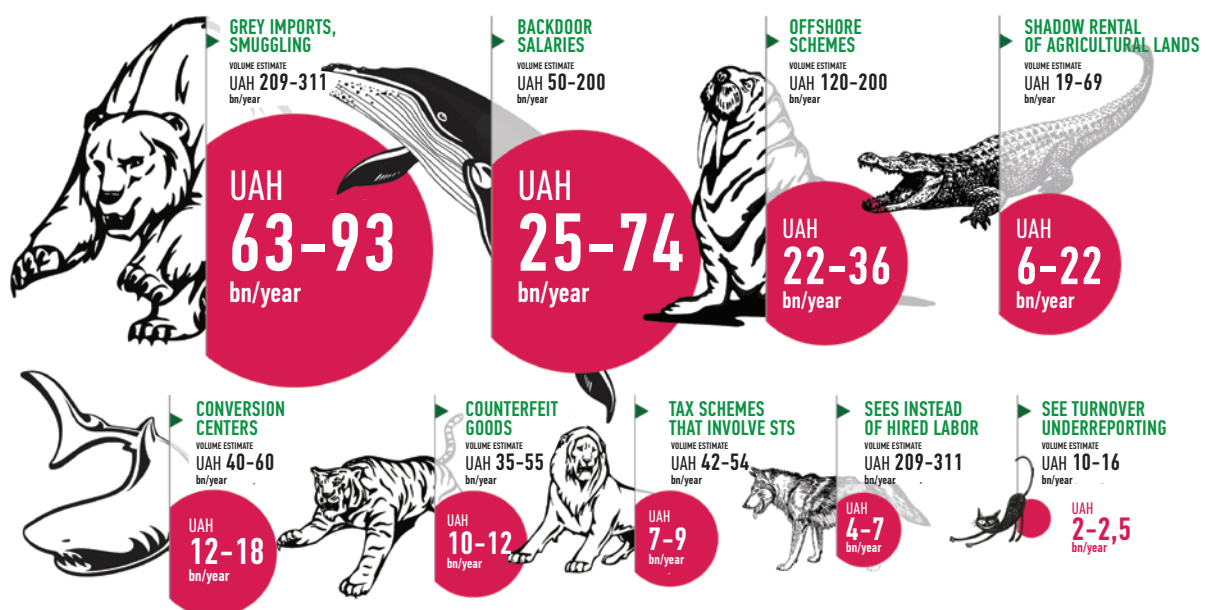


Comparative Analysis of Fiscal Effect of Tax Avoidance Instrument Use in Ukraine: New Challenges

Oleh Getman

Volodymyr Dubrovskiy

Vyacheslav Cherkashin





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Contents

I. Tax and Aggressive Tax Planning Avoidance Instruments in Ukraine: What Has Changed Since 2017?	4
1.1. Structural Changes That Have Happened Since Previous Report Publication	4
1.2. New Additions Compared with Previous Analytical Paper	6
1.3. National Specifics and Key Schemes	7
II. Assessment of Tax Evasion Tools (Schemes) and Tax Avoidance in Ukraine	9
2.1. Use of Offshore Jurisdictions for Tax Avoidance	9
2.2. VAT Avoidance/Evasion	15
2.3. Tax Avoidance/Evasion Via Customs Rule Violations, Smuggling and Border Corruption	20
2.4. The Industry of "Convert Centers"	27
2.5. Counterfeit goods	29
2.6. Shadow Agricultural Land and Product Lease	31
2.7. Backdoor Salaries	33
2.8. Tax Evasion Through Single Tax System (STS)	37
III. General Conclusions	42
Annex 1	45
Annex 2	47
Annex 3	52

I. Tax and Aggressive Tax Planning Avoidance Instruments in Ukraine: What Has Changed Since 2017?

This research is a continuation of the analytical project, Comparative Analysis of Fiscal Effect of Tax Dodging/Avoidance Instruments Use in Ukraine, completed in 2017 by the same authors and at the time actively used by researchers, policy makers, civic society representatives and other parties concerned. A wide public discussion that followed provided the authors with a range of useful feedbacks and comments, which we have tried to take aboard in this paper. Besides calculations of budget losses to schemes based on 2018 data, in this new research we have been able to evaluate some additional tax dodging or minimization schemes and, in some cases, improve the evaluation technique. An analysis of certain individual tax gaps has been also added.¹

Given the importance of correct priority-setting for improved tax administration, it would be worthwhile to make this analysis a regular annual monitoring exercise that should cover tax gaps (a good practice in developed economies, specifically, of the EU) and additionally analyze specific schemes leading to such gaps and ideally, also the shadow/unofficial economy proper. This would allow for fast-tracking of effectiveness of respective policies, using objective situation for setting and correcting priorities in the fight against tax abuse, also timely identifying new challenges and mitigating these.

1.1. Structural Changes That Have Happened Since Previous Report Publication

The economy structure per enterprise size has somewhat changed in the two past years towards small enterprises that as of 2017 accounted for 18.6% gross value added (of them, 6.7% were specifically from micro businesses). Nevertheless, it is too early to tell if this is already a trend as similar values were registered back in 2014. While there is no data on these indicators for 2018, the respective specific production output values between 2017 and 2018 have changed if only slightly, which probably makes the added value indicators remain at their levels. The economy of Ukraine is still dominated by large and medium enterprises (both types accounting for more than 40% share); at the same time, some of the latter are parts of bigger business groups. As specific institutional factors described in the previous research that allow some large and medium enterprises to dodge taxes with no less success than small ones have not seen any radical change, the respective proportion of tax abuse related to large and medium enterprise endeavors has remained at the same level.

Meanwhile, official salary ranges substantially increased, first of all, in the private sector where the average salary went up 71% compared to 2016. This has been due, on the one hand, to the de-shadowing (as shown below); on the other hand, to an abrupt change of migration policies of Western neighbors: it coincided with introduction of the visa-free treatment with EU Member

¹ As the State Tax Service delayed its response to MP's request of required data, respective chapters of this paper version are presented with data that were available at the time of their writing. The chapters will be updated as soon as new data is received.

States and led, in its turn, to massive labor migration and personnel drain when most sectoral labor markets turned into the 'seller's' ones. Nevertheless, a steep increase of minimum wage level probably led to an increase in the number of unofficially employed though the government has been trying to reverse the trend with mass down raids and eye-watering fines. Parallel to that, the economy was reviving after the shock of 2014 and 2015, which should surely contribute to reduced shadowisation. While it was reflected in MEDT data, one has to be careful with these as, e.g., the applied assessment technique automatically makes the unprofitability of some enterprises a factor of income-hiding in spite of other possible explanations.

There have been only slight changes in the taxation proper, the last reform of scale being about implementation of a transparent automated VAT reimbursement in spring of 2017. Hopes of further improvements to VAT administration linked to the implementation of a TIMCS (Tax Invoice Monitoring and Correction System) for preventative blocking of suspicious tax invoices using risk-oriented methodology proved misplaced (please refer to Section 2.2). In the meantime, a gradual adaptation of all parties to the VAT dodging process to the initial shock caused by VAT EAS implementation in 2015 should be expected despite the scale of abuse has never returned to its previous levels.

Sweeping salary increases and rather substantial rise of consumer prices (by 30% in two years) could not but compel some single tax (ST)-paying entrepreneurs from 1st and 2nd groups to partially hide their revenues. As sales volume caps for the groups remained where they had been, the non-performing provision requiring ST payers to use fiscal cash registers in the event of sales volume surpassing UAH1 million a year that led to the most shadowisation of income among small businesses also remained in force. Foreseeably, both issues only became stronger; however, the key reason for it was not the change in tax payers' behavior but the absence of proper indexation of top ST administration thresholds (to the extent when the tax accrued and the mandatory SSC amount have been promptly indexed together with minimum wage).

Post-industrial sectors like the IT have continued their fast growth and, at the same time, increased the scope of their collaboration with freelancers from self-employed entrepreneurs (SEE) of 3rd ST group, particularly, in ways that might be considered hidden labor relations. Nevertheless, the 'budget losses' from tax avoidance, while conditional by definition, should in this case be viewed as exclusively imaginary as the factors described in detail in the previous article remain in full effect.

A personal income increase (in particular, due to remittances from labor migrants) outrunning domestic output growth together with the strengthening of the real (and sometimes, nominal) Hryvnia foreign exchange rate led to a substantial (by 46%) surge in imports. That respectively increased the importance of 'contraband' smuggling (both customs rules abuse and the direct illicit trafficking) as the reason behind insufficient budget receipts.

Moreover, according to global statistics the abuse is a two-lane road when overstatements of customs value with further goods sales at minimum margin (at times, even at a loss) gives some importers a chance to hide profits abroad and occasionally, also 'help' others do the same ('trafficking'). Simultaneously, understated customs value or other schemes of tax avoidance at goods imports make it possible to avoid most, if not all, customs duties with subsequent goods sales via various channels: a) on the 'black market', specifically through online shops and big bazaars (through unofficial hawkers); b) self-employed private entrepreneurs; c) via other channels (using forged documents). Same channels are used to sell goods via VAT credit notes, counterfeit and unofficial produce (mostly in the agricultural sector). The latter is even subject to large-scale exports.

1.2. New Additions Compared with Previous Analytical Paper

With a view of received comments, new possibilities and challenges we updated the analysis with the following improvements:

1. An assessment of fiscal effects of shadow agricultural land rental arrangements has been added to the previously reviewed schemes. The problem ranked fourth among all the reviewed.
2. We were able to assess the scale of backdoor salaries paid (for the most part, via 'conversion centers'² and tax credit schemes) to officially employed hired workers nominally receiving just minimal wage. These cover not all of the 'shadow salaries' (as there also exists fully unofficial employment) but still a great deal of them.
3. That same technique made it possible assessing the extent of using the self-employed status instead of labor relations.
4. With a view of an increased relevance of the customs abuse topic the latter was reviewed in greater detail with individual evaluations of the most important schemes.
5. An analysis of VAT compliance gap was added in line with the technique developed in another paper.
6. The previous analysis of projected receipts from the land tax was presented and scope of land tax gap due to evasion inefficient administration and connivance of local government authorities who impose reduced rates and dish out numerous individual privileges to economic agents was evaluated.

However, approaches to assessment of some important shadow economy components remain problematic. This concerns primarily:

- operation of unofficial, not registered enterprises and SEEs,
- business structuring with pseudo self-employed entrepreneurs 'working' via pseudo 'market places' and/or pseudo franchise,
- transactions on the shadow financial market, particularly swap deals, fraudulent activities with securities, payments abroad in form of royalties, sanctions, loan interest etc. benefiting affiliated parties (some of these transactions being quite legitimate),
- volume of not registered agricultural production;
- retail sales without registering the fiscal receipt in a respective SFS database,
- volume of transborder e-trade in excess of what is allowed under the law.

² The Ukrainian jargon term for a shell company operating with numerous short-lived fake firms and other illegal means of tax evasion. Such companies form a specific criminal industry under informal protection of tax and law-enforcement officials that assists normal business firms in tax evasion. The term originates from "currency conversion" because when first appeared in the early 1990s such firms mostly offered unofficial FX exchange, the most demanded service of those times

1.3. National Specifics and Key Schemes

Just like the majority of countries with less-than-average per capita income and weak public administration, Ukraine bears the brunt of a relatively high proportion of the shadow economy³, that is, economic activities on which no taxes are paid. The Ministry for Economic Development and Trade of Ukraine (MEDT) estimates its size at 30% GDP – quite a lot compared with developed economies but rather close to that in countries with governance quality and personal income levels⁴ similar to ours. It should be noted that the shadow economy level per said estimates has considerably dropped in the past three years concurring with lowered re-distribution via public finances. It looks natural because the shadowisation is economy's natural response to excessive (especially when compared with the actual quality of 'public services') fiscal pressure. Still, the presence of a large 'shadow sector', on the one hand, impedes reduction of nominal tax burden and, on the other hand, distorts competition. Both phenomena, in their turn, contribute to further shadowisation. Because of that, fight against these is important although not the main component of the tax reform.

At the same time, the structure of the shadow economy in Ukraine is unusual to that of the economy proper. Unlike the majority of other countries (excluding some CIS states), most of tax receipts are lost in Ukraine with the most widespread tax evasion tools and aggressive tax planning broadly used by large and extra-large firms that (again, unlike the majority of world countries) dominate the domestic economy and owing to their informal connections enjoy ample opportunities to avoid paying taxes. Consequently, a mechanical transposition of other countries' experience onto the Ukrainian soil leads in this regard to inadequate conclusions and recommendations hardly of any real value for an efficient fight against shadow economy.

The paper reviews the most relevant tax evasion and aggressive tax planning (hereinafter, 'tax evasion') tools in Ukraine, assesses their size, available use limitations, also impact (besides actual reduction of budget receipts), prospects and ways of mitigating their effects. This will create grounds for making conclusions on the succession and priority of measures to overcome shadow economy. It is worth noting that as some schemes are interconnected and as volume of some has been partially included in the volume of others, the total budget losses from all the schemes will be slightly less than their mathematical sum.

The choice of tax evasion tools in Ukraine is generally not that different from other countries. The standard kit includes, among other:

³ The term can have different meanings; e. g., it is often used to construe criminal activity, or a 'black economy', as opposed to the legitimate yet unofficial one (the 'grey economy'). In line with a popular tradition, we will use it to denote the 'grey economy', specifically the one of officially registered economic agents who artificially shrink the tax base by hiding or optimising (via aggressive tax planning) taxes or otherwise dodging taxes due by law.

⁴ Cf.: Leandro Medina & Friedrich Schneider, 2017. "Shadow Economies around the World: New Results for 158 Countries over 1991–2015," CESifo Working Paper Series 6430, CESifo Group Munich. <https://ideas.repec.org/p/ces/ceswps/_6430.html>

- ▶ Customs rules abuse, smuggling
 - customs value manipulations,
 - interrupted transit,
 - mail-in related schemes,
 - cross border shuttle trade;
 - direct trafficking.
- ▶ Plundering the value-added tax (VAT)
 - Illicit budget refunds of exports,
 - business fraud (missing trader); specifically, carousel frauds,
 - goods substitution (tax credit schemes).
- ▶ Counterfeit goods
- ▶ Profit shifting to tax havens (offshore jurisdictions)
- ▶ Land rental shadow market schemes
- ▶ Shadow salaries
- ▶ Tax base distortion (concealment of sales volume)
- ▶ Abuse of tax privileges and preferences as well as special treatment.
- ▶ Unofficial business and individual economic activity without registration.

II. Assessment of Tax Evasion Tools (Schemes) and Tax Avoidance in Ukraine

2.1. Use of Offshore Jurisdictions for Tax Avoidance

Scheme in a nutshell: in this research the 'use of offshore jurisdictions for tax avoidance' is construed to mean the using by tax payers of a set of tools⁵ (use of all measures allowed by law to avoid payment of taxes, that is, legal minimization of tax liabilities, specifically, aggressive tax planning, tax optimization, abuse of rules or use of bad practice, namely availing of inconsistencies, conflicts and gaps between various taxation systems, also of preferential tax treatment of individual activity or income types, manipulating the residency status to transfer profits originating from Ukraine without respectively taxing them with the corporate income tax to countries with lower or zero tax rates for tax burden reduction purposes⁶).

Forecast (calculation): profit shifting abroad to low-tax jurisdictions in amount of UAH120–200 bn a year leads to insufficient tax receipts of the budget between UAH22 bn and UAH36 bn.

The national economy is known to be open and small in size (according to the World Bank, the Ukrainian share in the world's GDP was 0.15% in 2018 while the share of exports in GDP structure in 2018 was at 45.2%). That is, possibilities of profit shifting beyond Ukraine are rather ample but, given the high cost of servicing such tax evasion schemes (fixed costs of upwards of USD30-50 thousand a year), these are first of all affordable for big Ukrainian companies and well-off Ukrainian nationals for whom the 'off shore constructs' remain a popular tool (almost a 'national sport') to solve several tasks at once, namely to:

- evade paying taxes inside the country,
- reduce the risks of being raided and simplify judicial protection of property rights (capital flight due to low levels of protection of investments and savings),
- exporting financial results of political corruption abroad.

According to State Fiscal Service of Ukraine data, the absolute majority of big exporters operated in 2017 via mediators located exactly in low-tax jurisdictions (the Netherlands, Cyprus, Switzerland, Luxembourg) with the proportion of indirect export contracts being more than 76% (to put it into perspective, the same indicator did not exceed 40% in 2012–2013).

Specific weight of tax havens (off shore jurisdictions) in *round tripping* investments (when residents send money abroad to have them return to the country as direct foreign investments) remains high. E. g., FDIs with residents as end controlling investor made in 2017 USD270 million and accounted for 10.4% total FDIs in Ukraine (NBU data⁷). The most of *round tripping* transactions were carried out via Austria, Cyprus, the Netherlands and Switzerland.

⁵ tax planning, avoidance, evasion and aggressive tax planning, profit shifting.

⁶ Tax evasion is not the only purpose of profit shifting to offshore jurisdictions; purely legal motifs (taking one's property out of jurisdiction of Ukrainian courts deemed unreliable due to their dependence and corruption) as well as hedging against foreign exchange risks and banking system instability are at least as much important.

⁷ https://bank.gov.ua/control/uk/publish/article?art_id=73849831&cat_id=55838.

Insert 1. “In the five periods under review, the tax payers submitted 12.2 thousand CT (controlled transaction) reports.

In particular, according to fiscal year results for 2013 (September through December) some 2.5 thousand reports for the total of UAH1,159 bn were submitted; in 2014 it was 1.9 thousand reports for UAH3,611 bn; in 2015, 3 thousand reports for UAH1,630 bn; in 2016, 2.8 thousand reports for UAH2,413 bn, and 2017, 2.1 thousand reports for UAH 1,564 bn”.

“Among the key countries with residents of which most sizeable controlled transactions (excluding banking transactions) were carried out in 2017 were Switzerland (36%), Cyprus (8%) and the RF (6%)”.

“According to the developed and implemented tax surveillance procedures and based on results of the analysis of CT reports and TP documentation submitted by taxpayers, 75 tax audits had been initiated to verify taxpayers’ compliance with the ‘arm’s length principle’, of which 53 were completed.

The audits resulted in additional corporate profit tax (CPT) assessment in amount of UAH632 million, reduction of negative value of the CPT by UAH5.3 bn, VAT assessment of UAH13.7 million and accrual of penalties for UAH69 million”.

(SFS performance in the domain of transfer pricing oversight¹ in 2013–2017.)

¹ <http://sfs.gov.ua/diyalnist-/transfertne-tsinoutvorenn/zagalni-vidomosti/>

Transfer pricing oversight remains institutionally weak. Despite a tremendous capacity to counteract profit shifting to off shore jurisdictions, the transfer pricing oversight mechanism has been kept in its primordial condition (with the scope of companies engaging in risky transactions and subject to checks not exceeding 1%) for more than five years generating ‘imitation’ results (in 2013–2017, only UAH6 bn, or 0.00058%, of the total CTs worth UAH10,377 bn became the subject of the probe).

Ukraine is rather slow to join implementation of new international fiscal transparency and financial information exchange standards; it could only boast formal accession to the Base Erosion and Profit Shifting (BEPS) Action Plan (the so-called ‘anti-BEPS’), FATCA agreements (the Agreement between the Government of the United States of America and the Government of Ukraine to Improve International Tax Compliance and to Implement FATCA) and the MLI, which brings no practical consequences whatsoever. Moreover, the country still lacks a comprehensive approach to solving the offshore problem and businesses are yet to see a clear-cut roadmap of future changes. Respective government bodies work in a piecemeal and uncoordinated way. E. g., despite Decree of the President of Ukraine No. 180/2016 of 28 April 2016 on Measures to Counteract Base Erosion and Profit Shifting Abroad and the Law of Ukraine on

Currency and Currency Transactions of 21 June 2018, No. 2473-VIII, both commissioning the government and the National Bank with designing and submitting to the parliament bills on international cooperation of Ukraine in the taxation area, namely on:

- updating transfer pricing oversight procedures (country-specific rules for international groups),
- introducing rules for controlled foreign companies, combating aggressive tax planning (reduction of expenses on financial transactions with affiliated parties and taxation of permanent representation),
- measures to prevent abuse of double taxation avoidance agreements and procedures of dispute resolution in relation to application of conventions on avoidance of double taxation,
- implementation of international standards of automated exchange of financial information,

not a single bill on either of the above has been ever motioned to the Verkhovna Rada of VIII convocation.

The spread of ‘offshore constructs’ is also linked to the weakness of government institutions in the connected field of fight against money laundering.

Insert 2. *Main conclusions on the efficiency of Ukraine’s anti-money laundering and terrorism financing measures:*

“Corruption is the main threat leading to money laundering (ML) in Ukraine. Nevertheless, the focus of law enforcement activities on uncovering instances of money laundering related to corruption is in the initial phase”.

“The Financial Intelligence Unit (FIU) has found itself in critical condition due to obsolete IT system and not enough staff to cope with ever growing workload”.

“While the Common State Registry of Legal Entities, Self-employed Entrepreneurs and Civil Society Organisations (CSR) collects all key information and makes it publicly accessible via the Internet, the body in charge of its maintenance fails to ensure the basic information or that on beneficiary ownership submitted by legal entities is either authentic or up-to-date”.

(The Fifth Round Mutual Evaluation Report¹ on Ukraine, MONEYVAL, December 2017)

¹ http://www.sdfm.gov.ua/content/file/Site_docs/2018/20180305/ZVIT_UKR.pdf

An analysis of the volume of exports to jurisdictions listed as offshore ones under Cabinet of Ministers of Ukraine Resolutions: of 27 December 2017 No. 1045 (List 1, 'classic offshore territories'); and of 4 July 2017 No. 480 (List 2, 'hybrid' jurisdictions) has been made based on customs statistical data of the State Fiscal Service of Ukraine for 2015 - 2018 (please refer to Annex 1 and Table 1).

List 1 has 79 nations (territories) included based on the following criteria:

- corporate income tax' base rate is 5 or more p.p. lower than in Ukraine (less than 13%),
- no international information exchange agreements signed with Ukraine,
- competent bodies in the said jurisdictions do not ensure timely and full exchange of fiscal and financial information requested by Ukrainian supervisory authorities.

List 2 includes 26 nations (territories) where laws provide for existence of specific company types (legal corporate forms) not subject to income tax (corporate income tax), namely the tax on income received beyond the state of registration and/or those not resident for tax purposes of the nation in which they have been registered as legal entities.

Table 1.

Exports to jurisdictions listed as tax havens, USD bn.

	2014	2015	2016	2017	2018
1. Potential base of profit shifting beyond Ukraine*	229.1	67.92	88.75	56.08	- reports as of 1 Oct 2019
2. Exports to 'classic' offshore	4.32	2.72	2.72	3.18	3.59
Specific weight (2/1), %	1.9	4	3.1	5.7	-
Dynamics (yoy), %	-	-37	0	+16,9	+12.9
3. Exports to 'hybrid' jurisdictions	17.42	13.61	13.05	17.01	19.02
Specific weight (3/1), %	7.6	20	14.7	30.3	-
Dynamics (yoy), %	-	-21.9	-4.1	+30.3	+11.8
4. Total (2+3)	21.74	16.33	15.77	20.19	22.61
5. Total exports	65.42	47.87	46.23	53.97	58.97
Goods exports**	53.9	38.13	36.36	43.26	47.33
Services exports**	11.52	9.74	9.87	10.71	11.64
Dynamics (yoy), %	-	-26.8	-3.4	+16.7%	+9.3%

*volumes of controlled transactions (please refer to Insert 1) declared by taxpayers per official rate of the NBU (UAH/USD): as of 1.01.2015 – 15.76; as of 1.01.2016 – 24.0007; as of 1.01.2017 – 27.19; and as of 1.01.2018 – 27.89.

**data of the State Statistics Service.

The economic downfall of 2014–2015 reversed the offshore export trend and kept export volumes at their lowest for two years (USD2.72 bn); however, beginning in 2017 the trade with offshore territories picked up again: total exports to the countries from the ‘classic’ offshore jurisdiction list gained almost 17% (+USD0.46 bn) in 2017 and 13% more (+USD0.41 bn) in 2018. Parallel to that, exports to ‘hybrid’ jurisdictions not only restored itself to the pre-crisis 2014 but surpassed it (+USD1.6 bn). Still, the growth not just mirrors an increase in processes of profit shifting and tax evasion but is also an effect of a global trend towards re-routing trade flows from the aggressor country (RF) towards EU nations.

The previous analysis that covered data for 2012–2015 established an increase in the volume of profit flight abroad from USD9.76 bn to USD14.4 bn a year (with the scale of risk transaction roughly at UAH260 bn to UAH320 bn a year). Given a drop (more than 2.5 times) in the potential base of profit shifting abroad Ukraine and the restoration in 2017 of the dynamics of offshore trade, forecasted volume of the ‘tax evasion through offshore schemes’ tool in 2017–2018 is probably in the UAH120–200 bn range potentially leading to losses in corporate profit tax receipts from UAH22 bn to UAH36 bn just from the transfer pricing.

According to the survey⁸ commissioned by the European Parliament and published in 24 September 2018, one of the most popular export products of Ukrainian origin, the iron ore, was in 2015–2017 subjected *en masse* to transfer pricing schemes (exports at prices lower than the market one); that led to ‘iron ore exports from Ukraine being undervalued by 20% minimum’. The same scheme “is used for not only the iron ore but also for steel and agricultural products”. Extrapolation of mining sector data onto the total national exports provides grounds for a conclusion that profit shifting abroad to low-tax jurisdictions costs Ukraine about EUR3 bn a year with shortfalls to the national budget amounting to EUR750 million (about UAH21.7 bn), which fully correlates to the obtained data and the forecast.

By YouControl⁹ calculations, tax havens were most commonly receiving cereal crops, ferrous metals and a variety of fats and oils: the three categories accounted for 57% offshore exports.

Recommendations:

- ▶ Implement in the national laws a set of tools to protect the national tax base from trans-border tax evasion schemes as follows:
 - modernize the transfer pricing control mechanism (country-specific reporting rules for international groups of companies,
 - establish general rules to combat tax avoidance (General Anti-Avoidance Rules) that will prevent unacceptable tax avoidance schemes related to access to illegal tax privileges with due regard to national specifics and minimizing discretionary opportunities,
 - introduce controlled foreign company rules aimed at collecting tax from the undistributed profits of foreign companies controlled by residents of Ukraine,
 - increase the limitation period from three to five to ten years (like in the majority of EU Member States).

⁸ <https://p.dw.com/p/35MaU>.

⁹ <https://youcontrol.com.ua/news/hostynni-havani-ukrayinsky-eksport-do-ofshoriv-vyris-na-20-a-import-na-40/>.

- ▶ Promote international cooperation on matters of national tax base protection from transnational (international) tax evasion schemes, in particular:
 - renegotiation of terms and conditions of the Agreement between the Government of the United States of America and the Government of Ukraine to Improve International Tax Compliance and to Implement FATCA of 7 February 2017. The country should not just provide the U.S. Government with information on accounts of US nationals in Ukraine but also start receiving data on US accounts of Ukrainians (the reciprocity principle in bilateral exchange should be observed),
 - the government should initiate renegotiation of bilateral agreements on double taxation avoidance (DTAs) that promote 'aggressive tax planning' and tax evasion schemes (first and foremost, with Cyprus, the Netherlands, Panama and other),
 - Ukraine should join the procedures of automated exchange of financial and fiscal information according to OECD's international Common Reporting Standard (CRS),
 - practical implementation of international commitments of Ukraine under the Agreement between the Government of the United States of America and the Government of Ukraine to Improve International Tax Compliance and to Implement FATCA of 7 February 2017 and the Extended Cooperation Program in the scope of OECD Initiative (OECD/G20 BEPS Agenda) that Ukraine acceded to on 1 January 2017 (minimum standard).
- ▶ Enhance criminal liability for tax avoidance with parallel increase of the tax crime damage threshold; introduce criminal liability for:
 - hiding income in offshore jurisdictions,
 - VAT embezzling (illicit reimbursement) (in a similar manner to Germany - Section VII §26b and §26c of UstG Law: penalty of up to EUR50 thousand or up to five years in prison).
- ▶ The Government and the National Bank should urgently design and submit to the newly elected parliament bills on international cooperation of Ukraine in the taxation area as envisaged by President of Ukraine Decree No. 180/2016 and Law No. 2473.
- ▶ Substantially enhance and strengthen the capacity and the staff strength of the Tax Service's special TP supervision unit and provide for similar analytical unit establishment with the new customs service of Ukraine in the framework of the comprehensive reform of supervisory authorities.
- ▶ Earmark funds for massive IT system modernization at the State Financial Monitoring Service in the Nat. Budget for 2020; also look into the possibility of increasing the number of 'financial intelligence' analysts.

2.2. VAT Avoidance/Evasion

Tax law requirements and effective value-added tax administration procedures currently present the chief burden for Ukrainian taxpayers. Thus, according to the Doing Business-2019 rating, 60% of the total time spent on tax payment falls on ensuring compliance with statutory VAT payment requirements.

Table 2
(hours a year)

DB rating	Total hours	Time needed to pay VAT	Proportion, %
1	2	3	4
2019	327.5	199	60
2016	350	150	42
2011	657	181	27
2009	848	246	29

* Column 2: total time spent to prepare and submit reports and pay (withhold) the corporate income tax, the value-added tax and social security contributions.

* Column 4: VAT proportion to the total time spent on paying taxes.

The situation has been due to the existence of a rather complex electronic tax administration system (VAT EAS), opaque rules of tax invoice registration in the Unified Tax Invoice Registry and imperfect tax invoice blocking mechanism (the so-called TIMCS), which all lead to substantial additional time and money costs taxpayers have to bear to keep books and pay the tax. In fact, the state has shifted the administration burden together with the fight against evaders and dishonest schemes onto taxpayer's shoulders – and at her cost.

The VAT administration system built in Ukraine is among the World's most burdensome for taxpayers. Therefore, given the heavy administrative burden and historically high corruption risk of the tax, the issue of budget losses due to VAT evasion schemes remains among the most pressing ones.

At the same time, it should be noted that the introduction of VAT EAS and TIMCS has substantially shrank the "tax pit" and "tax credit" market (which does not render unnecessary the need of tax administration system modernization to make it more user-friendly and comfortable for taxpayers).

Insert 3. Data from the State Fiscal Service of Ukraine

More than 5.9 thousand potential beneficiary parties for the total VAT in excess of UAH12.2 bn processed. The measures taken resulted in assessments of additional tax liabilities, reduction of negative value and VAT reimbursement from the budget in amount of UAH9.7 bn, and identification of unrealistic sales transactions for the total of UAH3.3 bn.

Materials provided by operations units allowed identifying material elements of offense with 153 criminal proceedings launched in identified instances of VAT illegally declared for reimbursement (UAH2.3 bn) and illegally reimbursed from the budget (UAH303.5 million).

(Report of the State Fiscal Service of Ukraine for 2017, pp. 37 and 49.)

In the framework of a comprehensive surveillance of tax risks related to VAT, '2.9 thousand beneficiary parties and UAH5.5 bn-worth of VAT were processed; financial liabilities assessed, negative value of taxable item and VAT reimbursement from the budget for UAH3.3 bn reduced, and unrealistic sales transactions for the total of UAH1.4 bn identified'.

Materials provided by operations units in 2018 allowed identifying material elements of offense with 178 criminal proceedings launched in identified instances of VAT illegally declared for reimbursement (UAH1.3 bn) and illegally reimbursed from the budget (UAH345.8 million).

(Report of the State Fiscal Service of Ukraine for 2018, pp. 36 and 50)

(a) Fictitious enterprise (missing trader), specifically, carousel fraud schemes

Scheme in a nutshell: within the meaning of taxation, the missing trader scheme is about gaining control over an economic agent to execute actions aimed at tax avoidance or evasion (specifically, VAT), receipt of cash money and manipulations with financial reports and primary documents. E. g., the Criminal Code of Ukraine (Art. 205) determines missing trader as 'establishing or acquiring economic agents (legal entities) for the purpose of covering illicit activities or undertaking types of activities that are effectively prohibited'.

A scheme of illicit VAT reimbursement whereby goods are resold and exported multiple times with the exporter redeeming the VAT and suppliers vanishing without paying the tax has received the name of carousel (or 'carousel fraud'). One and the same good may do rounds inside the country (or between countries) offering the possibility of VAT reimbursement as a type of criminal business tool.

Insert 4. Based on the results of processing 1.1 thousand benefit-forming agents, 128 missing traders included in the 'Fraudulent Enterprise Agent' AIS and 924 agents more included into the list of risky tax payers. 78 pre-trial proceedings launched under Article 205 of the CCU.

(Report of the State Fiscal Service of Ukraine for 2018, pp. 51)

Forecast (calculation): please refer to the section on 'convert centers.

(6) Scheme-based tax credit (VAT scheme credit)

Scheme in a nutshell: an enterprise (predominantly, a legal importer) officially imports into Ukraine paying import VAT to the budget and getting respectively tax credit for the amount. The good is then sold inside the country for cash while still stock-recorded by the enterprise. At the same time, the VAT EAS grants the enterprise the possibility of issuing tax invoices for the total import VAT amount. This allows to illicitly create tax credit for all VAT payers concerned; the money received on accounts are then returned to the customer less 'service interest'. The scheme (of the so-called tax credits, or VAT scheme) is rather challenging for identification by supervisory authorities, cannot be identified at the declaration phase, requires stock-taking of leftover products and reconciliation of inventory items.

Insert 5. Data from the State Fiscal Service of Ukraine

Imported good 'substitution' (good sold for cash) with goods of unknown origin identified among 166 'risk-prone' importers for the total of UAH2.6 bn; 295 random documentary checks carried out; UAH4.6 bn assessed and VAT negative value reduced by UAH481.4 million; unrealistic economic transactions for UAH3,168.9 million carried out by 611 economic agents established; scheme-based credit for the amount of UAH143.8 million prevented in the real economy sector.

(Report of the State Fiscal Service of Ukraine for 2017, p. 38)

To prevent scheme-based credit on account of imported goods 'substitution' with goods of unknown origin, 289 checks were carried out, UAH3.3 bn assessed and VAT reimbursement amounts reduced by UAH0.6 bn.

(Report of the State Fiscal Service of Ukraine for 2018, pp. 36–37)

Forecast (calculation): budget losses of around UAH7–9 bn a year

TIMCS implementation (the second version of the monitoring system was commissioned in 22.03.2018) narrowed the VAT scheme market (the scope of manipulations with tax invoices in 2016 was above UAH1 bn a month, or UAH12 bn a year; in 2013 and 2014 the losses were estimated at UAH55 bn – UAH70 bn a year) and reduced budget losses.

Still, it would be too optimistic to think the matter of scheme-based tax credit has been finally solved given the automated monitoring system is utterly imperfect (particularly with human factor at play) and in need of, at least, repeat serious and deep follow-up revision.

For example, a verification of TIMCS results in 1.04.2018 - 31.09.2018 showed nearly 200 thousand tax invoices/adjustment calculations (TI/AC) or 86.6% total number of blocked TI/AC had been blocked for no good reason, which was acknowledged by supervisory authority commissions authorized to decide if TI/AC can be registered in the Common Tax Invoice Registry or should be denied such registration.¹⁰

If the monitoring system's performance is close to a 0.14 ratio and performance results of the supervisory authorities have a pre-emption horizon of UAH2 to 3 bn (please refer to Inserts 3 and 5), then potential tax receipt losses in the past years will remain at a level of UAH7 to 9 bn a year.

Recommendations:

- ▶ The current capacity of supervisory authorities (the Tax and the Fiscal Services), which includes requirements of the monitoring system and the making of a list of 'risk-prone' taxpayers¹¹ is enough to bring carousel reimbursement and VAT minimization schemes to almost a full halt. However, this is not going to happen as supervisory authorities remain not reformed and ridden with corruption. A comprehensive reform of supervisory authorities is necessary.
- ▶ The automated monitoring system (TIMCS) needs to be upgraded:
 - towards limiting the mechanism of out-of-court freezing of tax invoice/adjustment calculations in the Common Tax Invoice Registry (on the model of financial monitoring mechanisms in the anti-ML/FT and WMD financing area): the average transaction freeze time should not exceed 30 working days;
 - real-time monitoring procedures should cover not only price components of business transactions as taxable items but also quantitative features of the latter (analysis of the stock balance per UFTCCS codes) with any material variations in stock records of the payers with sizeable accumulated and confirmed tax credits should be immediately subject to tax surveillance measures;
 - the monitoring system currently provides for existence of a 'privileged taxpayer class', mostly of big companies the TI/ACs of which by supervisory authority calculations are not subject to any freeze in any case (the so-called positive tax payer history) despite the fact that it is this tax payer group that is the most prone to evade taxation.

(b) VAT compliance gap

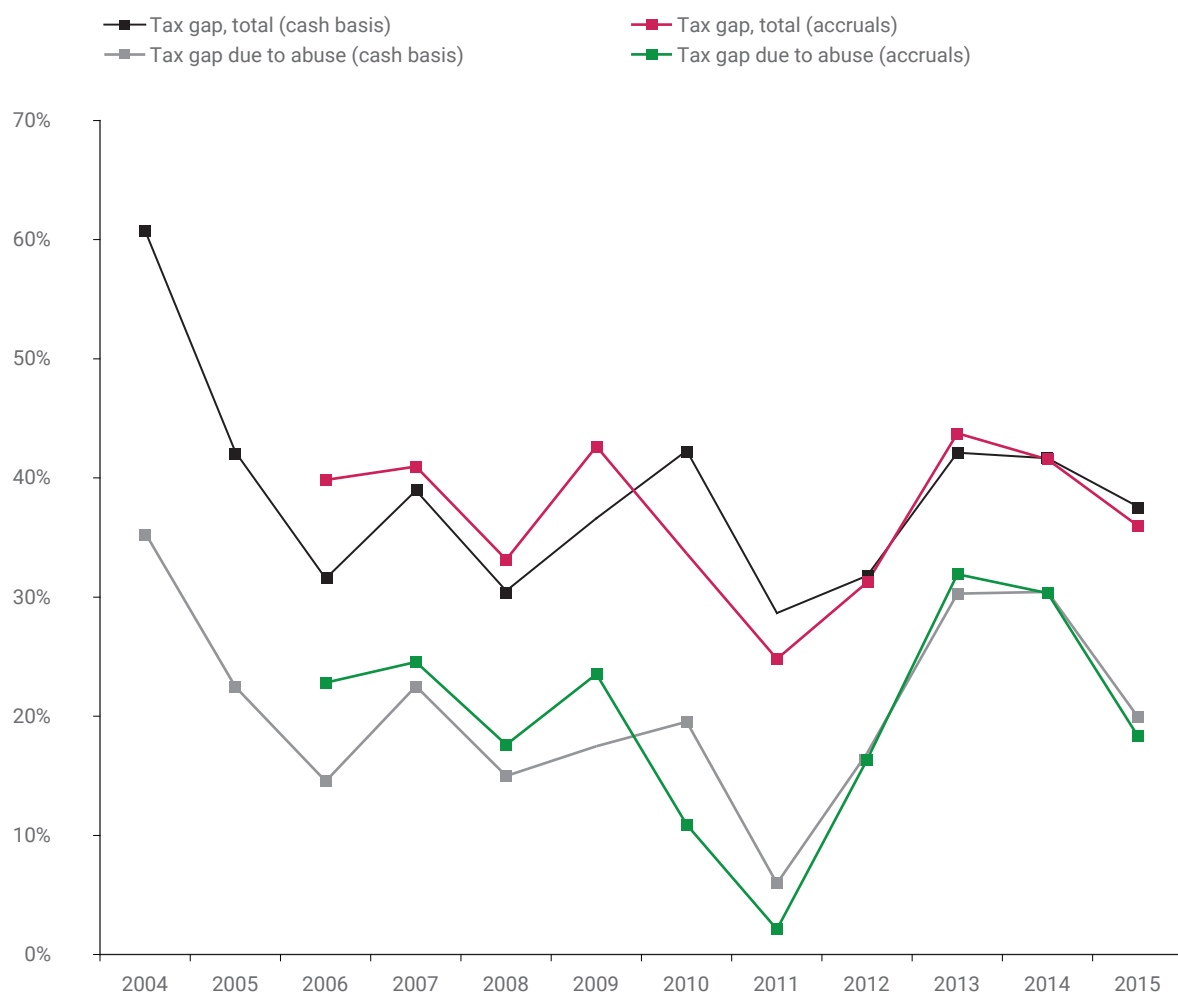
An indirect method of evaluating shortfalls to the budget due to VAT avoidance scheme, customs rules violations and illegal VAT reimbursement calculates the difference between receipts the budget would have obtained (assess with macroeconomic statistical data) and actual receipts due regard to legally provided benefits, or the so-called *VAT compliance gap*. The calculation methodology is simple by design and is actually the GDP calculation with consumption (or expenditure) method with benefits included; however, the result may be substantially altered due to multiple practical nuances in existence.

¹⁰ https://biz.censor.net.ua/columns/3103972/chto_proishodit_s_sistemoyi_blokirovki_nalogovyh_nakladnyh.

¹¹ SFS Directive of 13.09.2018, No. 95-r, to Approve the Procedure of Selection of Risk-prone Economic Agents.

The previous calculation performed in the scope of another paper¹² is shown below (to be adjusted and amended using newer and more precise data). It implies the total net VAT receipt losses in 2015 made UAH53.3 bn.

While the VAT compliance gap does not provide for evaluation of individual contribution of each of its components, it does have an advantage of relatively high measuring precision. Thus, VAT compliance gap data may serve the top criterion to access feasibility of estimates in other schemes that include VAT avoidance.



¹² "Best practices in reducing tax gaps in V4 countries – mutual learning and lessons for Ukraine" – Peer country paper on Ukraine, CASE Research Foundation, Warsaw, 2017 (unpublished).

2.3. Tax Avoidance/Evasion Via Customs Rule Violations, Smuggling and Border Corruption

Scheme in a nutshell: It should be noted that since 2011 the notion of smuggling (transfer across the customs border beyond customs control or with concealment from customs control) has palpably narrowed in Ukraine on the back of de-criminalization. The notion of smuggling is currently limited to transactions with the following goods:

- items of cultural value; poisonous, heavy and explosive substances; radioactive materials; weapons or parts thereof and munitions; special covert listening/data acquisition devices (Art. 201 Criminal Code of Ukraine);
- narcotic and psychotropic substances and alternatives thereof, also precursor substances and counterfeit medications (Art. 305 Criminal Code of Ukraine).

However, in this research the notion of smuggling has been extended to cover trafficking into the customs territory of Ukraine of any goods, including their partial declaration or declaration using distorted or tampered data, also because of corruption at customs checkpoints. The phenomenon can be split per the following most widespread schemes:

Scheme 1. Distorted declaring

Key scheme component: customs officers are ‘built-in’ its practical implementation, which provides opportunities for fiddling with data in customs declaration, customs invoice and other permits and accompanying documents by under-declaring goods’ value for customs purpose, weight, quantity, features and quality, spoofing good codes or commodity subcategories or altering its name to avoid taxation or reduce customs duties due (as per Par. 24 of Art. Customs Code of Ukraine¹³).

Scheme subtypes:

1.1. Customs clearance of goods with much lower tax burden that would normally apply. Here exists a scheme when goods belonging to different commodity groups are substituted (with so-called ‘cover goods’) when a declarant declares cheap children’s toys instead of branded garments. There is also a scheme when goods names are substituted within one and the same commodity group (the so-called ‘re-sorting’) when branded clothes are imported in Ukraine among cheap ones.

1.2. Fictitious declaring of cargo as regards corruption of goods description, quantity or weight (*loosely put, a ‘weight underreporting’ scheme*). That is, during customs clearance lower goods weight or quantity is reported to reduce customs payments.

1.3. A combination of the mentioned tax optimization options brought into existence a special type of companies for which customs, law enforcement and supervisory bodies establish ‘special’ conditions of declaring and transferring goods and transport across the customs border of Ukraine (*the so-called ‘sites’ or ‘smart firms’*). The operations of the latter are focused onto shipments of large wholesale consignments and harbor the most critical risks for the budget of Ukraine making such companies an example of systemic corruption.

¹³ These include customs tax, excise duty on excisable goods imported into the customs territory of Ukraine as well as value-added tax on goods imported into the customs territory of Ukraine.

Scheme 2. Black (double) smuggling

Scheme in a nutshell: trafficking of goods across the customs border beyond customs control. It happens when the border is crossed beyond customs checkpoints of both countries (using woods, fields, rivers, tunnels, UAVs or aircraft; from here the name of 'double smuggling' or 'greenery') or with illegal release from customs control at border checkpoints of Ukraine, that is, facilitation of cargo and goods trafficking across the border without customs inspection and for a certain fee.

Scheme 3. Abuse of privileges

A scheme of abuse of privileges granted by international agreements (the Kyoto Convention) and laws of Ukraine (please refer to Insert 5) involves importation into the customs territory of Ukraine of commercial batches of goods disguised as either mail or express delivery service shipments (the so-called 'mail smuggling') or personal item transfer/imports when private individuals bring goods into the country in their carry-on luggage or accompanying baggage (the so-called 'slaves', 'norm', 'ants' or 'runners'). In the last case a big shipment of goods is split into multiple smaller batches allowed for free-of-charge importation which are transported across the border on foot or by transport with assistance from established groups of several dozen or sometimes, hundreds of individuals (most often residents of bordering areas); then the split batches are collected back at one place to be distributed across the country.

Insert 6. Not subject to assessment:

- with group VAT are goods shipped as mail (express delivery) items for own use of private individuals with a value of less EUR100 (the provision has been in effect since 1.07.2019; the previously effective threshold was at EUR150).

(Par. 196.1.17, Art. 197 Tax Code of Ukraine)

- with customs duties are goods (excluding the excisable ones) imported no more than once in 24 hours in carry-on luggage and accompanying baggage with a value of up to EUR1,000 (by air) or EUR500 and up to 50 kg in weight (by other means of transport, specifically, by motor vehicles and buses).

(Art. 374 Customs Code of Ukraine)

Scheme 4. Interrupted transit

Under this scheme, the goods are imported into (or exported from) the territory of Ukraine using customs treatments that do not envision customs duty payment (transit; temporary import or export; customs warehouse; for processing in the customs territory or beyond such) following which the goods 'disappear' or are subject to fictitious export. One example of the scheme would be the wide-scale importation of petroleum derivatives brought in 2012-2014 into the territory of Ukraine by offshore companies linked to the Eastern-European Fuel and Energy Company Group (VETEK in Russian): they used the transit, re-export and customs warehouse treatments to import more than 5 million tons petroleum products worth UAH36 bn into the territory of Ukraine.¹⁴ The products brought in without any duties or taxes paid were stored at

¹⁴ https://lb.ua/economics/2014/05/20/267098_avakov_rasskazal_rabotala.html.

petroleum tank farms of Kropyvnytskyi, Rivne, Cherkasy, Odesa, Kyiv, Kharkiv and Khmelnytskyi Oblast and subsequently distributed via Ukrainian filling station chains. To cover the scheme, forged customs declarations were used to 'export' the petroleum derivatives to a third country. Nevertheless, the interrupted transit scheme is becoming increasingly marginalized because of its unsustainability in conditions of normal operation of customs bodies (in some individual cases).

Calculations: the presented data allow for evaluating volumes of annual potential contraband (and customs rule violations) in the range of UAH175–260 bn with respective budget losses estimated at UAH50 bn to UAH80 bn (Tables 3 to 5).

The calculation of the *import gap of Ukraine* (in a nutshell, the sum total of discrepancies in the statistical data of exporting countries regarding imports into Ukraine) is based on the comparison of World Bank data¹⁵ on exports into Ukraine from 50 jurisdictions accounting for more than 95% official Ukrainian imports as well as customs statistics of the State Fiscal Service of Ukraine re. imports¹⁶ in 2014–2017 (please refer to Annex 2). The import gap-related data mostly refer to schemes 1 and 4.

It should be noted that negative differences in the data on imports into Ukraine (when exports from a jurisdiction is lower than the official imports into Ukraine) were set to zero (as from the point of methodology it had no effect on the objective of the calculation and, for the most part, is a correction used by supervisory authorities to increase the customs value of imported goods).

Table 3. Import Gap Calculation, Ukraine, in USD million

Jurisdiction	2014	2015	2016	2017	2014–2017
Jurisdictions with substantial impact on potential smuggling (6 countries)					
RF	1 450.3	1 168.9	0	0	2 619.2
Switzerland	9.7	122.9	276.4	1 200	1609
Germany	129.4	0	105.8	515.8	751
UK	23	0	126.8	116.4	266.2
Hungary	197.1	45	0	0	242.1
France	12.3	6.8	96.9	116.1	232.1
Total	1 821.8	1 343.6	605.9	1 948.3	5 719.6
Jurisdictions with impact on potential smuggling (21 country)					
Latvia	5.6	23	19.5	27.5	75.6
Italy	1.5	3.1	37	13.2	54.8
Israel	10.1	8.9	7.6	10	36.6
Turkey	0	11.8	13.5	9.5	34.8

¹⁵ The World Integrated Trade Solution (WITS).

¹⁶ <http://sfs.gov.ua/ms/>.

Czech Rep.	0.9	1.4	2.3	24.3	28.9
Egypt	7.1	5.2	5.1	9.4	26.8
U.S.	9.8	3.8	12.2	0	25.8
Kazakhstan	8.8	0	8.5	7.6	24.9
Thailand	6.8	4.9	4.6	6.3	22.6
Belgium	5.6	6.8	3.1	0	15.5
Georgia	3.3	3.4	4.7	3.2	14.6
Spain	4.8	1.8	3	0.6	10.2
Azerbaijan	2.8	3.3	2.1	1.3	9.5
Netherlands	2.4	2.8	2.9	0	8.1
Sweden	1.5	1.4	1.9	0	4.8
Bulgaria	4.2	0	0.2	0	4.4
Lithuania	0.2	1.6	1.6	0	3.4
Finland	0.9	0	1	1	2.9
Denmark	1.1	0.3	0.6	0	2
Greece	0	0.4	0.7	0.2	1.3
Serbia	0.8	0	0	0	0.8
Total	78.2	83.9	132.1	114.1	408.3

Jurisdictions with substantial hidden impact* on potential smuggling (5 countries)

Poland	14.8	13.6	0	0	28.4
China	0	0	8.1	4.2	12.3
Romania	0	0	1.7	0	1.7
Moldova	0.4	0.3	0.1	0	0.8
Belarus	0	0	0	0	0
Total	15.2	13.9	9.9	4.2	43.2

Jurisdictions with no impact on potential smuggling (18 countries): Canada, South Korea, Slovak Republic, Malaysia, Ecuador, Vietnam, Indonesia, Brazil, India, Ireland, Austria, South Africa, Ghana, Norway, Uzbekistan, Slovenia, Saudi Arabia, Japan.

(USD bn)	2014	2015	2016	2017	2014–2017
import gap	1.92	1.44	0.75	2.07 (see Ins. 7)	6.18

* The notion of 'significant implied impact' should be construed to mean the penetration of contraband not reflected in customs statistical data of both countries when goods are transferred without documents beyond border checkpoints or when a means of transport with goods is declared at border checkpoint as empty one (please refer to 'black (double) smuggling and 'abuse of privileges' schemes), e. g., across the joint borders with neighboring countries (Poland, Belarus, Moldova, Romania) and those that are the biggest trade partners of Ukraine and show high volumes of counterfeit products (China). Thus, the valuation of volumes of goods smuggled from the said countries is rather understated.

According to Global Financial Integrity data, import value reduction in 2004–2013 averaged to USD11.6 bn a year. Given the import dynamics, the outgoing shadow traffic (illicit outflows or informal currency outflow) across the Ukrainian border to 36 developed economies (according to IMF classification) in 2015 amounted to nearly USD2.4 bn.¹⁷ or 40.97% official imports into Ukraine (SFS of Ukraine data).

Insert 7. On 20 June 2018, when presenting Government’s action plan to counter goods smuggling, Ukraine Without Contraband, Prime minister of Ukraine Volodymyr Groysman¹ stated the volume of shadowy transactions at the border in 2017 was equivalent to UAH70 bn (about USD2.7 bn).

¹ <https://www.kmu.gov.ua/en/news/glava-uryadu-ukrayina-bez-kontrabandi-realna-u-nas-ye-politichna-volya-navesti-lad-na-kordoni>

We assume that the stated informal currency outflow volumes are mostly related to schemes 2 and 3 (black smuggling like goods that disappear in transit are accompanied by informal settlements with importers and suppliers) and in regression to the official imports into Ukraine (State Statistics Committee data). This brings the following picture:

Table 4
(in USD bn)

	2014	2015	2016	2017
Goods imports	54.43	37.52	39.25	49.61
Services imports	6.37	5.52	5.3	5.36
Total imports	60.8	43.04	44.55	54.97
Informal currency outflow	8.23	5.86*	6.07	7.48

*Forecast of informal currency outflow $(2.4/40.97)*100$

Hence, with a view of degree of approximation of the calculations, we can evaluate the money equivalent of goods potentially smuggled at UAH6.8–10.15 bn. a year, or UAH182–271 billion. The respective budget losses are in the range between UAH55 bn to UAH 81 bn a year¹⁸ (based on the assumption that commercial imports will be served 20% or 7% VAT and 0% to 50% import custom duty with average customs tariff of 4.9%, plus excise duty on condition of tax burden at the level of 9–14% negotiated (contractual) value, which is not less than the customs value determined per Section III of the Customs Code of Ukraine).

¹⁷ <https://gfinintegrity.org/report/2019-iff-update/>.

¹⁸ Total customs payment burden on potentially smuggled goods reaches 29–32%.

Table 5

Potential smuggling, in USD bn

	2014	2015	2016	2017	2014–2017
import gap	1.92	1.44	0.75	2.07	6.18
Informal currency outflow	8.23	5.86	6.07	7.48	27.64
Potential smuggling (PC)	10.15	7.3	6.82	9.55	33.82
Ukrainian GDP*	130.57	90.49	93.31	112.13	-
PC share in the GDP	7.8%	8.1%	7.3%	8.5%	-

* IMF DataMapper

Given the exchange rate dynamics in 2018, the inflation index and the dynamics of official import growth, a 1.15 ratio has been used to calculate potential volume of smuggled goods. The potential volume of smuggled goods in 2018 can be respectively estimated in the range of UAH209 bn to UAH311 bn a year with aggregate budget losses amounting to UAH63 bn to UAH93 bn a year.¹⁹

At the same time, there exist alternative smuggled goods volume calculations that fully correlate with the obtained data:

- According to a Süddeutsche Zeitung survey²⁰, the Ukrainian treasury loses up to USD4.8 bn a year to shadow deals at customs checkpoints. Goods imported into the country have their labelling changed in the process of declaring (commodity code changes under the Ukrainian Classification of Foreign Trade Goods), which leads to much lower customs duties paid;
- As per Ukraine Economic Outlook calculations²¹, volumes of smuggled imports into Ukraine in 2013–2017 were equivalent in average to USD10.6 bn a year while budget losses because of it amounted to USD3.1 bn in 2014, USD2.4 bn in 2015; USD 2.7 bn in 2016 and USD 3.1 bn in 2017.

Recommendations:

- Pursue a comprehensive reform of supervisory authorities; re-hire personnel through open calls and provide them with decent salaries; personal responsibility etc. (a new customs service should not inherit the distorted confiscation-based ideology of interactions with tax payers);

¹⁹ Total customs payment burden on potentially smuggled goods reaches 29–32%.

²⁰ <https://www.sueddeutsche.de/politik/exklusiv-korruption-ruiniert-die-ukraine-1.4081856>.

²¹ <http://ua-outlook.com.ua/ru/2019/07/06/smuggling-schemes/>.

- ▶ Enhance information and analytical components at the customs via:
 - ensuring 100% customs information exchange with countries that are trade partners of Ukraine,
 - introducing customs information exchange at the moment of goods customs clearance, and using the information to expand risk analysis system capacities through analyzing transaction risks before goods arrival into Ukraine and substantiated identification of customs control modalities,
 - introducing tax ID-based identification of international mail parcel receivers; accumulating and analyzing the information to reduce cases of abuse of the right to duty-free goods transfer provided by law,
 - strengthening criteria (terms and conditions) for granting the express carrier and postal operator status; conferring the withholding agent status to express carriers and postal operators; applying certain limitations to the value or the quantity of tax-free international mail parcels.
- ▶ Accession of Ukraine to the EU/EFTA common transit procedure; implementation of all-European New Computerized Transit System (NCTS) and other modern goods transit control technologies.
- ▶ Transformation, within several years, of individual customs control components and administration procedures into a comprehensive national model for control over goods carriage across the border similar to the EU one-stop shop one.
- ▶ Enhanced technical support of customs authorities (surveillance equipment, phased installation of scanners at all border checkpoints).
- ▶ The Customs Audit Unit (inspections on state customs matters) is in need of a complete overhaul. Unfortunately, this avenue has been practically left unexplored by the SCS.
- ▶ The institution of provisional qualifying decisions needs expanding (per Art. 23 of the Customs Code), and processes should be organized similarly with individual tax clarifications (a common public Registry of preceding decisions, transparent review procedures, compliance with provision deadlines etc.).
- ▶ Digitalization and automation of all the processes; transition towards exclusively e-document turnover.
- ▶ Strengthening of customs officers' personal responsibility for their decisions; corruption risks mitigation with substantial raise of their salaries.
- ▶ Putting an end to the practice of law enforcement and supervisory officers' (SSU, police and other joint mobile squads like the 'Black Hundred') intervention into operations of customs bodies (ensuring strict compliance with Art. 332 of the Customs Code).

2.4. The Industry of "Convert Centers"

Most key tax avoidance/evasion and money-laundering schemes inside the country owe their existence to the industry of 'convert centers'. It is this industry that mostly feeds the shadow economy with cash, provides backdoor salaries and for undocumented economic transactions, offers primary document distortion/tampering services and serves the basis for the phenomenon of fictitious enterprise.

Scheme in a nutshell: the convert centers (hereinafter, the 'CC') operate via shell (rogue) companies and accounts opened for these with banks. They can be registered to homeless individuals, residents of occupied territories (their documents can be used too) as well as those who left the country for good or deceased persons. The CC function is to create a 'financial corridor' of such firms, banks, accounts and documents, split money into parts and ultimately, to siphon cash to a designated location for the centre's client. Cash is brought by dealers or received at a cash desk, after which it is next to impossible to track it.

The CC makes its profit from a certain percentage of the 'laundered' amount, which depends on 'conversion's' complexity, the need to mitigate illicit money flow detection risk levels and the expected profit margin.

Calculation: budget losses of around UAH12-18 bn. a year.

Insert 8. Tax police data

Illegal operations of 77 exchange centres that have exchanged UAH27 bn. causing more than UAH4 bn losses stopped.

(P. 35 State Fiscal Service of Ukraine Action Plan Implementation Report for 2016)

Illegal operations of 65 exchange centres that have exchanged UAH13.6 bn. causing more than UAH2.5 bn losses stopped. 167 pre-trial proceedings notifications filed to the CRPI.

(P. 49 State Fiscal Service of Ukraine Report for 2017)

Illegal operations of 55 exchange centres that have exchanged UAH12.1 bn. causing more than UAH2 bn losses stopped.

(P. 50 State Fiscal Service of Ukraine Report for 2018)

NBU data

'Information regarding 42 banks and non-banking financial institutions submitted in 2018, specifically:

- based on financial monitoring-based inspections, 39 letters with information about suspicious financial transactions of bank customers for the total of more than UAH67.5 bn, USD68.1 million and EUR11.8 million sent,
- supervision over compliance with currency law for the purpose of national organised crime-combating policy implementation have resulted in 1,721 letters sent to notify large-scale financial transactions of bank customers for the total of more than UAH839.6 million, USD738.4 million, EUR8.8 million and RUB57.2 million.

The information notified to law enforcement agencies concerned predominantly financial transactions carried out by bank customers that, with a view of their nature and characteristics, give grounds to suspect their relation with transfer of capital, money laundering, non-cash exchange (transfer) into cash money, fictitious enterprise, tax evasion etc.'

(P. 37 National Bank of Ukraine Annual Report for 2018)

State FinMon Service data

Financial investigations have resulted in 712 generalised materials on suspicious financial transactions for UAH59.4 bn. sent to the law enforcement.

(P. 6 State Financial Monitoring Service Report for 2017).

934 materials for the total of UAH347.4 bn. prepared and sent to the law enforcement.

(P. 8 State Financial Monitoring Service Report for 2018).

It's quite a challenge to evaluate the general scope of CC operations. On the assumption that shadow dealings compete by their size with 30% to 40% formal economy and based on the data from respective government authorities showing no cardinal changes in the fight against CCs (please refer to Insert 8), the size of the 'convert' industry can be estimated to reach at least UAH40-60 bn. a year, which, CC 'profit' deducted, gives the annual budget losses estimate of around UAH12-18 bn.

Recommendations:

- ▶ Final dissolution of the tax police and other economic crime units at law enforcement agencies and setting up a single economic crime investigation authority with the staff employed via transparent calls and with decent salaries will create a new impetus to the combating against CC operations.
- ▶ A radical reduction of the payroll burden will substantially reduce incentives for use of CC services.

2.5. Counterfeit goods

Scheme in a nutshell: counterfeit goods are either forged goods or new products designed based on existing original goods but in violation of intellectual property rights. The counterfeit goods may involve:

- using someone else's logo or a logo similar enough to the original one to allow mix-up,
- forging the exterior of a product or the design solutions it uses,
- illicit use of multimedia products, books and software ('pirate disk copies');
- illicit use of patented technical solutions.

Calculation: budget losses of around UAH10–12 bn. a year.

Insert 9. In 2017, excisable goods for the total of UAH1.7 bn. were removed from illegal circulation, among them: UAH683.6 million-worth of alcohol; UAH425 million-worth of spirits; UAH262.2 million-worth of tobacco products; and UAH197.2 million-worth of petroleum derivatives.

166 illicit production sites making excisable goods, of them 132 producing spirits, were halted.

(P. 50 State Fiscal Service of Ukraine Report for 2017)

Excisable goods for the total of UAH1.9 bn. were removed from illegal circulation, among them: UAH403.6 million-worth of alcohol; UAH225.9 million-worth of distilled spirits; UAH560.8 million-worth of tobacco products; UAH532.4 million-worth of fuels and lubricants and UAH145.2 million-worth of vehicles. 135 illicit production sites making excisable goods halted.

(P. 50 State Fiscal Service of Ukraine Report for 2018)

As *Euromonitor* and *KPMG* researches show, for some past years Ukraine has been leading in the cigarette smuggling area. According to the KPMG survey on EU tobacco product market, the volume of counterfeit imports from Ukraine in 2018 made 4.2 bn. cigarettes.²²

Insert 10. In two years (2017 and 2018) more than 3.5 million packs of foreign-made cigarettes for the total value of almost UAH58 million were taken down from illegal circulation¹.

(Public Liaison Unit of the State Fiscal Service of Ukraine, 19.06.2019)

According to *TNS* data, in 2015 the volume of bootleg tobacco products manufacturing in Ukraine did not exceed 1.25% total market. In 2018 the figure grew to 4.4% with around 3.7 billion cigarettes illegally produced. The national budget receipts were UAH2.6 bn. short.

(Statement of the Chair of the Antimonopoly Committee of Ukraine Yu. Terentiev of 9.07.2019)

¹ <http://sfs.gov.ua/media-tsentr/novini/382518.html>

²² <https://tyzhden.ua/Economics/231313>.

2.6. Shadow Agricultural Land and Product Lease

Due to the absence of a legal agricultural land market, the absolute majority of it is being farmed on a lease basis. However, a considerable proportion of lease agreements are not properly registered and respectively, no personal income tax is paid from leaseholders' revenues. A considerable proportion of land owners tilling their plots themselves are likely not to pay taxes on the produce they grow, even when the plot size is in excess of 2 ha subject to statutory preferential treatment. Still, as the second problem is much less in scope, this Section will focus specifically on shadow lease, even despite similarity between measures to combat both phenomena. Shadow lease of public domain lands, which is corruption based, is also a problem.

According to State Land Registry data, Ukraine (without temporarily occupied territories) has a total of 33.2 million ha lands for lease, of them 28.8 million ha are privately owned (plots). According to the SFS, only 20.42 million ha were officially farmed in 2017 – much less than in 2015. This might suggest a potential shadow turnover of up to 12.7 million ha, though in reality these lands are not farmed.

To ascertain how big the proportion may be, a World Bank project went on to evaluate the volume of shadow agricultural land lease by comparing statistical and satellite data of crops in two pilot Raions, Bilotserkivskyi (Kyiv Oblast) and Snihurivsky (Mykolayiv Oblast). Taking into account the survey results, the proportion of shadow use may be estimated at 28–29% total agricultural lands in the country, that is, around 10 million ha. The land tax paid on these is mostly at the minimum level of 0.3% NMV, or UAH70/ha/year for the arable land. Moreover, retired individuals who make for more than a half of plot owners are exempt from paying even this tax.

Meanwhile, according to SFS data, with legal land lease the lessee would have to pay at least UAH241 of 4th group single tax while the lessor would pay in average UAH394 of personal income tax and UAH32 military tax from the leasing fee (here the lessor is a withholding agent), or UAH667 in total. On top of that, a legal lessor who also sells officially his produce and also officially employs workforce, has to pay a range of other taxes though the latter have no direct relation to legal lease matters as there is no direct link between them (but for, probably, correlation); hence, there are no sufficient grounds to calculate these together.

However, even a de minimis valuation of losses from the shadow lease proper would be, based on the above calculations, at more than UAH6 bn. Add here losses from the shadow sales of agricultural products related to the use of these lands, which amount to several billion Hryvnias a year. According to DES data, the average tax burden per 1 ha of land on which taxes are paid in part or in full makes UAH2,200 a year. The amount comprises the personal income tax, the military tax, the profit tax etc. As it has been mentioned above, the proportion of agricultural lands in shadow use is at around 10 million ha. Consequently, from shadow land lease and agricultural produce amount to UAH6 to UAH22 a year*. It is worth mentioning that the below recommendations are aimed at closing tax evasion opportunities only in respect of leasing fees and their implementation might more or less credibly bring in additional UAH6 bn. Combating shadow agricultural production and related schemes will require other measures to be taken.

* -The maximum value corresponds to losses from all the schemes in the agricultural sector.

Recommendations:

- ▶ Decouple the land tax and the real estate tax from the single tax (particularly, the one for Group 4). As the tax does not imply reporting and inspections, its inclusion in the single tax is at odds with the objective of the latter (which is about relieving small businesses from fiscal administrative pressure and extra accounting/reporting load) and was a mistake. Such a norm will, among other, allow cutting short the scheme of land and real estate tax avoidance.
- ▶ Adjust the subsidies paid from the national budget to local bodies of self-government on the basis of maximum receipts these would have obtained from land and real estate if maximum rates were established; also, cancellation of all privileges beyond those directly envisaged in the laws.
- ▶ Authorize local bodies of self-government to decide on matters of instituting land tax-related privileges for retired individuals on their own territory, and respectively adjust the abovementioned subsidies.
- ▶ Introduce a provision to have paid land tax accounted during personal income tax assessment and payment in such a way as to keep diligent payers harmless.
- ▶ Given the minimum legal lease rate is currently at around 5% NMV, 1% land tax on the same base will be roughly equivalent to personal income tax and military tax amounts payable from the leasing fee. Consequently, the lessee will not have to pay a proportion of the effective single tax that corresponds to the land tax amount included in it.
- ▶ Establish a Comprehensive System for monitoring risk-prone goods supply chains through modernizing the existing VAT e-administration system (VAT EAS).

Cautionary Note

This will partly increase the tax burden on rural retirees and, while justified from the standpoint of tax payment (as retired individuals are not released from paying personal income tax on revenues obtained from leasing their plots), in social terms it might stoke opposition and increase poverty levels in rural areas. It will be therefore necessary to channel some of additional revenues obtained owing to the discontinuation of the described scheme to increase support of this category of residents.

2.7. Backdoor Salaries

While 'convert centers' and tax credit schemes have to some extent reduced their relevance in VAT frauds in the past years, they nevertheless have remained an important tool of labor taxation evasion: the total payroll wage is more than double the VAT, which makes possibilities of avoiding it even more appealing to labor-intensive private enterprises. There exist several schemes, not all of them involving tax credit machinations and 'convert centers' though the latter probably remain beyond competition both in terms of volume and price.

Scheme in a nutshell	Benefits (for those who apply)	Drawbacks (for those who apply)	Cost and potential volume
1. To optimize tax burden, the most of the payroll is drawn as salaries to one or more top officials to reduce SSC amounts through substantial overshooting the upper accrual threshold	Nearly fully legal No need to look for outside participants	Very high cost Not feasible for small volumes High transaction costs for large volumes	19.5% (PIT + military tax) + SSC for the first 15 MWs Acc. to preliminary data, no signs of massive use yet
2. Labor remuneration with 'black cash' generated by the enterprise proper	No need to look for outside participants Zero cost	Totally illegal Is only possible where big 'black cash' flows exist, i. e., predominantly in the agricultural and construction (with private clients) sectors etc.	Zero cost Limited use; not possible to do math assessment because of genuinely shadow economy
3. Using pseudo SEEs of 3rd Group to collect cash	Relatively legal; lower costs	Material transactional costs with large volumes	7–9% (5% ST + 1% cash withdrawal fee + charges to pseudo SEE, together with other types of abuse using 3rd Group to collect cash. Budget losses not exceeding UAH2–5 bn./year (will be re-confirmed)
4. Working via 'convert centers'	Unlimited volume Low transaction costs Possibility to get a VAT credit and, at the same time, avoid paying that same tax	Conditional legality: unlike previous schemes, cannot be checked. There is a risk of the very exchange center losing its patron and thereby, becoming the subject to investigation	12–13% with VAT; up to 5% less VAT A greater part of salaries is backdoor. Budget and PF losses estimated at roughly UAH25–27 bn

It is worth noting there is no direct correlation between these schemes and labor law violations: regardless of a scheme, they can still hire employees either unofficially or with minimum salary paying the remaining due off the books. It is currently not possible to evaluate the scope of abuse in the first case (like with the rest fully shadow schemes). The second case can be evaluated using a technique conceptionally close to the one used in the previous paper to evaluate unofficial share in revenues of SEEs.

In a market economy, the income (and respectively, wages in the non-budget enterprise sector²³) are distributed according to the Pareto's law, which in this case is an approximation of more complex distributions, the log-normal, or the Fréchet one (both are rather similar by the result)²⁴. Another limiting case of such distributions is the exponential one. As is seen from the graph below, in this case the Pareto's distribution (green curve) does not approximate the true data distribution with enough precision while the exponential one (pink curve) is closer to the true one though the segment with least Pareto's curvatures (higher than 3 MWs) shows somewhat better approximation (with $R^2=98\%$ for both) (a more precise analysis will be available with newer data).

Any deviations are indicative of certain distortions, in this case, of regulatory nature (minimal wages) and backdoor salary payments. The existence of alternative methods of labor remuneration, specifically, under civil law contracts with SEEs of 3rd group, also create anomalies with high salaries, which will be evaluated based on more detailed and complete data in the respective section.

The minimum wage truncates the distribution from below, and at this level and around it an abnormally high number of employees can be observed. This points to potential backdoor salaries that these individuals obtain. There can be employees among these who, by the very economic reasons, should be earning less – but for the employer who is forced to pay the minimum wage (this is mostly relevant for the public sector). Alternatively, the biggest anomaly of this type is observed, on the contrary, in the enterprise sector: according to the previous data and in line with exponential approximation, about 1.25 million individuals get salaries close to the minimum wage beyond the extrapolation-envisioned number (probably, an overestimation), though a strong underestimation using the Pareto's approximation gives more than 300 thousand. Meanwhile, the public sector shows a surplus of about 50 thousand over the trend and only within the range that corresponds to 1 MW, provided the general enterprise employees-to-salaried personnel ratio within the same range is generally closer to 2:1.

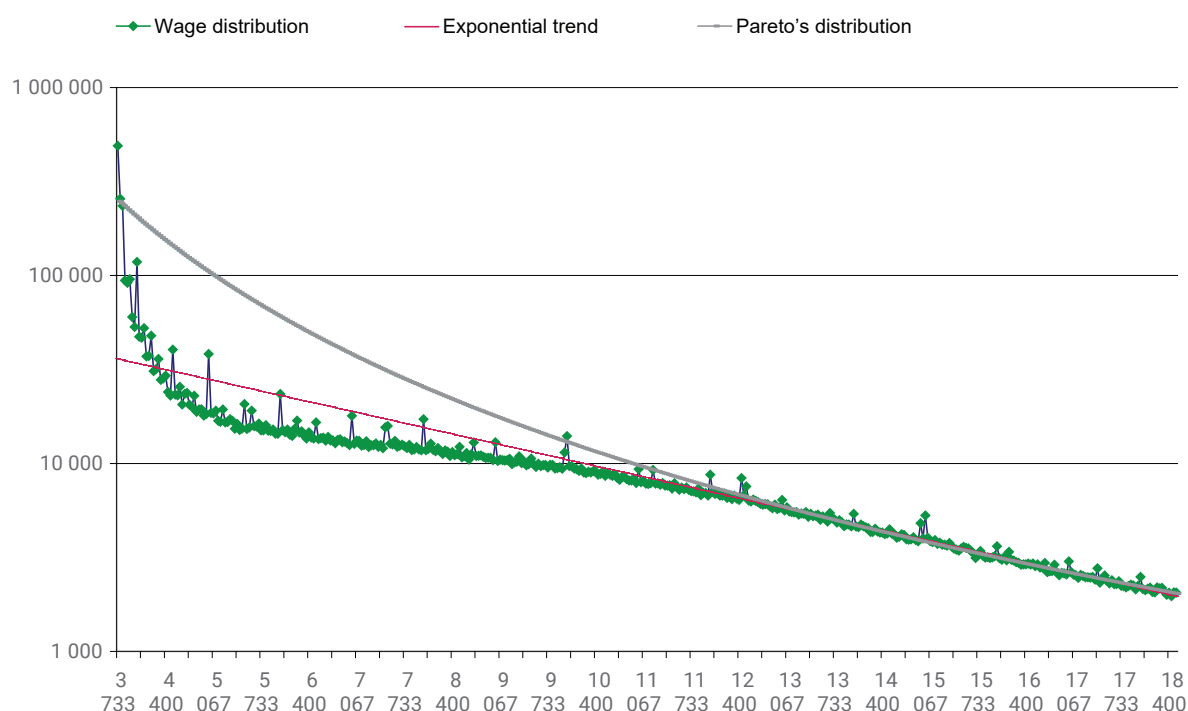
The number of individuals potentially receiving backdoor salaries in each salary range are estimated as a difference between the estimated number (trend-based) and the real one. The total number of such individuals is in excess of 850 thousand (by the results of exponential approximation) though, probably, less than 1.25 million (in which case the Pareto's approximation provides implausible results). Hence, it may be possible that almost a million of those employed in the enterprise sector (apparently, mostly private ones) receive backdoor extras. A conservative estimation based on the exponential approximation shows that, taken together, they receive at least UAH42.5 bn. though the results may be underestimated by at least a fourth (please see employee number estimates above); thus, the employees who have been really officially registered receive from UAH50 to UAH55 bn. cash (the data are subject to qualification), in which case the conditional losses sustained by the budget and the PF amount to UAH25–27 bn.

²³ State-funded institutions sometimes also pay off the books, but for a reason not related to tax avoidance: that way their managers ensure the salaries they pay are commercially competitive with those at private businesses in spite legislative limitations ('the salary scale'). The public sector is not free from distortions rather similar to those in the private one, though in this case there are no reasons to think salaries will be distributed in a certain way because for the most part they are determined under a top-down procedure. Interestingly, on this background the relatively high salaries also seem to be distributed based on the Pareto's law, probably because of the fact that state-funded organisations are compelled to establish them at levels dictated by the market.

²⁴ C.f., Santiago Pindado & Carlos Pindado & Javier Cubas, 2017. "Fréchet Distribution Applied to Salary Incomes in Spain from 1999 to 2014. An Engineering Approach to Changes in Salaries' Distribution," *Economies*, MDPI, Open Access Journal, vol. 5(2), pages 1–19, May.

The loss distribution between the above-described avoidance schemes requires a more detailed analysis though it may be concluded from the outset the lion's share of the losses can be attributed to 'convert centers'. The total salaries above one million Hryvnias amount to UAH5.3 bn., or a tenth of the backdoor salaries; at the same time, one should take into account a portion of top management really receiving such salaries. Amounts of the same order can go via pseudo-SEEs. It has been already mentioned that undocumented cash is for a rather small group of small and micro enterprises and should be feasibly used to remunerate truly unreported employees but it stands to question whether quantitative estimates can be obtained for the scheme. A more detailed analysis of salary ranges by enterprise size could answer the question of a correlation between the schemes but, given medium enterprises are the biggest employers and the inability of big and medium business to employ other schemes in any substantial scale, at least a half of the losses calculated above can be attributed exactly to 'convert centers' operations. It should be noted at the same time that the latter are used to process a substantial part of remuneration for unreported employees, particularly in the construction industry where employers massively avoid documenting labor relations to stay away from liability for potential labor accidents despite having no cash revenues to hide.

While it is not possible to estimate the scope of tax and duty avoidance with 'black cash' generated by an enterprise and paid under the table to unreported employees using statistical data and mathematical calculations, it might be still possible to provide tentative data using information from opinion polls and top-tier officials.



E. g., a Ukrainian Undeclared Work Survey²⁵ carried out using the direct method of labor market assessment and undeclared employment identification in late 2017 established that:

- 7.1% those surveyed acknowledged working for the past 12 months without income declaration;
- 12.2% respondents conceded they bought undeclared services and 15.2% acknowledged buying undeclared products;
- almost one in ten hired employees (9%) received some of the salary under the table within the past 12 months;
- 45.8% respondents knew someone who worked undeclared;
- a third of surveyed Ukrainian nationals (33%) are of opinion at least a half of the nation's residents work undocumented;
- the majority of undocumented employees were between 35 and 54 y. o. and resided in cities;
- the key kinds of services rendered by those who acknowledged their involvement in undocumented labor included housing repairs and improvements (26%), (agricultural) product sales (14%), horticulture (9%) and car repairs (8%);
- among the key reasons behind undeclared employment in Ukraine were: problems with finding a regular job (20%); seasonal (temporary) job patterns and generally accepted undocumented employment practices (15% and 13% respectively); distrust in government authorities and unwillingness to pay taxes (11%), mutual benefits from selling or delivering services, also buying or receiving services without declaring them (10%);
- undocumented employment is most popular with hotels and restaurants (55%), individual services (horticulture, childcare and elderly care, hairdresser's and beauty services, car, tailor and computer repair services (37%), retail trade or construction services (24% each).

Thus, it can be stated the actual facts of labor contract avoidance, use of other types of employment relations beyond the law (civil law contracts, official part-time employment of full-time employees etc.) as well as backdoor salaries have grown big in spite of penalties incomparably detrimental for small businesses.

Among other factors aggravating the situation even more are: Ukraine is hardly competitive when it comes to labor taxes; the country 'takes the lead' (among other nations at comparable level of economic development) by the size of taxes and mandatory payments that companies have to pay from their payroll (please refer to Fig. 1), and many Ukrainian nationals receive their salaries under the table. With this in mind, the assessment by the Ministry of Social Policy of Ukraine, 'Nearly 8 million Ukrainian nationals work in shadows, [...] and the level of wage shadowisation is at 35% with around UAH200 bn. of unpaid wages in shadow circulation'²⁶ looks plausible.

²⁵ <http://spne.ukma.edu.ua/article/view/150626/149715>; also <http://ekmair.ukma.edu.ua/handle/123456789/14852>.

²⁶ <https://www.ukrinform.ua/rubric-society/2248022-reva-zaaviv-so-v-ukraini-sogodni-35-zarplat-u-tini.html>
http://ipress.ua/news/v_tini_znahodytsya_mayzhe_200_mlrd_grn_nevpylachenoi_zarplaty__reva_175067.html

Fig.1. Base Rates of Taxes and Statutory Payments Charged on Wages in Countries with Social and Economic Development Level Similar to Ukraine.



2.8. Tax Evasion Through Single Tax System (STS)

2.8.1. Legal entities, rather than officially registering their staff, work with SEEs of 3rd group via civil law contracts (CLC). Same SEEs used by legal entities for cash outs

This type of minimization, like the previous one, may only apply to SEEs of 3rd group providing services based on their own 'human capital': professional, administrative, ICT-related. The same SEEs pay their 5% single tax and the minimum single social contribution (SSC) instead of 18% personal income tax (PIT), 1.5% military tax and 22% SSC accrued to the whole amount, taxes included. However, this payment becomes complicated for small incomes and low-skilled workforce (like also generally for the absolute majority of hired workers with exclusion for non-manual workers) because one has to register as entrepreneur and file regular reports. The majority of employees show little enthusiasm about this. Certainly, there are exclusions to the rule but, as the analysis of statistical data on declared turnover of SEEs, substantial amounts, if any, are received from economic activities related to high-skilled non-manual labor services.

For the most part these are IT services. The abovementioned method of backdoor salary estimation can be also applied for rough assessment of actual wages paid to hired stuff via pseudo SEEs as such distortions have to lead to same deviations from the trend as backdoor salaries do. A respective trough can be found indeed within the monthly wage interval of UAH21–260 thousand, if the Pareto's curve is used for approximation (with probable overestimates in the interval).

Conditional budget losses may be averaged to UAH10 million a year (Annex 3). Even supposing that everyone actually hiding his labor relations is forced to pay respective taxes, the calculation will not account for payers' potential reaction to imaginary elimination of minimization options, which in this case will be of critical importance as, on the one hand, it creates a big elasticity able to offset the potential effect and, on the other hand, leads to unwanted consequences in terms of long-term economic growth.

It should be noted that oversight over the criteria of actual hired employment, unlike service delivery, may be easily levelled off because it can be circumvented with a number of options and at comparatively little expense for business when an 'employee' is not technologically tied to his work place. Such oversight will, at its best, have only marginal effect (prompting official employment of only those who is unable to match the criteria due to certain operational requirements) and hardly justify the costs of it. Such oversight will furthermore unleash vast abuse opportunities for inspection authorities.

In the event of full prohibition or implementation of prohibiting taxes on such operations (like, for example, the distributed profit tax on contractual payments for services delivered by SEEs to legal entities), not just the wrongdoers but also the majority of those employed in such service sectors will feel the blow. In this case, market split into two categories with differing behavioral models, both of the latter detrimental for the economy of Ukraine, can be projected.

The top category will be represented by highly skilled professionals already quite competitive on the world market. As a result, they will be able to freely choose a country of residence and become an entity in a global competition between jurisdictions. Many countries, among them, e. g., Estonia and New Zealand, have been providing special residency terms and conditions for such professionals. The professionals themselves make their choice based on the principle of 'quality of life versus money paid as taxes'.

Ukraine is losing in this international competition game even despite low taxes due to its inability to provide proper life quality. This, in its turn, is related not to a specific category paying low taxes but rather to multiple other reasons from widespread tax evasion or minimization by big companies (as described above) to some objective circumstances like the war on the east of Ukraine and political volatility. No tax can ensure independent due process, efficient police, comfortable relations with government authorities etc. This is why Ukraine is losing such professionals even now, and will lose even more of them should their labor will be taxed many times more.

The second category comprises relatively less skilled professionals, not all of them having command of foreign languages. They find it harder to leave Ukraine so instead they compete on the world market with peers from other countries. This market is rather competitive and fluid as production facilities do not require substantial investments in fixed assets and can be easily relocated to other countries. The latter case will mean loss of budget revenues currently provided by the firms and of sprouts of IT sector development infrastructure in our nation (trainings, teams etc. the firms offer). At the same time, Ukrainian employees will either lose their jobs or be forced to agree to a 'full shadow' mode (e. g., like 'virtual residents' of Estonia) with wages wired to foreign accounts via money transfer systems and so on. Closing these channels would divest migrant laborers from the possibility of wiring money to their families in Ukraine, which is politically and economically unacceptable in any circumstances. Besides that, cross-border offsetting schemes continue their successful operation allowing fully shadowy remunerations against service fees comparable with single tax amounts. On the other hand, introducing indirect methods of personal income control in order to prevent the

described situation would – and will – be completely unacceptable in Ukraine currently and in any foreseeable future given high corruption potential of such methods and a real threat of their misuse for political persecution purposes.

At the same time, it should be noted that the abovementioned consequences are utterly undesirable at the level of strategy of economy development. Ukraine has natural competitive advantage in the agricultural sector but even under the best of scenarios the former will not be able to ensure a fast-paced and long-term growth in spite of increase of agricultural processing depth. Industrial development prospects are also rather slim for the only advantage our country has is its geographic proximity to target markets. Nevertheless, Ukraine has been able to partly retain competitive advantages of the innovative development level²⁷ ('the knowledge economy') that formed in due time owing to unnatural development of the Soviet time; this includes not only the IT sector that is all the rage now by being the biggest segment of the 'knowledge economy' but also a variety of intellectual products like R&D, design, audit services, fundamental research etc. Such advantages, if developed, can potentially prompt an economic breakthrough owing to their unlimited growth and development capacities. The country's ability to attract and retain talents is its weak spot though: Ukraine has lots of problems with it (occupying 114th place in the Global Competitiveness Rating), and attempts to find a solution by eliminating certain simplified taxation groups or radically raising tax rates may only increase risks.

Not mentioning such a prohibition would be an injustice to numerous entrepreneurs who by nature of their business provide services to legal entities and do so at their own peril. These are, e.g., entrepreneurs involved in direct sales (dozens of thousands of them), also web site developers and support specialists, auditors, lawyers, consultants, system administrators servicing small enterprises and many others.

That is, while one cannot just ignore the amounts saved by highly skilled services and information product development sectors thanks to STS, the prospects of having them as budget receipts look, at their best, elusive. Worse even, attempts to choke these minimization channels will hamper implementation of Ukraine's competitive advantages. A possibility of using the STS to reduce the burden on skilled nonmanual labor payments should be currently regarded a component of the competitiveness policy aimed at saving and increasing the competitive advantages of the country.

Recommendations

- An all-round solution of the problem should entail bringing the terms and conditions of the general taxation system to those in place for the simplified one, namely through SSC cancellation (to be replaced with budget expenditure savings and by shifting the burden towards indirect taxes and resource taxes, first of all, land and real estate) and PIT reduction to 10%. This could bring closer taxation terms and conditions for SEEs and hired employees and make more prominent the benefits of hired labor like stable employment and social protection. However, an analysis of these in-depth reforms is beyond the scope of this paper.

²⁷ The analysis has been based on World Economic Forum data for many years.

- ▶ Attempts to ‘immediately stop’ uses of simplified system beyond its stated purpose and even more, to fully cancel possibilities of rendering services to legal entities (or impose an additional tax on such) for SEEs on simplified taxation look dubious in terms of their fiscal effect and dangerous from the standpoint of their impact in long-term prospects of Ukraine. With a view of the above and the large-scale shadow employment due to the same reason of excessive use of the direct income tax and the labor tax, the convergence should go from the other side. The problems will be solved if SSC is cancelled and the PIT reduced to 10% with parallel enhancement (increase) of land and real estate taxation and property tax set-off when PIT and ST are paid.
- ▶ Liberalize the Labor Code of Ukraine and ensure the freedom of the employment contract when, by consent of the parties to the employment contract, labor relations can be governed only by employment contract provisions and the Constitution of Ukraine without applying provisions of this Labor Code or other laws governing labor relations.

2.8.2. SEEs of 1st and 2nd STS groups sell goods and services and in parallel considerably reduce their sales figures

As compared with the previous research, here an updated technique will be used to allow for a more precise assessment of the mentioned phenomena. The differences have been as follows:

1. Rather than using a simplified Pareto’s distribution, which nicely describes the most of the range but runs into problems with asymptotes (with approximation to 0 and for extremely big values), several variants of more complex distributions suitable for better description of the real situation will be analyzed.
2. A more precise technique of calculating the number of offenders will be applied via approximation of the distribution of their declared incomes inversely to the threshold that entrepreneurs are obviously unwilling to breach (UAH1 million, then UAH1.5 million for 2nd group; UAH5 million for 3rd group).
3. If relevant data are available, individual sectors deemed the most prone to abuse (3rd group services to legal entities; retail commerce) will be analyzed in more detail).

As it has been mentioned in the previous paper, such abusive practices are rather negligible among 1st STS group and thus, are not worth consideration. This being said, some rather substantial abuse has been identified in the 2nd group, even though they did not amount to 10% total income of the group in 2016 (aside from understatement of income to avoid the criterion for mandatory application of cash registers). By 2018 the number of entrepreneurs potentially under-declaring their income nearly doubled. It is also possible the income of those who had hid it before also increased by nearly same 30% than the turnover of all SEEs engaged in trade (this characteristically corresponds to the inflation rate for the period though the statistics has it that retail trade expressed in physical terms did increase; hence, the growth has been exclusively/mostly due to legal entities). It is still possible the declared turnover also increased by the same 30%, in which case the hidden income of 2nd group could have reached 15–20% its turnover. However, the lion’s share of this unreported income comprises revenues within the UAH 1.5 million margin yet exceed the UAH1 million threshold starting at which cash registers

become mandatory. Adjusted data (Annex 3) show approximate budget losses in the range between UAH6–8.3 bn. It is worth mentioning that these are due not to alterations in payers' behavior or new 'scheme' crafting but rather to the lack of upper threshold indexation proportionately to the inflation rate or median salary increase, which would make a more adequate indicator in this case.

At the same time, the volumes single tax and minimum SSC paid almost tripled due to an increase of the MW to which these have been linked. It is no surprise then that such a policy on small businesses has led to shadowisation not just in terms of under-reporting of revenues but worse, due to the shift to the 'full shadow', even more so in poorer areas where entrepreneurs are sensitive to high fixed payments. That way, an insufficient flexibility has led to the simplified taxation system partly losing its role of the de-shadowisation trade-off tool.

Recommendations

- ▶ Repeal the mandatory cash register application upon reaching the sales turnover of UAH1 million a year as the provision that has failed to bring positive results.
- ▶ Liberalize the cash register market; simplify procedures and provide incentives to buyers by:
 - legislatively providing for digital cash register operation (tablet and smartphone-based cash registers),
 - introducing a set of measures to incentivize a buyer to collect the fiscal receipt through cash back mechanism and receipt-based lottery draws,
 - improving e-services: the e-tax payer's cabinet; the online e-ledger service for ST payers; online receipt verification service etc.
- ▶ Following the implementation of Par. 2 and the rebooting of the tax service, rearrange the scope of cash registers application to include risk-prone categories of payers additionally identified via retail floor space and product range:
 - update the list of excisable goods to match Ukraine's commitments in the framework of the EU-Ukraine Association Agreement, specifically, on coal, coal gas, condensate water, producer gas, tar, coking coal and bitumen (Art. 353 Association Agreement and Annex XXVIII to Chapter 4. Taxation of Section V. Economic and Sectoral Cooperation of the Agreement; implementation deadline: 1.11.2016).
- ▶ Simplify all the hiring procedures and liberalize the labor law.
- ▶ Increase turnover thresholds for STS groups 1, 2 and 3 in line with the consumer price index and personal income growth.

Contemplate the linking of ST volume for 1st and 2nd groups as well as the upper income threshold to median income (or, if relevant data unavailable, to median salary) in a settlement of operation (with proper adjustments for suburban areas, big shopping centers, also probably for other circumstances).

III. General Conclusions

The summary of the comparative analysis is presented in Table 8. Correlations between the numbers in the Table mostly confirm deliberations regarding the structure of tax evasion in Ukraine presented at the beginning of the paper.

However, the very structure of tax evasion has not remained unchanged: even a slight economic growth would lead to material increase in imports, both official and informal (the latter being based on customs rules violations, smuggling and corruption at the border). It is the mentioned type of abuse that has become the most considerable and dominant over the last years stealing the leadership from offshore schemes that reigned uncontested in the past years.

These offshore schemes, due to their already high – and ever-growing – service cost owing to new international tax transparency standards (anti-BEPS, FATCA, ATAD etc.), increasingly acquire ‘elite’ characteristics, that is, remain available to big Ukrainian companies and well-off Ukrainian nationals. In the meantime, the volumes of capital flight abroad remain high reaching up to UAH200 bn. a year.

Other popular tax avoidance/evasion tools like ‘convert centers’ (‘tax pits’) and VAT schemes demonstrate multidirectional trends. While the introduction of rather burdensome administration procedures like the depositing of funds on VAT accounts, the introduction of unified tax invoice registry (VAT EAS components) and automated monitoring system (TIMCS) led to an unsubstantial (around UAH3 bn. a year) reduction of scheme-based tax credit formation, the fight against ‘convert centers’ have unfortunately failed to bring any positive results. This is related to a years-long blockage of the process of comprehensive reform of supervisory authorities and in particular, winding-up the tax police and establishing a single body to investigate financial (economic) crime.

For the same reason, there has been no improvement in the fight against trafficking of counterfeit – predominantly excisable – goods (alcohol, alcoholic beverages, tobacco and petroleum products). Even more, the policy of active excise tax increased further prompted by Ukraine’s commitments in the framework of the Agreement with the EU as well as government and parliament’s search for “popular” ways of covering cash gaps in the state budget has turned Ukraine into a leader of cigarette production and trafficking into the EU.

On Recommendations

Besides the recommendations on minimizing the scope of the schemes provided in the relevant sections, one general recommendation to all the sections is to launch an institutional reform of the tax and customs services, re-hire employees through open calls competitions and provide them with decent wages.

For this to happen, we deem it necessary to fully implement the Action Plan on Conceptual Ways of Reforming the System of Bodies Implementing the State Tax and Customs Policies approved by Cabinet of Ministers Resolution № 542, of 5 July 2019, given it meets business requirements and implements service-based approaches to servicing taxpayers among fiscal authorities.

The plan envisions:

- optimization of organization and functional structure of the services,
- improvements to administrative appeal procedures,
- management of information systems and technologies,
- staff development, anti-corruption measures,
- promoting voluntary payment of taxes; development of tax services,
- risk management, tax control and audit,
- improvements to tax debt repayment management,
- combat base erosion and enhance the transfer pricing analysis function,
- contribute to security and international trade, including simplification and harmonization of customs procedures,
- contribute to efficient collection of customs duties,
- development of infrastructure, e-technologies and services for international trade,
- society, public health and natural environment safety protection, fight against drug and arms trafficking,
- enhance the efficiency of international customs cooperation.

Besides that, we deem it of utmost importance to establish an analytical Economic Crime Service to replace the Tax Police and all economy-related units in law enforcement agencies, to enhance the TP control institute and to set up a common data centre to handle all fiscal and customs data at the Ministry of Finance.

Table 8. Comparative Analysis of the Fiscal Effect of Tax Avoidance/Evasion Schemes in Ukraine in 2018, in UAH bn/year

Scheme	Taxes (payments) it allows avoiding/evading	Rough volumes, UAH bn/year	Rough budget losses, UAHbn/year	Notes
Customs rules violations, smuggling and border corruption	VAT+excise duty+ customs duties	209–311	63–93	Informal currency outflow volumes require further specification
Offshore schemes	Profit tax (hereinafter, 'PT') profit repatriation tax	120–200	22–36	Transfer pricing; it has not been currently possible to assess other schemes
'Convert centers', tax pits (fictitious enterprise)	PT+VAT+ SSC+PIT+ military tax	40–60	12–18	Dynamics continues to grow as the government shows no institutional capacity to deal with the schemes
Counterfeit goods	PT+VAT+excise duty	35–55	10–12	
Tax credit schemes	VAT	42–54	7–9	A downward trend
Agricultural land and product rentals	PIT+PT+SSC+military tax	19–69	6–22*	* Max value corresponds to losses from all the schemes in the agricultural sector
Backdoor salaries	SSC+PIT+ military tax	50–200*	25–74*	* Max value corresponds to rough estimate of all shadow wages
STS: SEEs instead of hired staff: 3 Group and cash-out	SSC+PIT	20–50	10	Will be specified as soon as data are received
STS: underreporting of revenues, 1st and 2nd Groups	ST	150	6–8.3	The most of underreported revenues have no fiscal effect as it is about the underreporting within the limits of the statutory upper threshold only to avoid mandatory cash register application

Annex 1

Ukraine's Exports to Offshore Jurisdictions, List 1, USD million

Export country	2014	2015	2016	2017	2018
Aruba	0.49	0.08	0.22	0.15	-
Bahamas	0.07	0.1	0.02	13.22	13.23
Bahrein	1.44	0.72	5.22	4.65	14.4
Belize	0.22	3.58	0.85	10.5	4.15
Bosnia & Herzegovina	10.71	7.41	9.24	12.47	32.04
Republic of Burundi	0.26	1.82	0.06	-	0.27
British Virgin Islands	110.58	8.08	8.79	0.84	4.63
Guatemala	4.74	6.5	0.35	0.58	2.06
Gibraltar	1.76	-	-	-	0.16
Hongkong (China)	25.95	15.48	49.01	54.07	47.7
Djibouti	89.46	59.77	14.89	8.85	34.94
Commonwealth of Dominica	-	-	0.12	0.22	0.25
Dominican Republic	25.44	6.5	5.82	1.14	3.87
Iran	704.87	533.77	705.15	552.52	433.12
Ireland	69.52	59.16	45.44	55.27	77.18
Cabo Verde	0.03	0.1	0.29	0.15	0.12
Qatar	18.72	16	12.44	42.34	59.93
Cyprus	283.8	61.44	53.37	79.52	40.32
Kirgizstan	102.72	75.58	40.43	34.32	28.31
Cuba	85.02	36.4	7.39	10.71	8.55
Laos Republic	0.32	1.62	2.39	0.17	0.18
Liberia	2.61	4.24	2.98	21.78	77.75
Lebanon	272.04	300.95	338.52	426.96	404.84
Lichtenstein	1.14	2.27	0.11	0.07	0.11
Mauritius	6.03	0.86	0.77	0.91	0.76
Macedonia	40.8	12.95	25.91	30.66	15.82
Maldives	-	0.05	1	0.47	0.81
Morocco	294.93	212.55	247.32	221.3	363.2
Marshall Islands	2.89	0.74	2.31	51.65	12.26
Moldova	747.24	524.83	481.15	707.61	789.24
Monaco	0.17	0.01	0.16	1.34	0.65
United Arab Emirates	395.32	302.29	277.61	384.55	486.18
Oman	35.14	28.01	51.87	33.99	59.12
Cook Islands	0.01	0.03	0.01	2.52	0.05
Panama	35.25	9.92	13.91	28.13	7.23

Paraguay	0.08	0.05	0.12	0.15	0.13
Puerto Rico	0.06	0.14	0.95	1.8	1.72
San Marino	2.7	3.66	3.35	1.93	2.55
Seychelles	0.29	0.31	0.5	3.75	1.05
St. Kitts and Nevis	0.04	0.4	1.8	2.73	2.88
Singapore	126.43	5.16	21.57	65.02	165.72
Sudan	77.65	75.23	34.36	72.08	45.39
Turkmenistan	432.91	170.26	109.11	62.14	56.84
Uzbekistan	308.52	174.43	142.4	167.11	286.03
Montenegro	1.81	1.14	4.67	8.87	7
Total*	4320.18	2724.59	2723.95	3179.21	3592.74

**nations (territories) that have not been included in List 1 for the reason of not having trade relations with Ukraine or the volume of exports to which was less than USD100 thousand per year: Anguilla, Principality of Andorra, Antigua and Barbuda, Barbados, Bermuda Islands, Brunei Darussalam, Republic of Vanuatu, Virgin Islands (USA), Guadeloupe, Guernsey, Grenada, Jersey, Canary Islands (Spain), Cayman Islands, Kosovo, Curacao, Macau (China), Labuan-Malaysia, Marta Federated States of Micronesia, Montserrat, Nauru, Niue, Isle of Man, Turks and Caicos Islands, Palau, Commonwealth of the Northern Mariana Islands, Madeira (Portugal), Samoa, Sao Tome and Principe, Saint Vincent and the Grenadines, Saint Lucia, Sint Martin (Netherlands) and Timor-Leste*

Ukraine's Exports to 'Hybrid' Jurisdictions, List 2, USD million

Export country	2014	2015	2016	2017	2018
Australia	18.37	10.7	12.83	14.95	30.03
Austria	531.08	347.04	361.32	535.15	553.19
Belgium	425.42	297.18	251.55	456.23	603.52
UK	586.31	368.3	317.59	479.95	584.12
Denmark	126.49	144.87	155.45	189.51	249.98
Estonia	84.05	66.24	98.05	133.13	152.01
Israel	593.29	597.4	488.56	604.58	580
Italy	2472.78	1978.19	1929.58	2469.45	2628.3
South Korea	510.96	396.04	413.7	308.55	327.45
Canada	73.18	30.32	28.89	50.46	78.15
Luxembourg	16.2	5.89	5.09	7.29	7.29
Malta	1.63	12.17	7.75	66.2	65.68
Netherlands	1107.66	907.9	995.31	1676.12	1603.55
Germany	1595.59	1331.06	1424.15	1754.44	2208.61
New Zealand	3.15	1.89	2.56	2.04	5.2
Poland	2648.75	1979.66	2200.2	2724.22	3256.8
Slovak Republic	671.41	469.04	471.37	656.01	863.92
U. S. (states of Delaware, California, Nevada, New Jersey, New York, Texas, Florida)	671.14	482.83	526.57	828.13	1111.07
Turkey	3576.07	2775.82	2049	2519.35	2352.17

France	533.52	498.63	453.84	419.06	537.66
Czechia	774.2	541.73	560.87	715.18	878.14
Switzerland	186.55	132.51	108.2	181.07	107.11
Japan	209.88	235.49	185.24	217.93	231.87
Total*	17 417.68	13 610.9	13 047.67	17 009	19 015.82

*Mauritius, UAE and Singapore have not been included in List 2 to avoid duplication with List 1.

Annex 2

Ukraine's Imports from Individual World Countries, USD million

Importing country		2014	2015	2016	2017
RF	WITS imports SFS	12 678.7	7492.7	5149.3	7196.6
	imports	11 228.4	6323.8	5150.4	7211.7
	Discrepancy	1450.3	1168.9	-1.1	-15.1
China	WITS imports SFS	5 408.9	3771	4687.7	5642.5
	imports	5420.8	3782.3	4679.6	5638.3
	Discrepancy	-11.9	-11.3	8.1	4.2
Germany	WITS imports	5360.1	3975.6	4318.4	5201.3
	SFS imports	5230.7	4110	4212.6	4685.5
	Discrepancy	129.4	-134.1	105.8	515.8
Belarus	WITS imports	3971.1	2449.1	2777.8	3204.4
	SFS imports	3974.6	2488.2	2785.7	3209.2
	Discrepancy	-3.5	-39.1	-7.9	-4.8
Poland	WITS imports	3067.3	2324	2693.3	3345.2
	SFS imports	3052.5	2310.4	2714.4	3405.4
	Discrepancy	14.8	13.6	-21.1	-60.2
U.S.A.	WITS imports	1931.9	1483.9	1692	2475.2
	SFS imports	1922.1	1480.1	1679.8	2513.3
	Discrepancy	9.8	3.8	12.2	-38.1
Italy	WITS imports	1508.5	976.3	1358.2	1617.6
	SFS imports	1507	973.2	1321.2	1604.4
	Discrepancy	1.5	3.1	37	13.2
Hungary	WITS imports	1463.9	1608.5	802	1133
	SFS imports	1266.8	1563.5	914.5	1580
	Discrepancy	197.1	45	-112.5	-447
Turkey	WITS imports	1298.2	851.7	1098.6	1261.2
	SFS imports	1298.5	839.9	1 086.1	1251.7
	Discrepancy	-0.3	11.8	13.5	9.5

France	WITS imports	1267.3	893.1	1 530.6	1500.1
	SFS imports	1255	886.3	1433.7	1384
	Discrepancy	12.3	6.8	96.9	116.1
Lithuania	WITS imports	1032.2	552.6	492.5	673.9
	SFS imports	1032	551	490.9	677.3
	Discrepancy	0.2	1.6	1.6	-3.4
Romania	WITS imports	847.3	318.2	380.7	454.3
	SFS imports	848.7	319.,8	379	457.6
	Discrepancy	-1.4	-1.6	1.7	-3.3
Netherlands	WITS imports	763.6	452.6	546.8	637.1
	SFS imports	761.2	449.8	543.9	640.2
	Discrepancy	2.4	2.8	2.9	-3.1
UK	WITS imports	691.7	570.1	709.3	783.9
	SFS imports	668.7	601.4	582.5	667.5
	Discrepancy	23	-31.3	126.8	116.4
Czech Rep .	WITS imports	687.7	479.7	654.8	836.7
	SFS imports	686.8	478.3	652.5	812.4
	Discrepancy	0.9	1.4	2.3	24.3
India	WITS imports	656.4	443.7	486.1	561.1
	SFS imports	657.9	444.2	486.3	561.6
	Discrepancy	-1.5	-0.5	-0.2	-0.5
Japan	WITS imports	612.6	382.2	551.8	705.1
	SFS imports	613.6	381.6	551.9	723.5
	Discrepancy	-1	0.6	-0.1	-18.4
Spain	WITS imports	607.3	440.7	500.9	575.8
	SFS imports	602.5	438.9	497.9	575.2
	Discrepancy	4.8	1.,8	3	0.6
Austria	WITS imports	606,3	369,6	465,1	482,7
	SFS imports	762.6	465.6	516.3	534.4
	Discrepancy	-156.3	-96	-51.2	-51.7
Norway	WITS imports	587.7	741.7	163	216.7
	SFS imports	468.8	861.1	162.8	216.8
	Discrepancy	118.9	-119.4	0.2	-0.1
Belgium	WITS imports	553.3	366.8	450.2	517.5
	SFS imports	547.7	360	447.1	519.2
	Discrepancy	5.,6	6.8	3.1	-1.7
Switzerland	WITS imports	523.6	458.1	984.3	1649.4
	SFS imports	513.9	335.2	707.9	449.4

	Discrepancy	9.7	122.9	276.4	1200
South Korea	WITS imports	478.3	256.4	255.3	315.8
	SFS imports	479.1	256.7	255.3	321.6
	Discrepancy	-0.8	-0.3	0	-5.8
Slovak Republic	WITS imports	426.8	346.3	434.9	507.1
	SFS imports	427.4	411.2	612.8	2536.1
	Discrepancy	-0.6	-64.9	-177.9	-2029
Kazakhstan	WITS imports	375.8	377.6	434.3	318
	SFS imports	367	378.9	425.8	310.4
	Discrepancy	8.8	-1.3	8.5	7.6
Sweden	WITS imports	371.4	273.5	419	425.3
	SFS imports	369.9	272.1	417.1	430.7
	Discrepancy	1.5	1.4	1.9	-5.4
Israel	WITS imports	325.6	169.9	184.8	167.8
	SFS imports	315.5	161	177.2	157.8
	Discrepancy	10.1	8.9	7.6	10
Finland	WITS imports	319.2	223	216.8	253
	SFS imports	318.3	223.4	215.8	252
	Discrepancy	0.9	-0.4	1	1
Greece	WITS imports	308.4	238.6	233.6	243.9
	SFS imports	308.4	238.2	232.9	243.7
	Discrepancy	0	0.4	0.7	0.2
Vietnam	WITS imports	290.1	252	304.2	393.3
	SFS imports	292.1	252.6	304.2	393.4
	Discrepancy	-2	-0.6	0	-0.1
Indonesia	WITS imports	272.6	168.8	226.7	260.7
	SFS imports	272.8	169	226.7	260.7
	Discrepancy	-0.2	-0.2	0	0
Brazil	WITS imports	261.2	166.1	193.1	210.1
	SFS imports	262.4	166.7	193.2	210.4
	Discrepancy	-1.2	-0.6	-0.1	-0.3
Bulgaria	WITS imports	238.4	253.1	172.9	189.6
	SFS imports	234.2	257.3	172.7	189.6
	Discrepancy	4.2	-4.2	0.2	0
Ireland	WITS imports	134	75.4	84.7	113.8
	SFS imports	134.2	75.6	84.7	113.9

	Discrepancy	-0.2	-0.2	0	-0.1
Ecuador	WITS imports	211.8	119.3	117.2	86.9
	SFS imports	212	119.6	117.2	86.9
	Discrepancy	-0.2	-0.3	0	0
Saudi Arabia	WITS imports	205.2	145	139.4	182.9
	SFS imports	205.7	144.7	139.4	182.6
	Discrepancy	-0.5	0.3	0	0.3
Slovenia	WITS imports	203.6	128.9	137.3	173.3
	SFS imports	203.3	128.7	137	173.5
	Discrepancy	0.3	0.2	-0.3	-0.2
Malaysia	WITS imports	193.2	132.1	167.5	187
	SFS imports	193.5	132.3	167.5	189.9
	Discrepancy	-0.3	-0.2	0	-2.9
Canada	WITS imports	191.2	206.3	217.3	294.3
	SFS imports	192.5	206.3	217.3	299.2
	Discrepancy	-1.3	0	0	-4.9
Thailand	WITS imports	162.9	120.6	172.5	194.7
	SFS imports	156.1	115.7	167.9	188.4
	Discrepancy	6.8	4.9	4.6	6.3
Georgia	WITS imports	153.7	61.8	65.8	80.7
	SFS imports	150.4	58.4	61.1	77.5
	Discrepancy	3.3	3.4	4.7	3.2
Serbia	WITS imports	140.7	83.2	106.5	131.9
	SFS imports	139.9	83.5	106.5	132.4
	Discrepancy	0.8	-0.3	0	-0.5
South Africa	WITS imports	131.4	151.1	117.7	171.1
	SFS imports	131.5	153.5	118.8	171.3
	Discrepancy	-0.1	-2.4	-1.1	-0.2
Azerbaijan	WITS imports	43.7	30.3	39.7	417.1
	SFS imports	40.9	27	37.6	415.8
	Discrepancy	2.8	3.3	2.1	1.3
Latvia	WITS imports	89.7	87.1	112.5	144.2
	SFS imports	84.1	65.1	93	116.7
	Discrepancy	5.6	23	19.5	2.5
Uzbekistan	WITS imports	72.8	62.3	71.1	122.7
	SFS imports	72.4	62	71	122.7
	Discrepancy	0.4	0.3	0.1	0
Moldova	WITS imports	61.9	41.2	47.6	106.6
	SFS imports	62.7	40.9	47	106.4

	Discrepancy	-0.8	0.3	0.6	0.2
Denmark	WITS imports	234.8	147.6	184.2	192.8
	SFS imports	233.7	147.3	183.6	194.6
	Discrepancy	1.1	0.3	0.6	-1.8
Egypt	WITS imports	91.1	55.6	48.7	77
	SFS imports	84	50.4	43.6	67.6
	Discrepancy	7.1	5.2	5.1	9.4
Ghana	WITS imports	105.5	104.2	87.9	132.2
	SFS imports	105.8	105	87.9	132.2
	Discrepancy	-0.3	-0.8	0	0

Annex 3

Methodology and Results of Calculation of Real Turnover of SEEs on Single Tax

Introduction

According to Gibrat's law, a growth with probability elements for a totality of normal populations should lead to a log-normal distribution of results. That is, SEEs, like other business agents in the market economy, should distribute log-normally per their annual sales. An approximation to the distribution in its middle part is the Pareto's distribution we successfully used in the previous paper availing of the fact that it can be estimated with a simple econometric technique of regression analysis. However, the distribution resulted unfit for 2018 data as the number of violations grew considerably to become, at least, for 2nd group STS, visually comparable with the main trend and hence, complicating the task of its correct evaluation. Therefore, a more precise, if also more complex, model had to be used.

It envisions that a true distribution is a log-normal one but the existence of an artificial threshold leads to a situation when those in excess of it (the 'violators') report pre-threshold income in inverse distribution – in our view, according to Weibull. The latter assumption is in good agreement with empirical data (please see Example for 2nd Group below) and can be theoretically explained with the general and sociologically corroborated aversion to lies among the absolute majority of people (the phenomenon, among other things, enables the use of polygraph as the 'lie detector'). In line with it, the greater is the distance to the threshold, the more stress the violator perceives. Such an approach makes it possible to draw an analogy with the theory of mechanism reliability, the task to which the Weibull distribution is most frequently applied. However, a sociological analysis of the income underreporting phenomenon is beyond the scope of this paper.

The calculation was carried out in Python environment using the method as follows: each point (x, n) represents the number of SEEs $n(x)$ who reported their annual income between $x-1$ and x thousand Hryvnias. It can be represented as $n(x) = n_o(x) + n_p(x)$ where $n_o(x)$ is the number of SEEs whose sales turnover is truly within the said interval and $n_p(x)$ is the number of violators who reported their income as being in that same interval in spite of real turnover overshooting the threshold T . We consider the log-normal distribution of $n_o(x)$ from $x=2$ till the threshold $x=T$ ($x=1$ corresponds to the 'sleeping' SEEs who mostly reported zero income) the key one, on which $n_p(x)$ inversely distributed from the threshold under Weibull are imposed. The resulting distribution is the weighted total of the two distributions:

$$(1) , norm = c_0 \frac{1}{x} \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(\ln x - \mu)^2}{2\sigma^2}} + c_1 \frac{k}{\gamma} \left(-\frac{x-\lambda}{\gamma}\right)^{k-1} e^{-\left(-\frac{x-\lambda}{\gamma}\right)^k}$$

where *norm* are normalized numbers of SEEs per the total amount,

$$norm(x) = n(x) / \sum_2^T n(x)$$

c_0 and c_1 are weighting coefficients,

$\frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(\ln x - \mu)^2}{2\sigma^2}}$ – log-normal distribution with median μ and σ^2 dispersion,

$$\frac{k}{\gamma} \left(-\frac{x-\lambda}{\gamma}\right)^{k-1} e^{-\left(\frac{x-\lambda}{\gamma}\right)^k}$$

– Weibull max distribution where k is the parameter that defines the distribution shape, γ is the scale and λ is the placement that, under the conditions, equals T .

The equation is optimized within the interval between 2 and T for all the parameters using Python tools (the non-linear least-square method by minimizing the sum of squared deviations with Levenberg-Marquardt algorithm). Then all available number of SEEs is distributed under the main log-normal curve $n_0(x)$ and the distribution is then used to calculate actual income amounts for subsequent comparison with the reported ones. By calculating separately both formula components it may also be possible to evaluate the number of ‘violators’ and hidden revenue amounts.

The main methodological issue with this approach concerned the outliers that obviously have a great role, particularly, at the beginning of the interval (Fig. 1). Taken together, they account for 100 to 150 thousand entrepreneurs depending on their definition (please see below). A greater part of these is conceivably those who just roughly reported their income though a part of them may be the violators who simply are more probable to post a rounded number than other values.

In the first calculation methods we did not offer any advance assumption on the nature of outliers processing them in a purely statistical way. For this, our first step was to model the curve as described above, then consider points beyond the CI as outliers and omitted them to be processed separately; during the second step the curve would also be optimized without accounting for these points. For comparison purpose, we took two CI values, one meeting 5% probability and another, 20%. The obtained results were quite similar (please refer to Table 1, Method 1 – «5%» and Method 2 – «20%»). For the second method we assumed a part of the violators have been posting rounded (or multiple of 5) data representing the absolute majority of outliers on the graph. Therefore, we identified this population separately from the outset and immediately calculated the curve without these (Method 2 in Table 1).

For both methods, our next step was to take these outliers into account based on the assumption that part of them is probably those who simply posted rough estimates of their income and another part potentially being violators who simply have been more probable to show rounded numbers than any other values. We made an assumption that the number of tax payers referred to as outliers (predominantly because of reporting rounded numbers in their statements) have been distributed in proportion to the calculated ‘honest’ and ‘violate’ ones in the remainder of the sample for the respective point. Consequently, at the stage of outlier consideration each of these points of $x + I$ is furthermore divided proportionately to distribution formulas identified during the first step, the sum in excess of n_0 is added to the ‘regulars’ and the whole of the curve $n_0(x)$ is respectively multiplied by the coefficient that equals:

$$(2), K = \frac{\sum_2^T n_0(x)}{\sum_2^T n_0(x) + \sum_2^T n_r(x)},$$

where $n_r(x)$ is the exceedance of the proportion of possibly 'honest' SEEs at the outlier point over $n_o(x)$ value calculated in accordance with the first formula component (1).

Calculations based on this universal method can be used to any self-employed population, namely, by ST groups, CEAs, (un)availability of cash registers etc. It should be noted though that it has to concern rather homogeneous groups. This is specifically important for 2nd group of ST.

It should be also noted that the method actually assesses an anomaly proper while interpretation of the latter as a violation is an assumption, which is not always justified. Specifically, a distribution anomaly on approximation to the threshold may be indicative of a proportion of SEEs consciously unwilling to exceed it; the situation is probably true in part for 3rd group and for some in 2nd group (for more detail please see the results analysis).

The situation per ST groups looks as follows:

1st Group

As an attempt to apply the above-described method to 1st group of ST payers has not identified any obvious abuse attributes there is no point in dwelling on it, still more that a possibility of the group fiscalisation is not currently given a serious consideration.

2nd Group

The threshold for 2nd group SEEs without cash registers is at UAH1 million because as soon as their turnover is greater than that they must use cash registers further on, that is, turn into the object of tax inspections to verify cash discipline and so on. It is obvious from the analyzed data that it is unacceptable for the majority of entrepreneurs to the extent that even those not reaching the upper threshold of UAH1.5 million report less than UAH1 million income. At the same time, there is a group of 55,666 entrepreneurs (9.5% total number) who still report turnovers in the range between UAH1 million and UAH1.5 million but their distribution is governed by another law; they obviously comprise a separate group that hardly hides its income because most probably they receive the payments via bank transfers. According to experts and business representatives, they are most probably those who trade via bank transfers selling goods (not services) to legal entities. The group will be reviewed in more detail below.

Regarding the rest, the estimate within the UAH2-1,000 thousand interval with extrapolation of up to UAH50 million gives the following results:

Table 1. Modelling Results for 2nd Group of STS Using Various Outlier Handling Methods

Method	Coefficient of determination (R ²)	No. 'law-abiding, thousand units	No. 'violators' underreporting their income, thousand units	No. 'violators' exceeding 2nd Group threshold, thousand units	No. 'violators' exceeding STS threshold (new 2nd Group threshold), thousand units	Total income of the 'law-abiding' ones, UAH bn	Total hidden turnover, UAH bn.	Total real turnover in excess of UAH1 million, UAH bn	Hidden turnovers in excess of UAH1.5 million, UAH bn	Hidden turnovers in excess of UAH5 million, UAH bn
5% CI	82%	391	113	66+1*	0	137	78	207**	120 + 1.5*	0
20% CI	87%	385	119.5	76+1*	0	132	93.5	228**	145 + 1.5*	0
Separate roundoff estimate	88.5%	384	120.6	80+1*	0	131	100	236**	156 + 1.5*	0

* The first summand corresponds to the model data and the second one, to the statistical data

** The amount also includes the turnover declared by 'violators'

As is seen from the Table, a change of the confidence interval has no principal effect on the result though 20% CI gives better precision²⁸, so further one we will review results obtained with this method.

The situation is described in Figs. 1a and 1b. The red points correspond to report results with not rounded annual turnover values; the dark green ones correspond to either rounded or multiple of 5; the pink ones are outliers. The dark grey curve represents the true distribution of all SEEs; the light blue one represents the distribution of 'violators'; the deep blue curve is the sum of the grey and the light blue ones and corresponds to the distribution per reports (all before accounting for outliers); pink curves mark the CI limits. For the special group with annual turnover between UAH1,000 and UAH1,500 thousand, the point distribution is marked in yellow, the light green points correspond to the group of probable 'split' and pseudo SEEs, while the yellow curve shows the describing trend (please see below).

²⁸ The precision could have been improved by making several iterations by consecutively reducing the confidence interval though the results obtained that way would've not be too different from those presented in the Table despite a much more complex calculation method.

Fig. 1a. Distribution of the Number of SEEs per Declared Income, and Modelling Using Outlier Rejection Technique with 20% CI

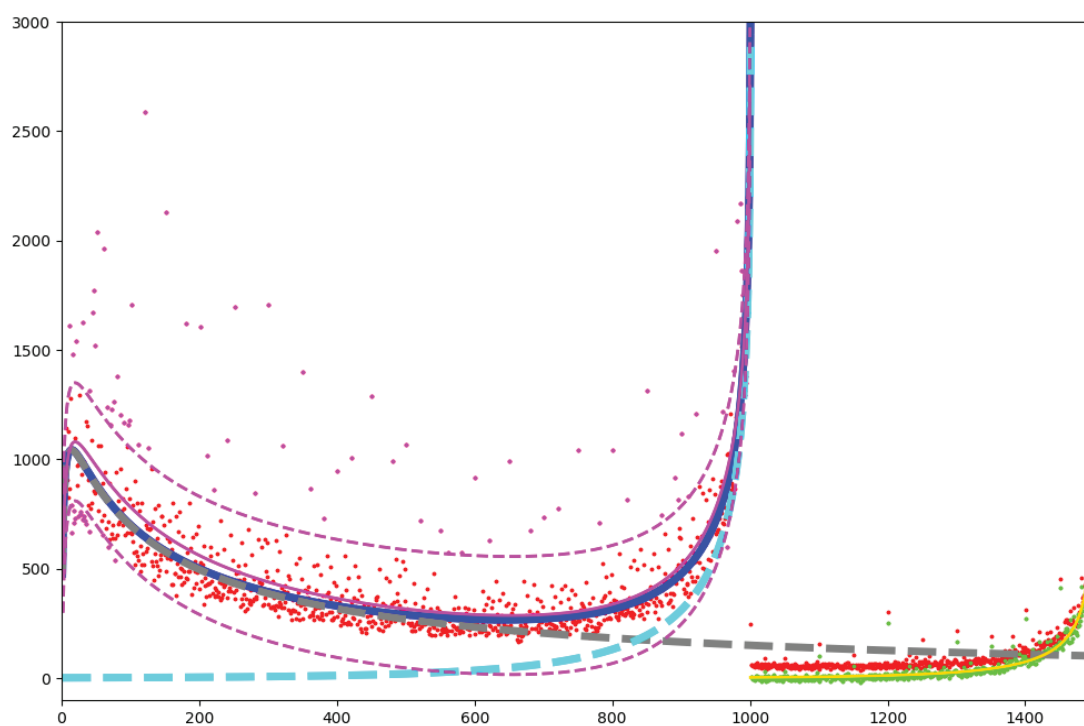
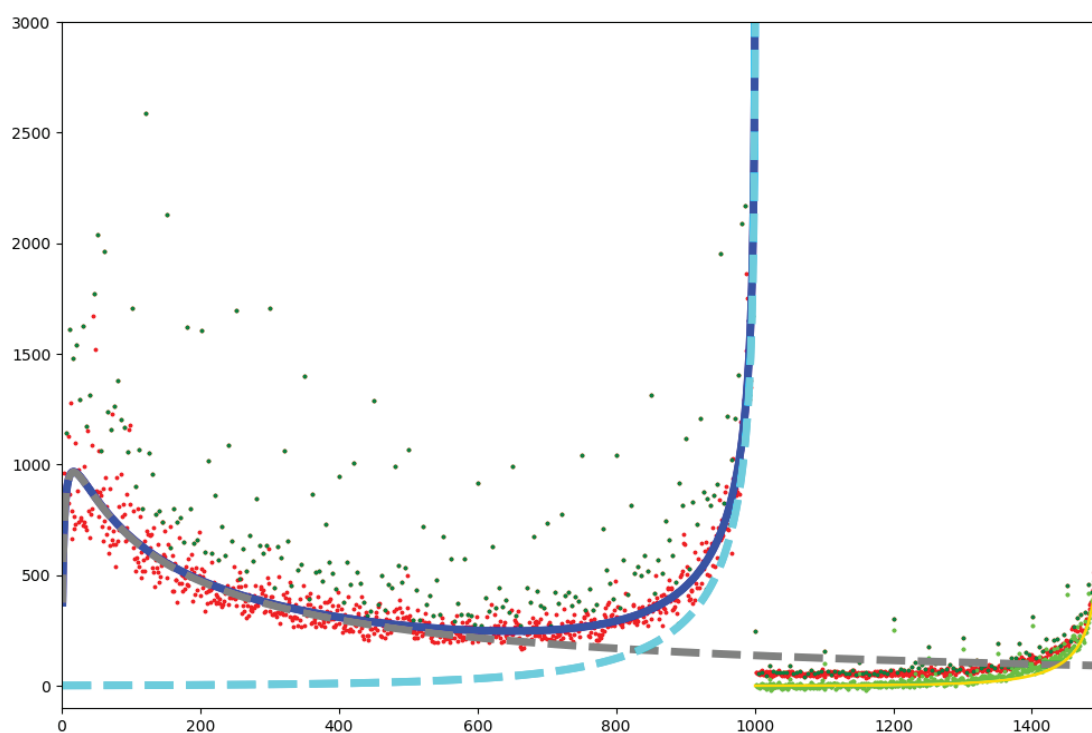


Fig. 1b. Distribution of the Number of SEEs per Declared Income, and Modelling Using Roundoff (Specifically, Multiples of 5) Rejection Method



The coefficient of determination R^2 for the aggregate distribution (deep blue curve) for all the methods is close to 90%²⁹; hence, the estimate error does not exceed 10%. At the same time, the total number of SEEs who reported their income within this interval makes 504.5 thousand and their official turnover stands at UAH237.3 bn. (accurate statistical data); meanwhile, the total number of 2nd Group ST payers not using cash registers is nearly 560 thousand. That way, it is evident from Table nearly 22% 2nd Group ST payers are hiding some of their income. Of those, 77–80 thousand have probably exceeded the statutory upper threshold for 2nd Group and should have switched for 3rd Group to pay 5% of the turnover or for the general system (this accounts for up to 14% total number of 2nd Group payers). It is seen from the Table taken together they received around UAH150 bn. a year. Respectively, the conditional shortfall of the budget makes 5% of the amount, or UAH7.5 bn., for if respective payers reported their full income, they would have to switch for 3rd Group ST. With deduction of the ST actually paid by 2nd Group (UAH834.6*12 months*80 thousand) and with the consideration of the method error, the conditional losses of the budget may be estimated in the range between UAH6 bn. and UAH7.3 bn. At the same time, if the thresholds would be raised to UAH5 million as voted in the parliament, there would be no violators (that is, their true number would be insubstantial). It is also worth noting that even with a considerable scale of violations, the absolute majority of SEEs of 2nd Group ST did not exceed even the UAH1 million threshold in 2018, that is, it would be at least incorrect to speculate about ‘massive’ abuse across 2nd Group.

These estimates deserve two small clarifications: first, according to statistics, an annual turnover of more than UAH1.5 million was reported by 988 SEEs, that is, less than 0.2% of the total. Their contribution adds 1.5% to the assessment of the conditional shortfall in budget revenues. Secondly, there is probably a non-zero number of SEEs earning in excess of the 3rd Group threshold, i. e. those who would have to pay 18% PIT and 1.5% of military tax. Still, their number is so small it is beyond the accuracy of the model; it may be assumed the number of these SEEs does not exceed 0.2% of their total number – about a thousand – and their contribution to the assessment of conditional loss of budget revenues would accordingly be not more than a billion Hryvnias. However, such an assessment does not have any solid justification and is probably overestimated. In any case, such amounts are within the model error.

A particular group of SEEs, which reported income of more than UAH1 million, probably also consists of two subgroups. The first one represents a part of ‘law-abiding’ SEEs who correspond to the general trend (marked with a grey curve) yet are impossible to distinguish from those working for cash within the range of UAH2 to UAH1,000 thousand. Immediately after the UAH1 million threshold is passed the number of $n(x)$ decreases sharply and remains relatively stable within the range between UAH1,100–1,200 thousand. This in all likelihood indicates that the relevant interval is dominated by ‘law-abiding’ proprietors distributed proportionately to the rest in accordance with the log-normal law. We take this part into account as the number of 23,959 units when calculating the true distribution and the total hidden income, accordingly.

The rest marked with light green dots is actually the standing-out group. The inverse Weibull distribution (from the UAH1.5 million threshold) with $R^2 = 98.5\%$ for the group suggests most of these SEEs actually stop before the threshold and instead transfer the proceeds to another self-employed individual, that is, ‘split up’ – or are parts of a tax minimization scheme employed by bigger firms. Their total annual turnover makes UAH45,370,691 thousand. However, in this case it would be difficult to tell what amount was hidden from the budget with their help because the data offer nothing about the specific schemes these (pseudo) SEEs use, and this

²⁹ The value is lower for other distribution types, 80.4% for the exponential, and 83.8%, for the log-normal one.

requires additional research made. At the very least, if they are all SEEs who simply cannot afford to exceed the threshold because of working by bank transfer the conditional budget losses are zero.

There can be a situation when these SEEs are in fact pseudo ones, or employees registered as SEEs, in which case the comparison should be with payroll taxes that would have been paid per year for almost 32 thousand employees with an average salary (according to State Statistics Committee data) of UAH9,404/month for the total of UAH1.5 bn. (together with the SSC because of a difference in its calculation in this case), of which about 0.6 bn. were actually paid in the form of single tax and SSC. Thus, in this case the conventional fiscal losses from possible violations by the category with these taxes will unlikely exceed UAH1 bn.

This way certain enterprises also avoid paying the corporate profit tax and probably, some of the VAT. Very roughly, assuming a 2% turnover 'tax burden', the respective corporate profit tax would make about UAH0.9 bn. Conventionally assuming a 20% trade mark-up (may we remind that, under the law, it cannot be services), the VAT would be about UAH1.8 bn. From here, the 'split-up' and wire transfer-based settlements taken together (provide the assumption stands) leads to a loss of budget receipts of up to UAH2.7 bn.

An interim option would be a transition to 3rd Group. In this case, the tax would amount to UAH2.7 bn., 2.4 bn. more than what has been actually paid by these SEEs; still, it does not solve the issue of paying SSC and PIT for hired staff.

It should be noted that the described probable abuses in the group with the declared income of more than UAH1 million, if any, cannot be in any way corrected or 'tracked' by fiscalisation. Meanwhile, the behavior of this SEE group as shown in the analyzed data clearly demonstrates what 'violators' response to fiscalisation might be. That way, even the above estimates of budget losses due to the lack of fiscalisation for the group (1 to 1.5 million) are quite arbitrary.

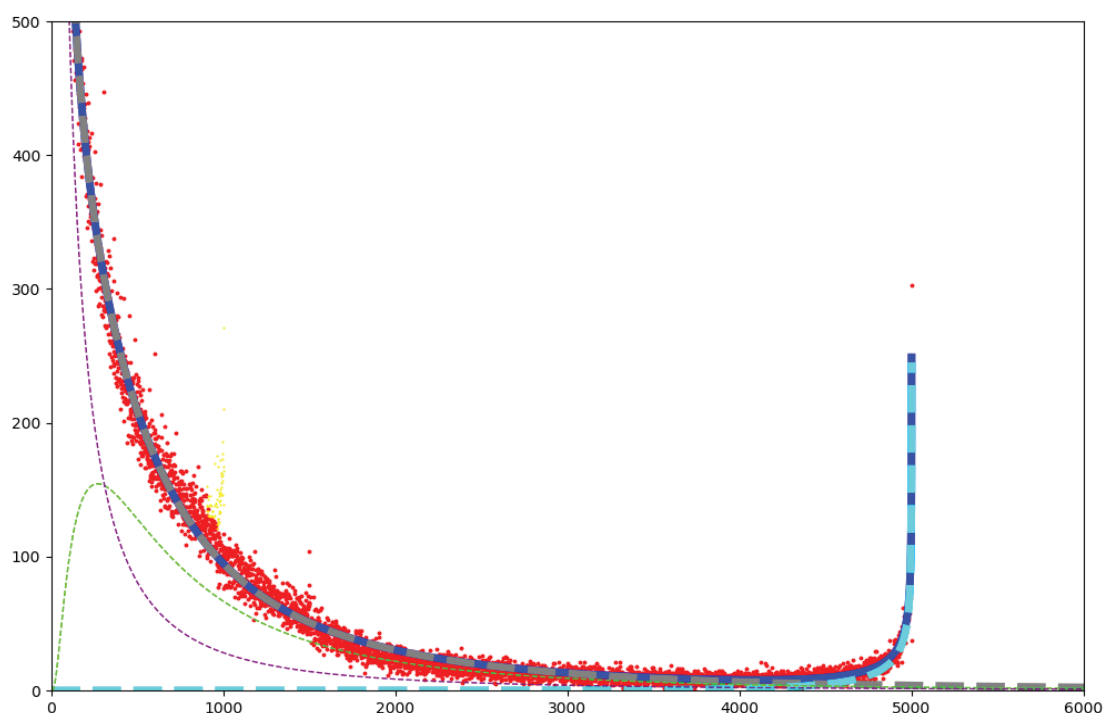
3rd Group

The 3rd Group comprises two subgroups, the SEEs providing services to legal entities, and micro-enterprises with turnovers higher than those allowed for 2nd Group that also provide services, also, to legal entities. Specifically, for this group we modified the formula (1) by adding one more log-normal distribution; that allowed for significantly improving statistical results. There still is an anomaly at approximation to the upper threshold, but with a different interpretation than that for 2nd Group (more about it later). Finally, about 2.5 to 3 thousand SEEs form a small 'tail' of about UAH1 million marked with yellow dots for the same reasons as with 2nd Group. For technical reasons, it could not be quantified by distribution but, due to an insubstantial number of subjects within the accuracy limits of the method, it cannot have any significant effect on the results. Unlike 2nd Group, 3rd Group practically has no anomaly with rounded dots, and the data itself is obviously more accurate, which is not surprising given the need and the possibility of more scrupulous accounting of revenues, especially when working with wire transfers.

The results of the econometric analysis are shown in Fig. 2. The deep blue curve, like before, indicates the main distribution; and the light blue one shows the anomaly. In this case, the main trend ($R^2 = 97.74\%$) consists of two marked with thin green and purple curves of different shapes (although both represent log-normal distributions). The purple curve probably describes the SEEs because it peaks for small income amounts that correspond to SEEs involved

in direct sales chains. It generally comprises some 226.6 thousand units, which together earned UAH92.9 bn. The green curve probably describes businesses, 170.6 thousand of them with the aggregate turnover of UAH177.5 bn. Finally, 11,000 SEEs who declared about UAH51 bn. are an 'anomaly'. (May we remind the split into main trend's subgroups is conditional).

Fig. 2. 3rd Group SEE Distribution Per Declared Income. The deep blue curve indicates the distribution model for 'ordinary' entrepreneurs; it consists of two distributions marked with light green and purple curves. The deep blue curve indicates the anomaly at approximation to the upper threshold. The yellow dots indicate an anomaly at approximation to the UAH1 million threshold interpolated to the next interval.



The anomaly that we discussed in detail in the previous paper has several explanations that rather complement one another. However, the data do not provide for accurate determination of distribution proportions. In the worst-case scenario imagining all respective points representing pseudo-SEEs who are used for backdoor salary payments and pay themselves 5% single tax, with 3% more commission fees collected jointly by pseudo-SEE and the bank, the conditional budget losses might reach UAH19 bn. Once again, this is an extreme option. If all these entrepreneurs were pseudo-SEEs through which big enterprises would pay dividends (rather than paying 18% corporate profit tax and 5% PIT on dividends), the conditional budget losses could be estimated at UAH11 bn. Finally, there is also an option when all these SEEs are real honest entrepreneurs who consciously limit their business growth opportunities to match the statutory limit in order not to have to switch for the general taxation system and become the subject of biased and corrupt inspections.

Assuming, for the lack of better options, that all the above variants are equally represented, we can estimate the average conditional budget losses at UAH10 bn.

In terms of fiscalisation feasibility, the entrepreneurs who have probably underreported their income together make for less than 1% of all those who have declared less than UAH1 million/year. Even if we look at conditional subgroups as discussed above, the 'self-employed' and the 'businesses' will make 1.4% and 1.6% accordingly. The first ones probably do not work for cash (otherwise they would fall within 2nd Group) but even in the worst-case violations would only make too small a part of the overall picture to be worth considering. If we assume that these 2.5–3 thousand SEEs have underreported their income in the same proportion as their colleagues from 2nd Group, i. e., 1.8 times, then the hidden income would hardly exceed UAH2 bn. and the conditional budget losses, UAH100 million respectively.

Conclusions

Massive abuse of the simplified taxation system does occur but it does not represent the dominant type of behavior of entrepreneurs. 22% of all 2nd Group SEEs probably hide some of their income for the total of about UAH100 bn. (a bit less than a third of the officially declared income). Two thirds of them (respectively 14% of the total number) have exceeded their statutory threshold for 2nd Group with a total income of about UAH150 billion and therefore should, in accordance with the law, switch for 3rd Group and pay additional UAH6 to 7.3 bn. At the same time, no significant number of entrepreneurs exceeding the then simplified taxation system threshold (annual turnover of UAH5 million) that has been recently approved as a new threshold for 2nd Group, has been recorded. This specifically means that the upper limit of the fiscal effect of 2nd Group fiscalisation could amount in 2018 to no more than UAH7 bn. and only because of the lowered upper threshold not indexed in due time to match price and wages growth rates. When the latter was regulated in law (on 1 April 2020, the maximum turnover was set at for UAH1, 5 and 7 million/year for 1st, 2nd and 3rd STS Groups respectively), the effect probably disappeared (or almost disappeared): the above analysis shows the threshold may only be exceeded by some rather exotic (and accordingly few and between) subgroups of entrepreneurs not covered by the general pattern. Such marginal subgroups, if they (and only they) can be clearly separated from the whole community with unambiguous criteria, are the likely candidates for mandatory fiscalisation or a ban from being on STS. It is these criteria that should replace the current ones as well as those prescribed by law. Probably, up to UAH2.7 bn might also be lost due to 'split-ups' into SEEs using wire transfers but cash registers are generally ineffective against this type of abuse.

The criterion for the mandatory establishment of cash registers, which refers to the annual turnover of UAH1 million, is a complete non-performer. It only forces a great deal of entrepreneurs to hide their true turnovers and thus distort statistics. With the upper threshold raise to UAH5 million it has lost its sense for good and should be cancelled. Instead, as well as criteria based on product groups, New risk-based criteria should be developed instead of it – and of other commodity group-based criteria – for a marginally small number of SEEs with a real opportunity to go above the statutory threshold. These could be the entrepreneurs trading at large retail spaces; also, other criteria determined on the basis of a full cost-benefit analysis could apply. The issue of sales fiscalisation for other SEEs, which do not even have a theoretical possibility to exceed the turnover limits for relevant STS groups, should be taken down from the agenda.

Probable abuse by 3rd Group is much smaller in volume though is relatively massive in absolute numbers. There are only 11 thousand SEEs (2.5% of the total number of 3rd Group SEEs with non-zero statements) who deviate from the general trend. At the same time, it cannot be unambiguously interpreted as a sign of abuse. The maximum number of violations committed using this subgroup (in the event they are all pseudo-SEEs through whom salaries are paid) is UAH19 bn. (though the more probable figure is UAH10 bn.). This is several times less than probable volumes of backdoor salary payments estimated by us in the main text. There is also an effect of income understatement in the range close to UAH1 million but it is insignificant and cannot be measured with enough accuracy – only to estimate that the budget receipt shortfall of up to UAH100 million.

