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How much Poland loses from the CIT gap

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Key findings

For years, the VAT gap has been the subject of public debate in Poland. Year by year, it has been decreasing gradually. According to the latest estimates by CASE, it has fallen to around 7.2%. The Polish Economic Institute's estimates, prepared based on Ministry of Finance data, indicate that it was 12.2% in 2018, or 1.1% of GDP (Arak et al., 2019; CASE, 2019). After this success, it is time to look at other taxes in Poland, which could be hiding reserves of money. Some may be in the CIT gap. This is the difference between theoretical revenue from the tax on legal persons that the state should receive and actual budgetary revenue. Beyond unconscious errors, the CIT gap results from companies failing to fill out tax declarations, lowering the tax base and delaying payment. These actions can be classified as tax optimisation consistent with the letter and intention of the law, tax avoidance (using legal mechanisms contrary to their idea) and conscious tax evasion. Three main groups of mechanisms aiming to lower the tax paid can be identified: hiding income, exaggerating costs and fake transfers abroad.

According to PEI's calculations, the CIT gap in 2017 was between PLN 11 bn and 21.4 bn, or 0.55-1.08% of GDP. Compared to theoretical revenue from the tax (gap + actual budgetary revenue from CIT), it is between 22.43% and 36%. The difference between the upper and lower threshold results from maximin assumptions, which means that the gap is within this range, but that its exact size cannot be determined with certainty. In 2015-2017, the gap was between PLN 58 bn and 90 bn.

These results were obtained using a methodology – largely developed by the authors – involving calculating theoretical revenue from the tax based on national accounts reported by the Central Statistical Office (GUS). The size of revenue is then adjusted based on certain Ministry of Finance data and differences between financial and tax reporting. Multiplying income by the tax rate gives the theoretical tax revenue, which is then compared with real revenue. A foreign component and a tax checks component are added to the gap created in this way.

The report in numbers

PLN 21.4 bn

maximum CIT gap in 2017

1.08% of GDP

equivalent of maximum CIT gap in 2017

57.2%

decline in maximum CIT gap in 2017 compared to 2015

PLN 8.5 bn

losses from foreign capital transfers

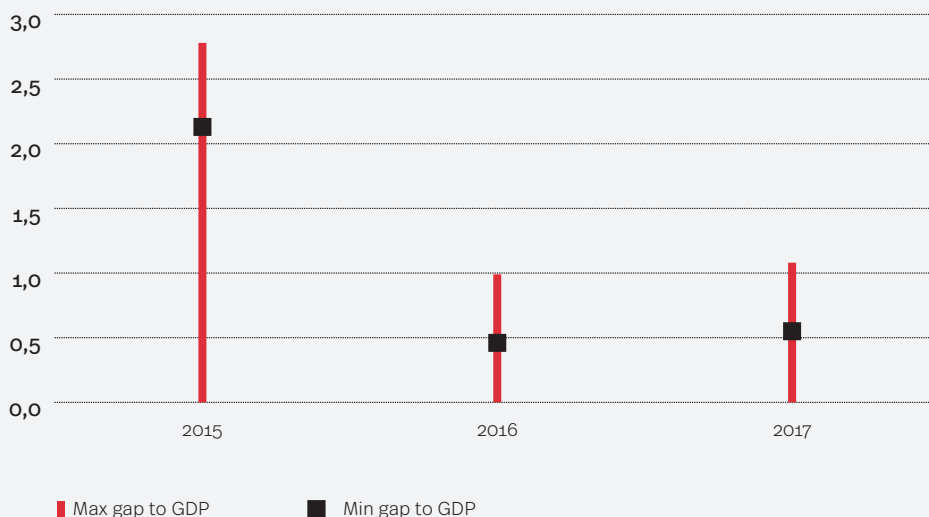


Introduction

This is the first report in Poland that attempts to calculate the CIT gap in a comprehensive way; that is, the difference between the amount that budget should receive and actual revenue. Alongside the VAT gap, the CIT gap is the biggest threat to the stability of

public finances. Despite its importance, the CIT gap has either been completely overlooked so far or only mentioned by tax experts. In analyses and interviews, they would mention its estimated level, ranging from PLN 10 bn to 40 bn, but without saying what methodology was used to calculate it.

➤ **Chart 1.** The CIT gap in relation to GDP (%)



Source: prepared by the authors.

For this project, we created our own methodology for estimating the CIT gap. This was necessary due to the specificity of the Polish tax system, financial reporting requirements and differences between the international and Polish national accounts methodology. Our methodology is based on the differences between national accounts and actual tax receipts, but partly accounts for losses resulting from foreign capital transfers and unregistered

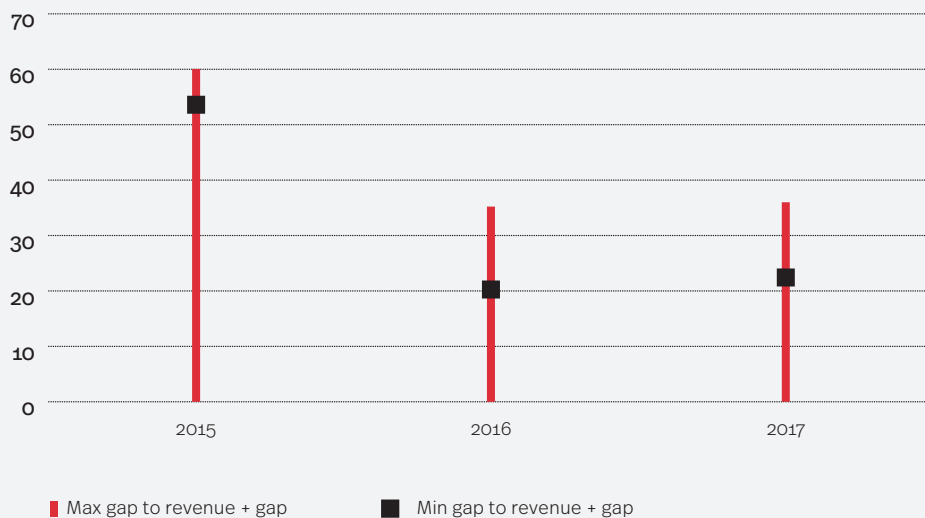
activity. The methodology developed does not account for all possible ways of tax avoidance. Difficulties in performing calculations without access to the relevant data meant that losses resulting from the overstatement of costs by companies were abandoned. This means that the real gap is probably larger than this report indicates.

In 2017, the CIT gap in Poland, after accounting for foreign and unobservable

components, was between PLN 11 bn and 21.4 bn. Charts 1 and 2 present the CIT gap in

2015-2017 in relation to GDP and theoretical tax revenue.

Chart 2. The CIT gap in relation to theoretical tax revenue (%)



Source: prepared by the authors.



What is the CIT gap?

The CIT gap, like other tax gaps, is broadly defined as the difference between the tax that the state budget should have received and the amount actually received (Klonowska, 2017). The gap can also be understood narrowly; it then results from lower-than-due CIT paid by entities subject to Corporate Income Tax. Possible causes include:

- accidental mistakes by taxpayers,
- deliberate actions aiming to:
 - hide some income,
 - exaggerate costs,
 - transfer some profits abroad,
- incorrect application of deductions and exemptions.

Viewed more broadly, the CIT gap also encompasses problems linked to a lack of optimal regulatory solutions, legislative omissions enabling the exploitation of loopholes in the law and the state's fiscal and economic policy, within which derogations from general tax rules can be created to encourage specific behaviour by taxpayers that benefits the state's general development. This might include relief for R&D, whereby expenses incurred on certain activities can be set off against taxable profits in higher values than that really incurred.

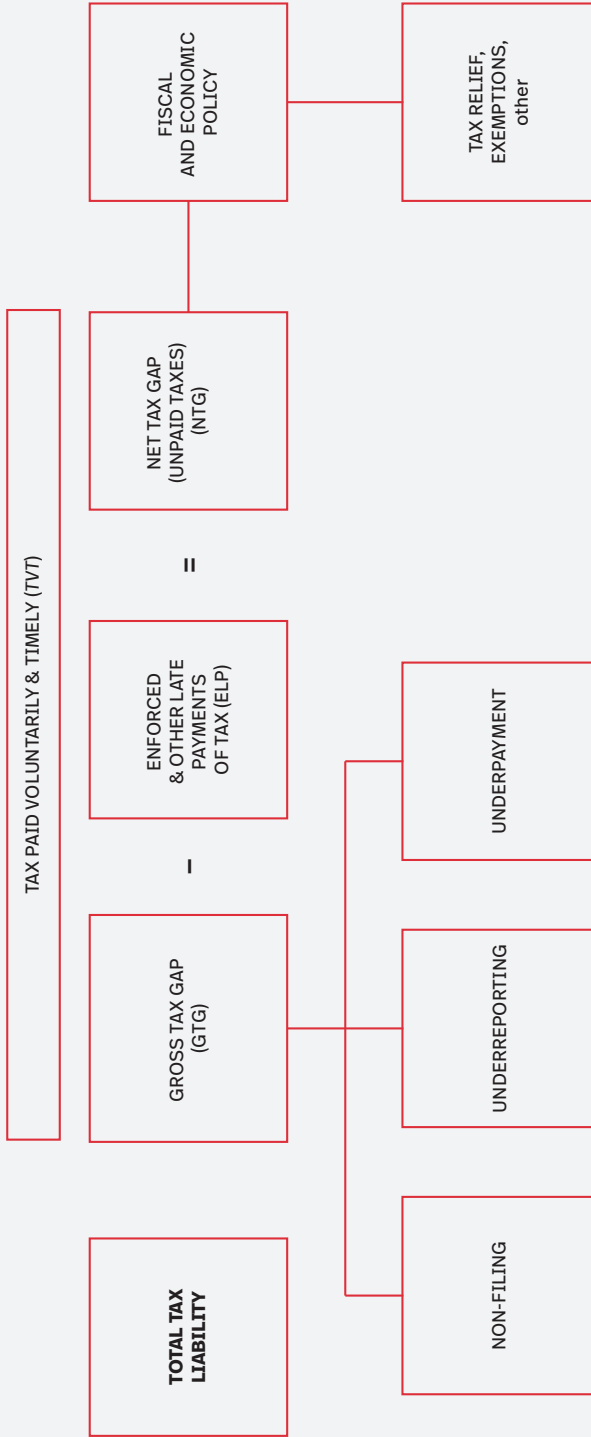
A map of the overall tax gap helps illustrate the CIT gap (Infographic 1). This map is inspired by those created by the US Tax Administration (Tax Gap "Map"). This diagram helps analyse the relationship between Total Tax Liability (TTL), Tax Paid Voluntarily and Timely (TVT), Enforced and Other Late Payments (ELP), the Gross Tax Gap (GTG) and the Net Tax Gap (NTG).

Like the overall tax gap, the CIT gap results from companies' actions in three areas: **non-filling** their tax returns, **underreporting** the tax base and **underpaying** or failing to pay the tax

due (so-called default payment). Accounting for fiscal and economic policy in this diagram, referred to maximum tax liabilities, results in a wider vision of the CIT gap.

The CIT gap is the least dependent on failure to complete tax returns. Companies undertake legal but unregistered activity or companies are registered but do not invoice all legal transactions (they do not disclose all their transactions), which leads to income being unreported or understated. This phenomenon has a greater impact on expanding the gap when it comes to the tax on physical persons (mainly due to the smaller scale of operation). The CIT gap is also increased by underpayments resulting from failure to pay a tax liability or an incomplete amount (tax arrears). The lowering of the tax base is the most responsible for the CIT gap. This is caused by entities that evade taxation, through strictly illegal activities, and those that avoid it, through lawful actions that reduce the tax but are unrealistic, such as registering affiliates in tax-advantageous jurisdictions and using these entities for transactions, such as paying for licenses, copyright, consulting, management, and so on. Entities can also create complex international structures to minimize tax burdens or avoid them, which is called as aggressive tax planning. Understatement of the tax base may result from the inadmissible inclusion of private expenses in tax costs (purchasing office equipment, including electronics, computers, printers, purchasing and operating company cars, etc.), but also from restructuring or using certain forms of financing (debt financing). The CIT gap broadly understood would cover the political gap; actions that the legislator deliberately allowed taxpayers (such as diversification of the amortization rate, incentives for innovations, the so-called IP Box, etc.) and those resulting from legislative omissions.

➤ Infographic 1. Map of the tax gap



Source: prepared by the authors based on: Klonowska (2017) and Internal Revenue Service (2011).

Entrepreneurs' actions aiming to reduce the tax paid can be assigned to broad groups that differ in their detailed definition, the mechanisms used and legality. Table 1 describes them briefly. In practice, classifying behaviour can be difficult; the borders between the groups are quite hazy. This frequently leads to differences in opinion between tax organs and entrepreneurs, which are ultimately settled in court, often in drawn-out lawsuits.

Tax avoidance is deliberate action by the taxpayer without a rational justification other than reducing the tax burden (Bogucki, Romanowicz, 2017). It is often equated with tax optimisation (Glumińska-Pawlic, 2017), but the latter is broader. It involves the company choosing the

most beneficial action in terms of taxes out of possible routes for reaching an intentional and real economic aim. The tax system is often not neutral towards similar economic situations, which means that the entrepreneur can choose the optimal route without violating the aims of the law. Avoiding economic decisions that are irrational in tax terms is not tax avoidance if the decisions are real and have an economic justification.

Tax evasion is undoubtedly illegal and subject to sanctions. Above all, it involves lowering or failing to pay tax due (Nawrot, 2018). This is often linked to the concept of tax fraud, which especially involves obtaining unwarranted tax benefits through criminal activity.

▼ **Table 1. Categories of behaviour aiming to reduce tax paid**

Behaviour	Legal	Ethical	Definition
Tax optimization consistent with the law's purpose	Yes	Yes	Reducing tax burdens in accordance with the letter and purpose of the law
Tax avoidance	Yes	No	Taking actions seemingly consistent with the letter of the law, but against its purpose (not genuine activity)
Tax evasion	No	No	Concealing or changing the actual state, resulting in the tax liability being understated, avoiding payment without avoiding the obligation

Source: prepared by the authors.

The groups of mechanisms listed in Table 1 are an immanent part of a tax system based on income tax, i.e. the difference between revenue and deductible costs. The inclusion of expenditures in costs is usually subject to discussion and leads to disputes between taxpayers and the tax administration, which often end up in

court. These types of mechanisms and actions by taxpayers exist in every system allowing derogations from the tax rate – in practice, every modern tax system.

This means that the CIT gap cannot be abolished entirely until, from the taxpayer's perspective, the cost borne by the company

to reduce the tax exceed the savings the result from this reduction. Here, costs should be understood as money, such as that spent on hiring experts or establishing subsidiaries, along with organisational costs, as well as the time spent considering possible methods of tax optimisation. In general, it means all the company's resources that have been used due to efforts to reduce the tax due. These savings are of an expected, rather than real, nature. A company decides to optimise based on certain predictions about the future; it assumes that these actions will save it a certain amount. It cannot be assumed that the calculation of this amount is based solely on a mathematical calculated of the value expected in the discrete distribution.¹ Analysing the expected consequences of optimisation, companies need to consider many variables, including whether the methods of reducing tax due will be questioned by the administration and will end in defeat in court, which will entail lawsuit fees or even a fine or prison sentence for the people involved. Decision-making theory has shown that people are more influenced by visions of loss, rather than gain (a series of publications, such as Allais, 1953; Kahneman, Twerski, 1979; Brandstätter et al., 2006). Naturally, history also influences economic decisions, including optimisation. If a company has successfully reduced the tax due without a response from the tax authorities, it will probably continue. If it has been punished recently, it will be less inclined to do so.

It is impossible to carry out calculations and simulations counting for not just all the factors mentioned above, but also the individual character traits of entrepreneurs and their advisers. Still, not only the tax system's construction and the tax administration's actions, but also the severity of penalties and even the rigour

in prisons influence the tax gap. This means that, while the CIT gap cannot be closed completely, the state's actions can only reduce it.

An obvious factor influencing the size of the tax gap is the system's construction. In the current income tax system, entities in a similar economic situation, but with a different legal form, are treated differently. CIT tax mainly applies to legal persons, which includes companies, investment funds, research institutes and political parties, but also entities that are not legal entities, such as limited joint-stock partnerships. The tax system also contains a series of reliefs and exemptions, as well as regulations often aiming to eliminate fraud. This has a negative impact on its transparency and creates the possibility of manipulation.

Considering the CIT gap, a significant component of tax gaps in general should also be remembered: the non-observed economy. This can be divided into legal activity that is not registered and operates beyond the authorities' reach (the so-called grey zone) and illegal activity, such as people trafficking, drug dealing, prostitution or the arms trade (the black zone). The black zone's relatively insignificant size means that the grey economy and unobserved economy are still treated interchangeably, but the difference between them should be remembered. The estimated size of the unregistered economy in Poland varies between publications. PEI estimated its size to be around 14.4% of GDP in 2017 (Czernicki et al., 2019). In GUS analyses, it oscillates around 13% of GDP from year to year. The Institute for Economic Analyses and Forecasts estimates that it is around 18% of GDP. Using the MICMIC methodology, Medina and Schneider (2018) found that it was between 14.4% and 22.2% of GDP in 2017. The problem was accounted for in this report because the grey zone is

¹ This value is provided by the formula $\sum_{i=1}^n p_i x_i$, where p denotes the probability of the i -th variant of the phenomenon occurring and x the profit (or loss) attributable to the i -th variant.

estimated as part of the national accounts that the methodology for calculations is based on.

Analysing the CIT gap, it should be noted that, while the legislature can influence national law, tax systems vary between countries. Some states deliberately offer entrepreneurs much lower rates and other preferential conditions to attract big companies whose aim is to reduce the amount of taxes paid. Since this behaviour is part of a competitive strategy, fighting the outflow of capital abroad is difficult. Countries universally seen as tax havens are not the only ones fighting to attract taxpayers; countries such as the Netherlands and Luxembourg are doing it, too.²

To be able to present groups of mechanisms used by taxpayers to reduce the tax paid, let us briefly recall the components of the profits and losses account:

1. Net sales revenues reduced by production costs, yielding:
2. Gross profit on sales, reduced by general administrative expenses and selling costs, yielding:
3. Net profit on sales, which is adjusted for other operating income and expenses, yielding:
4. Profit on operating activity, sometimes recorded as earnings before interest and tax (EBIT), which is adjusted for financial revenues and costs, yielding:
5. Gross profit, from which income tax is deducted, yielding:
6. Net profit.

This shows that a series of actions affect gross profit, which allows entrepreneurs to attempt to reduce the tax base using financial flows in any of the first four steps. The mechanisms used to reduce gross profit, along with the tax administrations' efforts to counter them, are presented further on in this report; the broad categories are outlined below.

↘ **Table 2. Selected groups of mechanisms aiming to reduce taxable income**

Group of mechanisms	Idea	Examples
How activity is funded	Debt capital financing (interest on loans and borrowing can be counted as tax-deductible costs)	Shareholder choose to give a company a loan instead of financing it with equity
Choice of form of activity	Different treatment of individual legal forms by the tax system	Using the legal form of an investment fund, in particular in connection with foreign transfers, so-called limited partnerships allow people to avoid double taxation in an economic sense
Showing income over time	Transferring income and/or costs between tax periods	Lowering income through transfers between periods, resulting in free financing

² According to the Minister of Development and Finance's regulation of 17 May 2017, the list of countries and territories with harmful tax competition when it comes to CIT does not include these two countries.

Group of mechanisms	Idea	Examples
Transfer prices	Increasing transaction costs between related parties	Overpricing products and services purchased by related parties to settle tax in a more favourable jurisdiction
Settling losses	Deducting losses reduces taxable income	Creating losses in operations by using assets and reducing income from operating activities by its amount; acquiring companies with losses; using certain derivatives
Restructuring	Using the transformation of enterprises to reduce income	Artificially creating tax capital groups for a single transaction
Geographical optimisation	Using a favourable tax system in a specific geographical location	Registering companies in economically unjustified places, such as tax havens
Concealing income	Decreasing gross profit by concealing income	Selling goods and services without receipts and invoices
Acquiring contractual benefits	Using of the provisions of double taxation treaties	Setting up companies in the countries with a beneficial treaty for the avoidance of double taxation and executing transactions, e.g. share purchase.
Profit shifting	Artificially generating costs using intangible assets (licenses, patents, trademarks, etc.) but also fictitious management of a foreign company founded abroad	Purchasing services, licenses, trademarks; often associated with transfers to foreign entities registered in tax havens
Abusing tax exemption from dividends	Using dividend income tax exemptions to avoid taxation	Paying out dividends to intermediary entities, including those with tax residences in countries with favourable tax jurisdiction, e.g. entirely exempt from taxation

Source: prepared by the authors.

How can the CIT gap be calculated?

Defining the CIT (or any tax) gap establishes the theoretical framework that analysts will operate within. To obtain any kind of estimate, the methodology needs to be chosen, the data collected and the appropriate calculations made. The theoretical size of the CIT gap can be calculated exactly by analysing financial reports and checking whether a company applied the reliefs and deductions it is entitled to in the correct way.³ In practical terms, this is impossible. As the Ministry of Finance states in information on the settlement of income tax from legal persons, in 2017 alone there were over 500,000 CIT taxpayers in Poland, which means that the bottom-up methodology would require verifying half a million settlements and financial reports. Obvious difficulties and time constraints aside, decisions to classify a given relief or deduction as applied unlawfully and as increasing the tax could be questioned, as the rich history of lawsuits between the National Tax Administration and entrepreneurs shows. In those cases, a court must decide whether a mechanism was applied lawfully, and therefore whether it should be included in the tax gap. These decisions can take a while.

Experts analysing the gap must therefore rely on approximations based on national accounts. In the literature, this is known as the top-down approach, as it begins with very big aggregates, from which individual components of the tax gap are then slowly separated. Because it is less complicated, the top-down

methodology is usually used by teams analysing the CIT gap. This does not mean that it is perfect. Its key flaws are:

1. Work on large aggregates, which means that even a small percentage of uncertainty in calculations requires considerable tolerance, of the order of a few to over a dozen billion.
2. Difficulties in accounting for the shadow economy correctly. In Poland, the shadow economy is captured in national accounts, but its inclusion in the gap is not obvious. Even if analysts could estimate the size of operational surpluses achieved by companies operating in the shadow economy, these values cannot be transferred to the real economy. One of the reasons companies flee to the shadow economy is the excessive tax and contribution burden, which companies are unable to cope with. Forced to operate legally, a company of this kind could cease to exist or would have to reduce its activity significantly. An estimate of the CIT gap, fulling accounting for the shadow economy, should therefore encompass this factor, which would require accounting for the behavioural component, which traditionally causes economists significant problems. Most economic models assume rational choice, which was refuted empirically by Kahneman and Tversky (1979) over 40 years ago. For this reason, most studies have given up on

³ In literature, this approach is known as “bottom-up”, because it starts with unit data and goes on to macro-aggregates.

accounting for the shadow economy in CIT estimates. Our report accounts for it to some degree, as it appears in the national accounts that our methodology relies on. The report does not contain separate estimates for the shadow economy and the behavioural element.

3. Difficulties in capturing the foreign aspects of tax fraud, such as offshore practices,

bank deposits and foreign assets. Foreign transfers are usually not included in national accounts.

4. A roughly two-year delay in estimating the gap, resulting from the availability and stabilization of data. Initial values provided by statistical offices are adjusted and changed, which means that they only stabilise after a certain time.

The methodology used in this report has been included in European Commission publications (such as *The concept of tax gaps. Corporate income tax gap estimation methodologies*), which are based on Sorensen's methodology (2007). The basic idea in these studies is decomposing the CIT-GDP ratio into three fractions:

$$\frac{CIT}{GDP} = \frac{CIT}{GOSp} \times \frac{GOSp}{GOSg} \times \frac{GOSg}{GDP} \quad (1)$$

where *CIT* means CIT receipts, *GDP* – gross domestic product, *GOSp* – gross operating surplus of the enterprise sector, and *GOSg* – gross operating surplus in the entire economy (Sorensen, 2007; Caiumi et al., 2017). Caiumi et al. introduce another two components, the tax base and value added, giving:

$$\frac{CIT}{GDP} = \frac{CIT}{Base} \times \frac{Base}{GOSp} \times \frac{GOSp}{VAp} \times \frac{VAp}{GDP} \quad (2)$$

where *Base* is the tax base, defined as the net operating surplus of financial and non-financial enterprises, adjusted by interest, dividends and land rent, and *VAp* is added value in the enterprise sector.

The most interesting aspect of this decomposition, in terms of estimating the CIT gap, is the methodology of estimating the tax base using national accounts. The report *Taxation Trends in the European Union* (Quest et al., 2017) calculates the tax base in the following way:

1. The gross operating surplus of financial and non-financial corporations (GOS) is adjusted for consumption of fixed capital (CFCs), yielding:
2. Net operating surplus (NOS), which is adjusted for:
 - balance of interest received and paid,
 - balance of land rent received and paid,

- balance of received and paid dividends from financial and non-financial enterprises,
- dividends received from the general government sector,
- dividends received by the rest of the world,
- dividends received by households, the self-employed and non-profits,
- the balance of receipts from insured property from financial and non-financial enterprises, yielding:
- 3. The tax base.

The top-down methodology is also used by the International Monetary Fund. It calculates the gap in the tax base, based on which the gap

in tax due is calculated. It moves from GDP to the tax base in the following way:

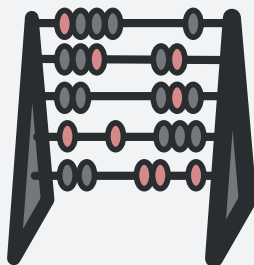
1. Employees' remuneration and taxes on production and imports, minus subsidies, are deducted from GDP, yielding:
2. Gross operating surplus (GOS), which is adjusted by a parameter called D.1, which includes the balance of interest, dividends and annuities, taxable income from abroad and the balance of capital gains, the balance of capital and holding income, depreciation and other expenses not included in direct consumption (production reduced by direct consumption gives GDP), giving:
3. Profit from financial accounting (FAP), which is adjusted by parameter D.2, which

includes increases and deductions from taxable income, yielding:

4. The net tax base (C-NTB), which is adjusted for losses and losses from previous years, yielding:
5. The tax base.

The difference between the hypothetical net tax base minus losses and the actual tax base is the so-called base gap. The difference between hypothetical and actual tax due is a CIT gap (Ueda, 2018).

Summing up the methodology review, it is worth mentioning previous estimates of the Polish CIT gap. The European Commission estimated it at PLN 46 bn in 2014, the US tax administrator says PLN 39 bn⁴ and the Jagiellonian Club PLN 10 bn per year (Piekarz, Miarkowski, 2015).



⁴ These values come from an interview with Dominik Gajewski, head of the Centre for Analysis and Tax Studies at the Warsaw School of Economics, in "Forbes" (Muszyński, 2017).

PEI's methodology

In this report, the CIT gap is calculated based on the European Commission's and IMF's methodology, but the specific character of the Polish system of national accounts, as well as the construction of tax forms and the tax office's requirements mean that it should be considered largely original. The data used comes from the Central Statistical Office (GUS) (national accounts) and the Ministry of Finance (size of deductions, actual tax).

Estimating the CIT gap for non-financial enterprises and financial institutions (sectors S11 and S12 respectively) can be divided into two stages. The first is moving from gross operating surplus to profit from financial accounting (thanks to data from national accounts and reports on fixed assets). The second is adjusting this profit to the actual size of the tax base (with the help of "Information on settlement

of corporate income tax" for a given year, published by the Ministry of Finance).

The calculation should begin with gross operating surplus (GOS). This is a global production minus intermediate consumption, which gives the sum of value added in the economy, i.e. GDP, and costs related to employment. It is used to calculate the theoretical tax base, from which the gap will be calculated. GOS goes through a series of adjustments that can be divided into three groups:

1. Corrections linked to national accounts (NA),
2. Corrections resulting from discrepancies in the financial results of enterprises reported by GUS and the Ministry of Finance.
3. Corrections linked to "Information on CIT settlement" (from here on, "Information").

GOS is first adjusted for consumption of fixed capital (CFC),⁵ which gives net operating surplus (NOS). GUS lists consumption of fixed capital as a separate item in national accounts, but this value cannot be used for calculations due to methodological differences. The following equation is used to calculate CFC:

$$CFC = GFA_{t-1} - (GFA_t - GFCF_t) \quad (3)$$

where GFA_t is the value of gross fixed assets in year t , GFA_{t-1} the value of gross fixed assets in year $t-1$ and $GFCF_t$ the value of new gross fixed capital formation in year t . This means that consumption of fixed capital year-on-year is counted as the difference between the value of fixed capital in the economy in year $t-1$ and in year t , where the funds in year t do not include newly-created fixed capital. The net operating surplus is therefore:

$$NOS = GOS - CFC \quad (4)$$

⁵ CFC is not identical to the depreciation applied by enterprises, as Eurostat points out in its glossary.

Adjusting from national accounts involves increasing or decreasing the gross operating surplus by appropriate positive and negative income corrections. Correcting items come from tables C3, C4 and C6 in Poland's national accounts (the primary distribution of income account, the secondary distribution of income account and the capital account) and include:

- income from property (e.g. interest and dividends),
- net premiums for social insurance,
- social benefits other than social transfers in kind, other current transfers,
- capital transfers ("receivable" as income and "payable" as expenditure).

Adding the about revenues, the sum of revenues (S_p) is obtained, while adding outgoing expenditures gives the sum of expenditures (S_r). Correction of NOS by these values gives financial accounting profit (FAP).

$$FAP = NOS + S_p - S_r \quad (5)$$

This value corresponds to the accounting result and is the next step towards calculating the tax result. Generally accepted reporting standards require taxpayers to provide their accounting result and any adjustments they made to obtain a tax result. In Poland, only the tax result is required, which means that the adjustments made by companies must be estimated. Since it is impossible at the macroeconomic level to descend to the levels of individual companies' declarations, an appropriate correction parameter should be introduced, which is created by comparing the tax result from the "Information" and the so-called "GUS FAP", i.e. the summed financial results for sectors S11 and S12, which feature in GUS's Macroeconomic Data Bank. The parameter resulting from comparing these values shows how much the FAP should be adjusted at the macro-category level, so that it can be interpreted as a tax result, including all deductions made at the micro scale, rather than an accounting result.

In GUS data, profit from financial accounting (FAP_G) is the sum of gross income for non-financial enterprises (sector S11) and financial institutions (sector S12). For GUS, those include banks, investment funds and insurance companies. The sum obtained is compared with profit minus loss (P-L) from the "Information". This is because, in its calculations, GUS adds together the results of all enterprises, regardless of whether they recorded profits or losses, which means that the amounts provided do not state clearly how much profit or loss they include. For example, the value 80 bn can be obtained by adding together 90 bn in revenue and a loss of 10 bn, but also 240 bn in revenue and a loss of 160 bn. Subtracting losses from revenue, which are listed separately in the "Information" allows the aggregate accounting income provided by GUS to be compared with the aggregate tax income registered by the Ministry of Finance. Adjusted profit from financial accounting (FAP_A) is FAP that accounts for the difference described above, as in equation 6:

$$FAP_A = FAP * \left(1 + \frac{(P - L)}{FAP_G} \right) = FAP * (1 + k) \quad (6)$$

Earlier calculations included loss (S), so it should be accounted for now, too -- with a proportional value. Subtracting a proportional loss from FAP_A (equation 7) gives computational income (CI), which, after accounting for deductions, will become the tax base.

$$CI = FAP_A - (S * (1 + k)) \quad (7)$$

The gap equation now has income from the “Information” (II) on one side and computational income (CI) on the other. Both incomes have been adjusted by the appropriate deductions (D), which include tax-free income, deductions from income, accounting for losses from previous years (L_{py}), deduction from the tax base and tax deductions. Although calculating the maximum tax gap assumes no deductions, taxable income should not include income relating to entities not included in sectors S11 and S12, specified in Article 17 Section 1 of the CIT Act. This is income assigned for statutory purposes, or the income of church legal persons. So, obtained income (D_o) should be excluded completely from deductions, i.e. decrease their value. Their sum does not affect the gaps' minimum values, because all deductions are included when calculating them, but this affects the maximum values. The last part of adjustments are losses from previous years. According to IMF methodology, on which ours is modelled, losses from previous years, like total losses, must be included in calculations, so they should be excluded from deductions, but not from the tax base. The size of deductions obtained from these operations will not, therefore, include excluded deductions and losses from previous years.

Calculating the minimum base gap (BG_{min}) generally involves calculating the difference between income minus deductions, i.e. the tax bases. Since all deductions are included, except excluded deductions and losses from previous years, this is the difference between computational income (CI) and income from the “Information” (II), as shown in equation 8:

$$BG_{min} = (CI - (D - D_o - S_{lu})) - (II - (D - D_o - L_{py})) = CI - II \quad (8)$$

As mentioned above, the maximum base gap (BG_{max}) assumes comparing the actual tax base with the computational income without deductions:

$$BG_{max} = CI - (II - (D - D_o - L_{py})) \quad (9)$$

The ranges of the tax gap are calculated as differences in the tax base multiplied by the tax rate (r_{cit}). Depending on whether the left or right end of the range is being calculated, the tax deduction (D_t) is considered (or not), in accordance with footnote 5. The minimum tax gap (TG_{min}) is the difference between tax dues, which is calculated using equation 10:

$$TG_{min} = [(CI - D + S_{lu}) * r_{CIT} - D_t] - [(II - D + L_{py}) * r_{CIT} - D_t] \quad (10)$$

The maximum tax gap (LP_{max}) is the difference between tax based on income without deductions (but minus excluded income) and real tax due, as shown in equation 9:

$$TG_{max} = [(CI - D_o) * r_{CIT} - D_t] - [(II - D + L_{py}) * r_{CIT} - D_t] \quad (11)$$

Informally, the minimum and maximum value of the tax gap will correspond to the minimum and maximum value of the base gap multiplied by the interest rate. The methodology is presented in condensed form, with details on the individual variables, in Table 3.

▼ **Table 3.** Outline of PEI's methodology used to calculate the CIT gap

Name of variable	Description of variable	Origin	Label
GOS	Gross operating surplus	National accounts (GUS)	1
Gross value of fixed assets in year T-1	-	Fixed assets in the national economy (GUS)	2
Gross value of fixed assets in the year T	-	Fixed assets in the national economy (GUS)	3
Gross value of new fixed assets	-	Fixed assets in the national economy (GUS)	4
CFC	Consumption of fixed capital	(2) - [(3) - (4)]	5
NOS	Net operating surplus	(1) - (5)	6
Property income – positive corrections	-	National accounts C3.4	7
Property income – negative corrections	-	National accounts C3.4	8
Net contributions to social insurance - positive corrections	-	National accounts C4.3	9
Net contributions to social insurance - negative corrections	-	National accounts C4.3	10
Social benefits other than transfers - positive corrections	-	National accounts C4.4	11
Social benefits other than transfers - negative corrections	-	National accounts C4.4	12
Other current transfers - positive corrections	-	National accounts C4.5	13
Other current transfers - negative corrections	-	National accounts C4.5	14
Capital transfers, to be received	-	National accounts C6.3	15
Capital transfers, to be paid	-	National accounts C6.3	16
FAP	Financial accounting profit	(6) + [(7)+(9)+(11)+(13)+(15)] - [(8)+(10)+(12)+(14)+(16)]	17
FAP GUS	Aggregated accounting income	Macroeconomic Data Bank: sum of S11 and S12	18

Name of variable	Description of variable	Origin	Label
Profit	-	MF booklet	19
Loss	-	MF booklet	20
Value for comparison	Aggregated tax income	(19) - (20)	21
Correction factor	Equalising aggregate income	$[(21)/(18)] - 1$	22
Adjusted FAP	Calculated adjusted profit from financial accounting	$(17) * (1 + (22))$	23
Calculation income	Calculated income before deductions	$(23) - [(20) * (1 + (22))]$	24
Income exempt from tax	-	MF booklet	25
Income excluded from taxation	Income artificially increasing the tax base	MF booklet	26
Deductions from income	-	MF booklet	27
Losses from previous years	-	MF booklet	28
Deductions from the tax base	-	MF booklet	29
Sum of deductions	-	$(25) + (27) + (29)$	30
Tax deductions	-	MF booklet	31
Tax base	-	$(19) - [(30) - (26) - (28)]$	32
Our tax base	-	$(24) - [(30) - (26) - (28)]$	33
Our tax base without deductions	-	Calculation income	34
Tax due	-	$[(19) - (30) + (28)] * 0,19 - (31)$	35
Our tax due	-	$[(24) - (30) + (28)] * 0,19 - (31)$	36
Our tax due without deductions	-	$[(24) - (26)] * 0,19 - (31)$	37
Minimum base gap	Difference in the tax base	$(33) - (32)$	38
Maximum base gap	Difference in the tax base if there were no deductions	$(34) - (32)$	39
Minimum tax gap	Difference in taxes due	$(36) - (35)$	40
Maximum tax gap	Difference in taxes due if there were no deductions	$(37) - (35)$	41

Source: prepared by the authors.

Estimating the tax gap depends not only on calculating taxable income, but also on the real tax rate r_{cit} .⁶ In 2004-2016, it was uniform and amounted to 19%. In 2017, an additional CIT rate of 15% was introduced for taxpayers starting business activity and so-called “small taxpayers”,⁷ which prevented the current r_{cit} value of 0.19 from being used. It had to be between 15% and 19% and determining its level precisely was extremely important, because even a small change would lead to a diametrically different CIT value due to the size of the tax base, in the order of hundreds of billions of złoty. To determine it, the tax data in the “Information”, received from companies covered by individual rates, was used. It enabled the weighted average of both rates to be calculated; approximately 18.81%. This was used in the calculations for 2017.

The procedure described above, based on gross operating surplus, can be supplemented with estimates on the size of other mechanisms aiming to reduce the tax base – and therefore to pay less in tax. They can be divided into several groups. The most important ones for methodology based on macro-aggregates are listed below.

1. Actions aimed at reducing reported revenues.
2. Actions aimed at increasing foreign transfers for income from property, i.e. interest and dividends.
3. Actions aimed at increasing tax-deductible costs.

The actions in the first point are *de facto* identical with the shadow economy. The

chapter on methodologies for estimating the CIT gap mentioned the problems ahead of researchers who try to account for the economy that is not observed in their accounts. In addition, the impact of the non-observed economy on public finances is complicated. For example, a criminal who obtained illegal profit from smuggling cigarettes exposes the State Treasury to losses in excise duty, VAT from selling cigarettes and income taxes. However, he can use the money he earned in this way to purchase legal goods, such as a car, on which he will pay the appropriate taxes. In the tax gap caused by the non-observed economy, CIT is not a significant component. In this study, we considered the impact of the shadow economy due to how national accounts are constructed. Reported values for global production include the non-observed economy, so the gross operating surplus levels obtained from them already account for the shadow economy. The second point above, the transfer of capital (interest and dividends) abroad to tax havens, was calculated based on data on income received by foreign investors from direct investment in Poland, i.e. dividends and interest on loans and advances. These estimates are limited to incomes that go to jurisdictions listed in the special report by the Special Committee on Financial Crimes, Tax Evasion and Tax Avoidance (TAX3) that facilitate aggressive tax planning, i.e. Belgium, the Netherlands, Luxembourg, Ireland, Cyprus, Malta and Hungary. Switzerland was also included; though not listed in the report, it is on the European Commission's so-called grey list.⁸ The National Bank of Poland, among other institutions,

⁶ This should not be confused with the effective tax rate.

⁷ According to the statutory definition, small taxpayers are those with sales revenue, together with tax paid, up to the equivalent of EUR 1.2 m or those that, running a brokerage enterprise, managing investment funds or alternative investment funds, or acting as an agent, contractor or providing services of a similar nature (with the exception of commissions), received up to EUR 45,000 in remuneration for services.

⁸ The European Commission's first blacklist was developed for the purposes of the strategy in 2016. In December 2017, member states supported and agreed on the first EU list of non-cooperative jurisdictions. As of 12 March 2019, the blacklist has 15 countries on it, which have not taken any action on three criteria (transparency, good

also considers it a jurisdiction with which some transactions in the form of FDI have no economic justification. Around 45% of all foreign transfers of income from property (dividends and interest) from Poland are sent to these destinations. The calculations in the report did not consider money transfers sent to other countries for tax optimisation. Transfers to these eight places were not reduced by values resulting from fair business operations because it was

impossible to separate this from the available data. For this reason, the values should be treated as the maximum loss resulting from transfers to these places. People interested in calculating the gap for assumptions other than those provided should refer to the application included as a supplement to this report. To calculate the difference in the gap, the value of transfers abroad was multiplied by the actual tax rate r_{cit} . The calculations are summarised in Table 4.

» **Table 4. The CIT gap. Transfer of income abroad and loss of tax (billions of PLN)**

Year	Size of transfer abroad	Difference in the gap
2015	17.09	4.50
2016	22.06	4.38
2017	20.98	8.45

Source: prepared by the authors based on NBP and Ministry of Finance data.

Accounting for the last group of activities aimed at reducing taxable income, i.e. by artificially inflating costs, is very complicated. It can be assumed that companies include many expenses in their costs, not necessarily with any relation to this category's definition. For example, the cost of company cars, which are often used for private purposes, can be included. Similarly, capital groups use so-called transfer prices, especially for transactions when buying and selling intangible assets. Calculating these reliably based on data from national accounts is practically impossible. For transfer pricing, the authors would first have to determine what assets were being bought or sold, check their value and compare this with the market valuation. When estimating the level of misuse of company cars, each of them would have to be

followed throughout the tax period. Estimating these quantities based on national accounts would be subject to too much error to include in this report.

With this in mind, we decided, based on art. 16 of the Act on the Polish Economic Institute (Journal of Laws 2018 item 1735), to ask the Ministry of Finance to provide aggregated information on the number of audited CIT payers, the sum of their revenue, the value of the disputed revenue and the adjustments made. It was assumed that National Revenue Administration (KAS) adjustments mainly include incorrectly classified deductions, as this can be proved relatively quickly by analysing the company's financial documentation, whereas, say, breaking up the network of foreign connections aimed at sending interest to fictitious entities is much

governance and actual economic activity). There are 34 countries on the grey list, which have committed to introduce appropriate changes by 2019.

more difficult and requires international cooperation. Of course, the administration's actions may encompass all three of these points. The data obtained in this way enables the so-called

G_{KAS} to be calculated, i.e. the difference between the theoretical tax adjustments that would be made if the entire economy were checked and real revenue.

Calculating of G_{KAS} requires that the secret operational mechanisms of the fiscal administration be considered. To assume that companies are selected for audits randomly yields incorrect results; several criteria are used for calculations. First, the controllers' efficiency increases as a function of time and number of audits. The accumulation of knowledge and experience gained while working in the tax administration makes officials better at detecting irregularities, which should be reflected in the average adjustment from the audit. It can be assumed that the data is equation 12, where the average adjustment δ for an audit depends on the accumulated number of audits $\sum k_t$ and time t . Naturally, the increase in the average adjustment should decrease because it is impossible to accumulate knowledge infinitely, so both partial derivatives from (12) should converge to permanent. The accumulated number of audits accounts for staff turnover, as it is assumed that experienced auditors share their knowledge with younger colleagues.

$$\delta_t = f(\sum k_t, t) \quad (12)$$

It is also assumed that, over time, KAS gets better at selecting the elements in the set of enterprises audited to maximize the probability of finding a company with irregularities. We introduce the following signs: n_t = the total number of CIT payers in the economy in year t , p_t = the number of payers with irregularities in year t , q_t = the number of payers without irregularities in year t . There is obvious balance: $n_t = p_t + q_t$. The effectiveness of tax audits is not unlimited due to the staffing situation, employee motivation, and so on. It is assumed that, for the total number of audits in year $t = k_t$, r_t of audits are performed effectively. It is assumed that other companies are audited inefficiently, i.e. regardless of the actual situation, the audit does not detect any irregularities. The assumption of increasing efficiency obviously means that $\lim_{t \rightarrow \infty} \frac{r_t}{k_t} = 1$. The probability of finding a company with irregularities is therefore the product of:

$$p_{p_t} = \frac{r_t}{k_t} \times \frac{p_t}{n_t} \quad (13)$$

It is also reasonable to assume that the efficiency of KAS triggers a reaction from enterprises, for which the risk of an audit becomes unprofitable, so $p_{t+1} \leq p_t$, with this reaction not happening indefinitely. The decision to use mechanisms to reduce the tax base, with some adjustments relating to entities' imperfect rationality, depends on the expected returns from this investment, i.e. expected profits multiplied by the probability of success and expected losses multiplied by the probability of failure. Due to the construction of the tax system, it is assumed that, even in the long run, there will still be companies that reduce the tax base. Formulas (12) and (13) can be used to calculate the total enforced payments in year t , which is given by the equation:

$$E_t = \frac{r_t p_t}{k_t n_t} k_t \delta_t = \frac{r_t p_t}{k_t n_t} k_t f(\sum k_t, t) \quad (14)$$

The gap G_{KAS} is the difference between the revenue that can be hypothetically obtained from audits at all companies and the actual amount of enforced payments. The marginal cost of an audit is not considered at this stage. The gap G_{KAS} is therefore:

$$G_{KAS_t} = \frac{r_t p_t}{k_t n_t} n_t \delta_t - \frac{r_t p_t}{k_t n_t} k_t \delta_t \quad (15)$$

but, as assumed, $\lim_{t \rightarrow \infty} \frac{r_t}{k_t} = 1$, so the maximum revenue that would be obtained from audits at all taxpayers would be $E_{t_{MAX}} = p_t \delta_t$.

According to data obtained by PEI, KAS conducted 5956 checks in 2015 and 5775 in 2016. The number of audits concerning CIT is presented in Table 5 and the sum of decisions that resulted from them in Table 6.

▼ **Table 5. Number of tax audits concerning CIT**

Year	Number of CIT taxpayers	Number of CIT audits by customs & tax offices	Number of audits made by tax offices	Total number of audits	Percentage of companies where audits took place
2015	456,190	725	2956	3681	0.81%
2016	483,176	602	2116	2718	0.56%
2017	509,029	580	1344	1924	0.38%

Source: prepared by the authors based on KAS data.

▼ **Table 6. Number of adjustments as a result of CIT audits**

Year	Total number of CIT audits	Number of taxpayers issued with post-audit decisions	Percentage of audits that ended in a decision	Minimum adjustments (millions of PLN)	Maximum adjustments (millions of PLN)
2015	3681	550	14.94%	600	951
2016	2718	481	17.70%	1253	1664
2017	1924	395	20.53%	1268	1520

Source: same as for Table 5.

Tables 5, 6 and 7 show that the number of CIT audits has decreased, while the percentage of audits that ended in success has increased. The amounts being adjusted

increased, too. This data confirms the theoretical assumptions adopted above. It is clear that assuming that companies are randomly audited is unjustified. For this reason,

equations 13-15 should be amended. As a result, the amount of revenue, rather than the number of companies will be analysed. Therefore n_t = the total revenue of CIT taxpayers in the economy in year t , p_t = sum of income

of taxpayers with irregularities in year t , q_t = the total income of taxpayers without irregularities in year t . The total sum of audited revenues in year $t = k_t$, of which r_t of revenue is audited effectively, $k_t \geq r_t$.

Table 7. Average adjustment per audit

Year	Number of audits	Number of audits that ended in a decision	Footnotes (millions PLN)	Average of footnotes per audit (millions)	Average footnote per successful audit
2015	3681	550	951	0.26	1.73
2016	2718	481	1664	0.61	3.46
2017	1924	395	1520	0.79	3.85

Source: same as for Table 5.

Unfortunately, there is no data on the sum of revenue at audited companies, which prevents this amendment from being adopted immediately without an additional assumption on audited companies' revenue. The exact procedures that KAS uses to selecting taxpayers for audits are secret, so attempting to reach them is pointless. However, one can assume that KAS only conducts audits at the largest payers. For an audit to make sense, the average adjustment from the total number of audits k should be greater than the average cost of a single

audit. Naturally, the assumption of increasing efficiency requires that the marginal profit from an additional audit equal the marginal cost of conducting the next audit, which would mean saturation with audits. The Ministry of Finance has data on the sum of revenue at Poland's largest enterprises in terms of revenue. The alternative is to rely on the revenue of the largest payers in terms of taxable income, however, it is logical for auditors hoping to find irregularities in costs to focus on the largest payers in terms of income.

Data on n_t is available in the "Information", whereas δ_t and k_t come from the Ministry of Finance data on tax audits included above. Since there are two unknowns in one equation, one more, final assumption on the number of companies audited effectively is needed. For the purposes of this study, it was assumed that 1500 enterprises are controlled effectively. This reduces the problem of calculating G_{KAS} to finding the total amount of revenue in which irregularities occurred, i.e. solving equation 14 for p_t , which can be transformed into 16:

$$p_t = \frac{E_t n_t}{\delta_t r_t} \quad (16)$$

The sum of revenue for individual groups of the largest taxpayers are present in Table 8. The columns show the revenue in group r , the revenue

of the largest payers, which equal to the number of tax audits in a certain year (group k) and the overall revenue of CIT taxpayers (group n).

▼ **Table 8. Sum of revenue in the biggest groups of taxpayers**

Year (t)	Effectively audited revenue (r)	Overall audited revenue (k)	CIT taxpayers' total revenue (n)
2015	1,931,818	2,350,125	4,988,324
2016	3,537,961	3,831,363	5,068,962
2017	3,594,746	3,732,480	5,283,970

Source: prepared by the authors based on Ministry of Finance data.

As Table 8 shows, in 2017 the combined revenue of the 1924 biggest taxpayers in terms of revenues in Poland was PLN 3,732,480 m, and of the 1500 biggest – 3,594,746 m, which it to be substituted into equation (16), giving $p_t = \frac{1520 \times 5,283,970}{3,594,746 \times 0.79} = \text{PLN } 2828 \text{ m}$. G_{KAS} can then be calculated using equation (15):

$$\begin{aligned}
 G_{KAS_{2017}} &= \frac{r_{2017} p_{2017}}{k_{2017} n_{2017}} n_{2017} \delta_{2017} - \frac{r_{2017} p_{2017}}{k_{2017} n_{2017}} k_{2017} \delta_{2017} \\
 &= 2828 \times 0.79 - \frac{2828 \times 3,594,746 \times 0.79}{5,283,970} = \text{PLN } 714 \text{ m}
 \end{aligned}$$

In 2015 and 2016 the audits encompassed more companies, but we assume that the number of companies audited effectively did not change. Revenue at the first 1500 companies in 2016 came to PLN 3,537,961 m. At the first 2721, it was PLN 3,831,363 m, which, for PLN 5,068,962 m in total CIT taxpayers' revenue, gives $p_{2016} = \frac{1664 \times 5,068,962}{3,537,961 \times 0.61} = \text{PLN } 3.9 \text{ bn}$ and gap G_{KAS} equal to:

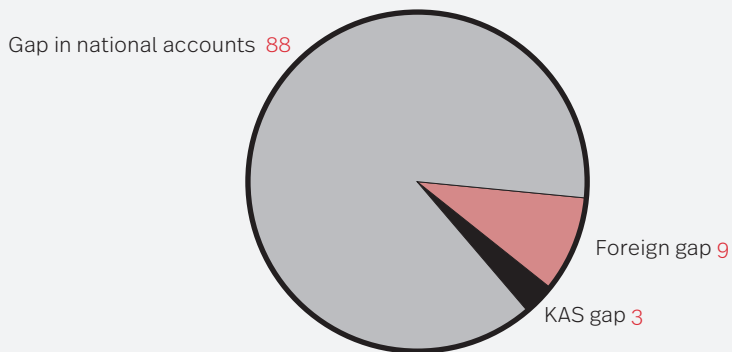
$$G_{KAS_{2016}} = 3908 \times 0.61 - \frac{3908 \times 3,537,961 \times 0.61}{5,068,962} = \text{PLN } 720 \text{ m}$$

$$\text{For 2015, } p_{2015} = \frac{951 \times 4,988,324}{1,931,818 \times 0.26} = \text{PLN } 9445 \text{ m, which gives:}$$

$$G_{KAS_{2015}} = 9445 \times 0.26 - \frac{9445 \times 1,931,818 \times 0.26}{4,988,324} = \text{PLN } 1505 \text{ m}$$

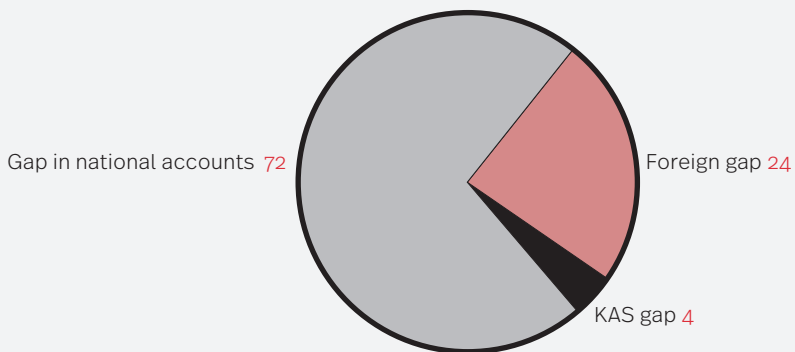
The ultimate value of the CIT gap is presented in Table 9, with the decomposition presented in Charts 3-5.

» **Chart 3.** Maximum decomposition of the gap in 2015



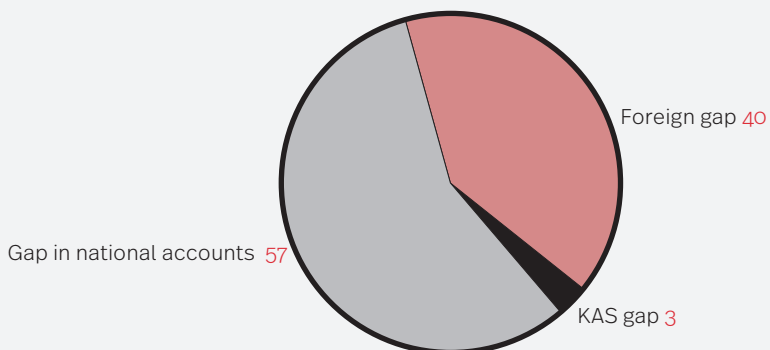
Source: prepared by the authors.

» **Chart 4.** Maximum decomposition of the gap in 2016



Source: prepared by the authors.

» **Chart 5.** Maximum decomposition of the gap in 2017



Source: prepared by the authors.

▼ **Table 9. Estimated CIT gap (billions of PLN)**

Year	Gap from national accounts	Foreign gap	KAS gap	Combined CIT gap
2015	32.4-44	4.5	1.5	38.4-50
2016	3.6-13.3	4.4	0.7	8.7-18.4
2017	1.8-12.2	8.5	0.7	11-21.4

Source: prepared by the authors.

Studying the table above, one of the biggest challenges when calculating the gap should be remembered: the area with the biggest risk of erroneous results, i.e. the financial institutions sector (S12). In its methodology, the IMF recommends limiting studies to the S11 sector because FAP for S12 is much more difficult to calculate. In particular, this FAP is influenced by changes in the price of assets, increases and decreases in reserves, and so on. Disruption in the FAP for the financial institutions sector affects the calculation of the correction factor and, as a result, the calculation of the entire gap. Inaccurate financial results of entities in the S12 sector can affect the calculation significantly and overstate or understate the tax gap. The gap for the sector of non-financial corporations alone can be calculated for 2015-2017 using the application attached to

the report. It also allows the assumptions regarding foreign transfers and deductions to be modified.

It should also be remembered that the estimated levels of the CIT gap in Table 9 do not account for all the possible mechanisms for avoiding the tax. This report attempted to estimate the scale of overstating costs and the foreign component, but these cannot be calculated precisely without using data from individual declarations and financial reports. As mentioned above, KAS is responsible for fighting these types of procedures, but even it is incapable of detecting all actions that lower taxation. For example, to establish the degree to which a company car is used for private purposes, a tax controller would physically have to follow a concrete person over a longer period, which is impossible for obvious reasons.



Changes in legislation affecting the size of the CIT gap

As with VAT, Poland has introduced a series of reforms concerning CIT in recent years, which aim to enforce this tax. These reforms focused on reducing the shadow economy and preventing tax avoidance.

Reducing the shadow economy can take a variety of forms. One of the main ideas for eliminating the shadow economy is to reduce cash payments by promoting electronic ones. This includes paying salaries electronically, the spread of payment terminals, incentives for consumers to make non-cash payments, thresholds for accepting cash payments and taxes on cash withdrawals. The broad requirement for companies to have and use cash registers also has an impact on the reduction of the shadow economy, as do tax regulations on excluding (in a given range) payments made without a bank account from tax-deductible costs and limits on cash transactions for entrepreneurs. These solutions discourage entrepreneurs from making non-transparent transactions.

Identifying unwanted practices quickly and an appropriate reaction by the tax administration are particularly important for reducing tax evasion. Three areas can be singled out:

- collecting data,
- processing and analysing it effectively,
- cooperating with the taxpayer.

The key to spotting high-risk companies is having a large amount of quality data, transferring in a harmonised format, in real time. To draw the right conclusions from the collected data, access to new technology, knowledge and specialised analytical staff is needed. Analyses will not be fully effective without appropriate cooperation

between taxpayers and the administration and between national and foreign tax officials.

Regulatory, analytical and auditory actions must be supplemented with preventative and educational measures that increase awareness and shape social attitudes. Initiatives like receipt lotteries and information campaigns by the tax administration encouraging people to ensure that a receipt is issued are especially worthy of mention.

The key changes aiming to counter tax avoidance include:

- separating two sources of income – from business activity and from capital gains,
- introducing changes on the possibility of including the borrowing cost in tax-deductible costs,
- limiting the possibility of including spending on certain intangible services in tax-deductible costs,
- modifications to the regulations on transfer prices,
- changes to how tax groups functions,
- introducing a minimum tax on commercial real estate,
- changes to the rules for controlled foreign companies,
- limiting the benefits of treaty shopping,
- removing some tax preferences in cases of tax evasion or avoidance,
- removing cash payments from tax-deductible costs,
- changes in the taxation of non-cash contributions,
- changes in the taxation of limited joint-stock partnerships,

- changes in the taxation of investment funds,
- introducing a general anti-avoidance rule (GAAR).

Many other reforms, resulting from the implementation of EU directives and best practices from OECD countries, as well as those resulting from original ideas by the Polish tax administration, could be added to this list.

The changes presented above have a major impact on the size of the CIT gap and are reducing it gradually. For the reasons mentioned earlier, the estimates on the CIT gap presented in this report do not encompass all phenomena linked to tax avoidance. This means that these calculations cannot be used to directly estimate the impact of the sealing of the tax system linked to the introduction of a series of new solutions concerning CIT. We can only say that this impact is not trivial. The impact of the sealing of the CIT system will be analysed in more detail in a separate report by the Polish Economic Institute.

Alongside the regulatory efforts to secure budgetary revenue from CIT, a series of measures to simplify this tax have been introduced,

the catalogue of tools increasing Poland's competitive advantage has been broadened and a series of incentives supporting growth and innovation for Polish taxpayers have been foreseen. These include:

- relief for R&D,
- preferences for taxpayers who obtain income from qualified intellectual property rights (IP BOX),
- the possibility to set-off the losses against income earned from the source of revenue in one of the next five consecutive tax years by up to PLN 5,000,000 at once,
- increased limits of depreciation charges for car use,
- a new law on supporting new investments,
- the notional interest deduction (allowance for corporate equity).

Many other solutions influencing the conscious increasing of the so-called political gap in CIT by the legislator have also been created. This is an investment in the Polish economy and in Polish taxpayers, which, in the longer term, ought to strengthen Poland economically and lead to tangible returns for the state budget in the form of increased revenue from all taxes.

Summary

This report contains the first comprehensive calculation of the CIT gap in Poland. For the project, we designed an original methodology, drawing on the approach proposed by the IMF and the European Commission. It involves using national accounts to calculate a theoretical taxable income and then theoretical revenue from CIT, which are compared with actual budgetary revenue. Based on NBP data, we also attempted to estimate the losses in CIT resulting from the transfer of income abroad and, based on GUS and NIK data, tried to estimate the losses linked to the non-observed economy. In the report, we presented calculations for the years 2015-2017 (data for 2018 had not yet been collected). We decided not to consider a longer timeframe due to the dynamically changing legal environment and tax system, as well as the risk of changes in how national accounts are calculated.

It should be remembered that the CIT is probably bigger than the values presented in this report. It does not account for the artificial overstatement of costs by entrepreneurs, which reduces income significantly, by at least tens of billions of złoty. This component was not estimated because it is impossible to calculate reliably without access to data from tax audits, which would allow the impact of audits on the whole economy to be aggregated, assuming that companies are selected for audit at random. All other accounts are subject to too much error to be included in this publication.

The maximum value of the CIT gap was:

- in 2015 – PLN 50 bn,
- in 2016 – PLN 18.4 bn,
- in 2017 – PLN 21.4 bn.



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