenue and administrative revenue.
9. The SRS should work on changes in administrative procedures to strengthen the capacity of the internal and external organizational activities of the tax administration for more effective tax collection, which will allow more effective recognition of the tax gap, as well as modelling of the expected scenario plan.
10. To encourage taxpayers to be honest, the Ministry of Finance, the SRS, and other state institutions should develop a stricter control system for the implementation of business, as well as ensure that the expected penalty is higher than the tax rate, which will facilitate the avoidance of shadow economy activities.

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