

TAX EVASION_INFORMATION SYSTEM AND BLOCKCHAIN

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ABSTRACT

This research paper is about to analyze tax evasion mechanism and how this risk can be managed by using digital system and Blockchain. A possible solution of immediate and easy application could be to streamline the tax assessment system by setting a predetermined and very low rate (at most 10%) linked to gross revenues rather than net income. The application of system proposed with this paper would allow to obtain various benefits that would be added to the almost complete elimination of the phenomenon of tax evasion, such as simplification of tax obligations, reducing the costs of consulting for companies; possibility of carrying out a concrete and immediate tax planning; the elimination of the discretionary nature of the determination and attribution of costs violating the principle of economic competence to bend it to fiscal requirements; or, greater positive collaboration between institutions and companies.

KEYWORDS: *Tax evasion; Tax fraud; Accounting information systems; Digital system; Blockchain*

1. INTRODUCTION

Today, in all the countries in the world, in order to raise the funds necessary to finance their public expenditure, to create public goods and services, governments imposed different types of taxes on economic activities, including income from earnings or consumption of good and services, also on properties [1]. Therefore, in the present time, in many countries, taxation become one of the main sources of the public revenue and, in the same time, one of the main fiscal tool used by the government to stimulate or to control the economic growth and particular economic sectors. Moreover, tax revenue present higher sustainability and efficiency in getting state's revenue than reliance on public borrowing. The Organization for Economic Cooperation and Development defines tax as *compulsory unrequited payments to general government*.

With time, tax policy has a very important place within macroeconomic country's policies and it is part of public finance policy [2]. In most of the countries, tax policy represents a set of measures and actions related to the role of tax revenue, the way they are settled and how they are used as a tool to help and stimulate economic growth, in the most efficient way. In some countries, tax policy has, on one hand, the role in helping those individuals

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and businesses, which face income trouble, and, on the other hand, this policy helps to reduce the differences between poor and rich people. In other words, tax policy plays a very important role in both microeconomic and macroeconomic life [3]. Tax policy consists of a set of government decisions, which follows economic activity influencing social mobility using public revenues and expenditures. Tax policy is a key component of economic policy, which, through taxation, financial system aims to influence the aggregate economic activity. It includes all measures relating to the amount and perceptions/use taxes in an economy. Tax policy can leave its mark, influencing the unfolding economic and financial processes and default on the evolution of the society. Nevertheless, in turn, it is conditioned by the economic environment, through a series of factors, among which stand out: the economy, the relationship between public sector and private citizen's income level etc. On one hand, tax policy is in interdependent relationships with tax policy, monetary policy, currency policy, price policy, employment policy and financial policy of the country. On the other hand, tax policy has objectives and instruments of its own manifestation. By tax policy, the state can influence many economic developments (demand for goods, income, etc.). Transactions of this nature are mediated by the public expenditures and investments, with the purpose of determining renewed growth.

The public financial resources are formed mainly from taxes, fees, and contributions. Therefore, the collection of tax liability has a primordial importance. The increasing number of taxes and fees which form the tax liability, together with the increasing of the coverage area of taxable base, it may led to tax pressure, which it can be hard to bear by individuals and business, in the same matter. From tax pressure to tax fraud it is just a matter of time. Almost all the time, tax pressure has stimulated ingeniousness to avoid, finding effective subterfuges, determined either by practical work or by ambiguous or inaccurate legal regulations in tax legislation. When it comes to money, there is a taxpayer's psychology to pay only what he can. Taxation touches one of the most important interests of individuals and business: money, profit and well-being. Often, human nature tends to place particular interest before the general interest. Therefore, some may consider tax a damage rather than a legitimate contribution to the public spending. Today, some people may consider that tax fraud it is more a skill test, and not a dishonest behavior [4]. In plus, nowadays all economic activities are facing a new type of challenge: artificial intelligence and Fintech. The present paper aims to show how the artificial intelligence is coming to help to reduce the human error (done with our without conscience).

2. LITERATURE REVIEW

The research has revealed that, from the very incipient state's form, when people were set up in groups of families or clans, tribes around a temple, there was a use for a contribution with a certain amount of money from their earnings (and not from assets). The temple was the first place where people prayed, and it was used also as the judgment room and the jury for the members of these groups or clans. As with the years, the number of group members grew, the divergences appeared, and along with them the borders between them, and *states* starts to be in place officially, end to end with their own pecuniary mandatory contributions to the functioning of the state. The earliest known tax records,

dating from approximately six thousand years B.C., are in the form of clay tablets found in the ancient city-state of Lagash in modern day Iraq [5]. The early taxation appears also in ancient Greeks, Egyptians and Romans, Chinese and English society. The taxation threshold has always been raised by economics, and practice exceeded it every time. Therefore, it can be said that the existence of maximum taxation threshold it is very difficult to settle. The maximum taxation pressure varies depending on the economic and social consequences of each country. The level of taxation pressure is given by financial and fiscal policy promoted through economic and financial leverage – taxes and fees - but also by the instability of the financial, fiscal and tax system. Permanent changes in tax rates and the development of new and new taxes have led to the diversification of forms of taxation pressure and the appearance of its certain limits. Types of taxation pressure limitations: *psychological and political limits* (imposed by reaction of taxpayers – they can have a severe resistance to the growth of mandatory taxation – which can appear in a form of tax evasion, fraud, reduction of production activities, protests or strikes); *economic limits* (compulsory taxation it may have the effect of defying the desire to work, or reduction the entrepreneurship spirit); *compensation associated with taxation pressure* (it is a positive aspect – taxpayer will benefit later on public expenditures – improved infrastructure, health and education sector...) [6].

The increasing number of taxes and fees which form the tax liability, together with the increasing of the coverage area of taxable base, it may led to tax pressure, which it can be hard to bear by individuals and business, in the same matter. From tax pressure to tax fraud it is just a matter of time. Almost all the time, tax pressure has stimulated ingeniousness to avoid, finding effective subterfuges, determined either by practical work or by ambiguous or inaccurate legal regulations in tax legislation. When it comes to money, there is a taxpayer's psychology to pay only what he can. Taxation touches one of the most important interests of individuals and business: money, profit and well-being. Tax evasion it is *wholly or partly avoidance from the payment of taxes, fees and other amounts owed to state budgets by individuals and businesses* [6].

Depending on the way in which fraud is committed, tax evasion can be classified as [6]: legal tax evasion; fraudulent tax evasion (illegal fraud); customs evasion; masked tax evasion; short-term fraud; phoenix syndrome - or long-term, premeditated tax fraud; multiple companies syndrome; insignificant manipulations; underground tax economy, and tax haven. These forms of tax evasion are encountered, to a varying extent, in most countries of the world.

Tax fraud and tax avoidance are recognized as a serious problem. Artificial Intelligence through its new technology Blockchain can be used to dominate tax fraud. Furthermore, with the permissioned Blockchain, different parties/roles can be given different data views, restricting access to data to some. Triple-entry account systems through Blockchain it can be programmed to follow accounting standards and regulations automatically using smart contracts, and could even automate tax filings through continuous updates [4].

The digital revolution is changing the way of living, working and communicating. The transformation, that takes place within the telecommunications industry, it has a great impact on the surrounding world with the emergence and continued improvement of digital technologies [7]. Artificial Intelligence is one of them. It is a recent technological

breakthrough, which, combined with industrial technology, it helps overcoming many human errors, exceeding human performance in different areas. IT programs are becoming more accurate, detecting and scaling objects better than human performance [4].

The most valuable derivative of digitization is the rich pool of gathered data, which is growing very fast. Advanced computing capability has paved the way for *big data* analytics [4]. Social media, mobile, analytics and cloud (SMAC) and application programme interface (API) technologies have allowed different data streams to *talk* to each other in a highly efficient manner. This has led to the integration of multiple services into a single platform, thus creating a plethora of cases for digital financial services – fueling the *app economy* [8].

To remain competitive and achieve longevity in the market, financial services has to keep up with digital transformation. The survival of financial institutions is connected with the adoption of innovation, and embracing digital changes, to improve the efficiency and the performance within the organization [9]. Digital transformation and new technology adoption have changed the way of doing business and channels [10] that offer any financial products and services are more intuitive and trustworthy. *Digital* systems are becoming more and more used, representing a much faster, cheaper and safer way when it comes to financial transactions. Contemporaneous economists defined digitalization as *the realignment of, or new investment in, advanced technology and business models to more effectively engage digital customers at every touchpoint in the customer experience lifecycle* [11]. Blockchain is another newest technology, which enable businesses to generate their required reporting information directly from their financial data. The technology Blockchain was introduced a decade ago, after financial crisis of 2008 [12], and there is still a long way to be accepted and adopted by everyone. Blockchain can be described as the chronological record of block transactions.

3. RESEARCH METHODOLOGY

The present work paper is an exploratory research, based on investigative techniques. It is a fundamental and qualitative research, which aims to present how tax fraud can be avoid using artificial intelligence, respectively Blockchain technology. Authors of the paper want to present how through implementation of new technologies, human errors are avoided and tax evasion can be reduced.

4. RESEARCH ANALYZE AND DISCUSSION

A tax evader is a person who reduces or minimizes their tax liability by illegal methods, he is usually a socially dangerous person, believed to be engaged in criminal activities. Tax evasion consists in the non-payment, tax avoidance consists in a less payment of taxes, directly as a natural person or indirectly through a legal person. The exercise of a business for which the payment of taxes is not made is not a crime, unless it is also illegal activity (trafficking in drugs, exploitation of prostitution, smuggling ...). Surely an illegal activity (as prohibited and not officially exercisable) is a source of evasion, if it is possible to consider that the Government can claim a right on illegal and immoral activities. A person could however hide the profits obtained from the exercise of a perfectly legal activity (for example simply by not issuing the fiscal receipt/invoice).

Tax evasion and tax avoidance are currently extremely rooted and widespread. The diffusion, probably, is due to the intrinsic characteristics of the type of crime, which provide different psychological alibis to the offenders.

- being an omitted crime (linked to the non-declaration of income or tax-exempt assets), it is usually subconsciously considered less serious than an direct crime;
- the complexity of the tax system determines the need to turn to burdensome external consultants. Since the tax legislation is subject to constant updates, there is a need of extreme care and expertise, continuous training, software investments, which the entrepreneur has no way to conduct independently, having to focus mainly on the management of his business. The entrepreneur considers dangerous what is not directly controllable.
- tax obligations are usually added to additional mandatory obligations such as health, trade, security & privacy, considered sterile from the point of view of profit. The entrepreneur is encouraged to consider execrable what is directly unproductive;
- the low perceived level of services provided by the State and the widespread dissatisfaction with the management of the Government, induces individuals to consider the payment of taxes as a waste,
- when the tax rate is high, the feeling of unjust withdrawal is accentuated, even more if it exceeds half of the income produced. A civic duty, although reinforced by mandatory rules and a system of sanctions, if considered unjust, is hardly respected;
- the widespread diffusion of the phenomenon leads to an emulative effect, difficult to eradicate, and is configured as "self-fulfilling prophecy". The failure to declare certain income is considered natural, because of common application. In identifying the psychological profile of the tax evader it can be considered encouraged by the social effect rather than affected by a pathology.

The judges are often criticized because of their excessive indulgence. Moreover, it is difficult to observe how the judges are necessarily linked to an order that in itself is very benevolent. The choice of the level of “benevolence” is controversial because it lends itself to a broad subjectivity. The applied statistics can however help to better explain the roots of the problem. It must be considered that when issuing a sentence, the judge could incur two types of errors: acquitting a guilty person or condemning an innocent person. Type I errors happen when we reject a true null hypothesis; Type II errors happen when we fail to reject a false null hypothesis (see figure no.1).

HYPOTHESIS	refuse H0	refuse H1
H0: innocent	WRONG DECISION TYPE 1: an innocent is condemned	RIGHT DECISION: an innocent is acquitted
H1: guilty	RIGHT DECISION: a guilty is condemned	WRONG DECISION TYPE 2: a guilty is acquitted

Figure 1. Hypothesis

When a decision is made, it is not known whether an error of the first or second type has been committed. However, it is possible to control the likelihood of an incorrect decision for both types of inference. In an ideal world the two types of errors should never occur,

but mistakes are made in reality. Currently the judges make decisions trying to minimize the error of the first type (condemnation of an innocent). Paradoxically, however, to totally annul the possibility of condemning an innocent one should absolve all the defendants. Given that the errors of the two types are inversely proportional, it seems obvious that it becomes difficult to reach a guilty verdict, unless there is a willingness to increase the possibility of condemning an innocent person. In essence, the acquittal of perpetrators is in a certain way the price to pay in order not to risk to condemn the innocent. The tradeoff is difficult to solve and the work of the judges is anything but easy. In fact, there is no universally acceptable balance in the choice of risk of error to run.

Blockchain technology allows for timely examination of potential errors or fraud within accounting entries (e.g., duplicate payments), as well as automation of transaction verification using data from business partners. Moreover, smart contracts encoded with accounting and business rules could enable efficient control of the recording process [13]. Blockchain technology continues to grow and is being used in more and more business sectors, accounting has been identified as an area that could greatly benefit the distributed registry and other features of the blockchain. The main benefits discussed include: reducing the risk of error (especially human error); low risk of fraud (blockchain it is very difficult to penetrate and manipulate); system automation, huge cost savings (by increasing the efficiency and decreasing in errors), increased reliability in financial reports, and reduced workflow.

Nowadays many economists and accountants are saying that *at the end of the road, fully automated audits can be real* [14]. Triple-entry accounting (figure no.2) is an extension of the double-entry system that has been in use since the 16th century [15].

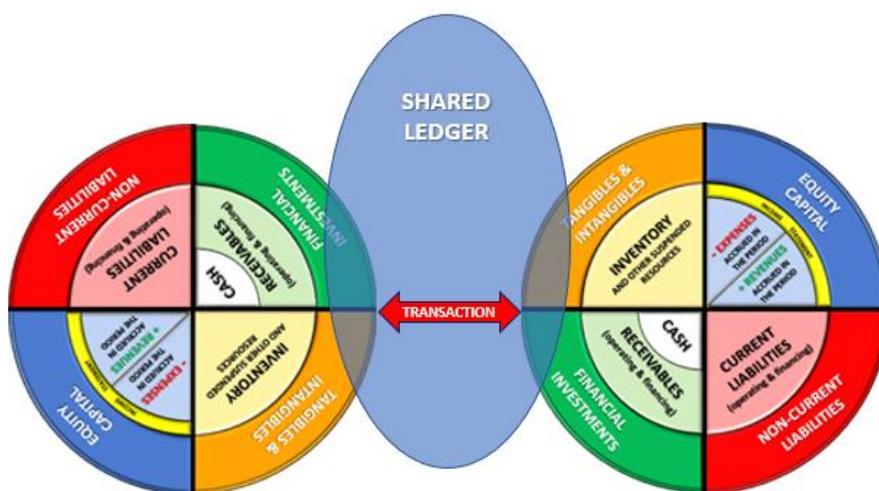


Figure 2. Triple-entry bookkeeping

Double-entry transaction set up jointly by three parties as a payer, a payee and a payee issuer, as is usually done by banks and their customers. The payer sends units of the beneficiary's money (for example, a check) and the issuer (the bank) is responsible for checking and signing the transaction, for transferring the money and issuing a receipt for both the payer and the payee to update their books. This model offers too much

centralized power to the issuer, which would be strong candidate for internal fraud. In order to reduce the issuer's ability to commit fraud, triple-entry accounting through blockchain brings countless advantage that the three parties involved are guaranteed exactly the same information and no party can enter unauthorized information [16]

The basis for triple entries is a unique, cryptographically safe record, called *receipt*, the full probative proof of proof is provided by the digital signatures of the author, the payer and the accepting issuer, making sure that no party can successfully pass unauthorized transaction is valid. This reduces the problem of accounting with that of its presence or other type of receipt, which would be guaranteed by dividing the copies between all parties involved (figure no.3).

The new blockchain technology, rules and data layers are already implemented in many activities, and the triple-entry with blockchain could be implemented successfully within accounting system. This comes with balance checks, asset levels and inter-organizational confirmations of debts and accounts receivables and would be integrated into the automatic use of smart contracts [13].

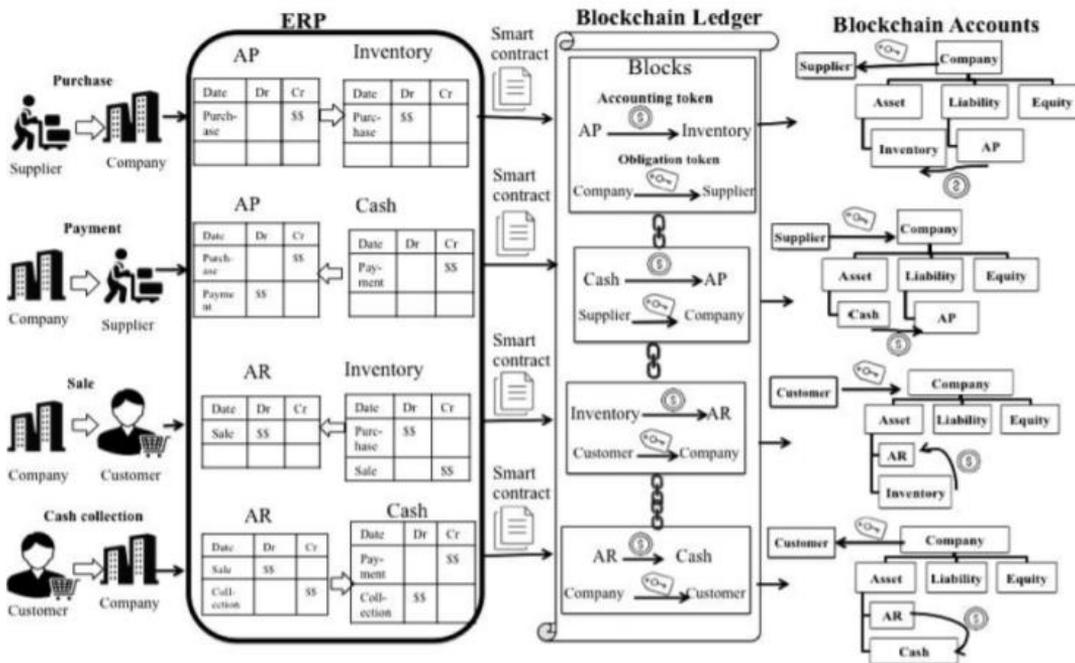


Figure 3. Triple-entry accounting system through block technology, [13]

Furthermore, with the permissioned blockchain, different parties / roles can be given different data views, restricting access to data to some. Triple-entry account systems through blockchain it can be programmed to follow accounting standards and regulations automatically using smart contracts, and could even automate tax filings through continuous updates.

5. FINDINGS AND CONCLUSION

The aim of this research paper is to suggest a new tax system, based on actual technologies, useful to avoid tax evasion and frauds. By focusing and limiting attention to tax evasion generated by economic activities, and therefore on corporate income, it is possible to formulate the following considerations:

The added value generated by an economic activity must be distributed proportionally among the subjects that contributed to producing it. The stakeholders can include members, employees, suppliers and creditors. The state can be considered like any private provider if we take into account that the tax claim is based on the supply (implicitly requested and in any case the company benefits) of the infrastructural capital that requires remuneration: roads, communications, social justice, legal order, contractual protection, security, health, regulation, public lighting;

The determination of the tax base, in most cases, in quite all international tax systems, takes place in a rather complex manner, as the difference between revenues and deductible costs (net tax income).

The key technical elements that are considered are most likely to affect the spread of the crime of tax evasion are: complexity in determining net income, in particular for the criteria of deductibility and the application of tax credits; self-tax-declaration mechanism that can be randomly verified only afterwards, in which tax payers are exposed to the temptation to declare a lower taxable income in order to obtain immediate benefit, with the possibility of remaining unpunished in the case in which the controls are not directed to their activity; and, high tax burden, which accentuates the will to obtain benefits in the case of impunity.

A possible solution of immediate and easy application could be to streamline the tax assessment system by: setting a predetermined and very low rate (at most 10%) linked to gross revenues rather than net income, (therefore regardless of the costs incurred), at most differentiating the rates compared to different industries (in order to facilitate some industries and to manage the country's production policy); obligation to issue electronic invoices only; obligation to make payments exclusively with traceable instruments (credit transfers, electronic payments, elimination of cash money); withholding tax (at the fixed rate indicated above) by the banks on behalf of the Government.

The application of this system would allow to obtain various benefits that would be added to the almost complete elimination of the phenomenon of tax evasion:

- simplification of tax obligations, reducing the costs of consulting for companies;
- possibility of carrying out a concrete and immediate tax planning;
- the elimination of the discretionary nature of the determination and attribution of costs violating the principle of economic competence to bend it to fiscal requirements;
- greater positive collaboration by companies which would consider rates below 10% fair and acceptable. The sustainability of the provision would be unquestionable because the actual tax revenue could even increase thanks to the recovery of the tax now still evaded;

- the possibility to pay corporate taxes on a monthly basis, but linking the tax withholding of the invoices issued. The Government would also obtain constant cash flow and would also be able to obtain enormous benefits from the point of view of monitoring production and GDP;
- the companies, in calculating the mark up could easily take into account the cost related to taxes. They could also avoid incurring unnecessary costs for the sole purpose of reducing the tax burden, but focusing exclusively on business efficiency;
- the reduction of uncollectible tax credits by the State, which could in real time verify the non-payment and inhibit the activity of defaulting companies. Basically, the mechanism of self-declaration (income tax return) tested on a sample (source of temptation to escape) would be eliminated. The automated systems, based on electronic invoices issued in a centralized system, as well as thanks to the withholding tax applied in the payments, would verify instantly in the following month the payment of the taxes due. By placing lenders solidly responsible for the payment of taxes.

In conclusion, the phenomenon of tax evasion, which currently constitutes a widespread practice, socially considered sometimes even acceptable when the tax burden is exaggerated and the services offered by the Government are perceived as not adequate, with the use of technology and a reduction of opportunities of temptation could be greatly reduced, if not nearly eliminated.

In the reiteration and diffusion of the crime, rather than a predisposition of the unfaithful taxpayer, an inadequacy of the system is recovered, which allows a plausible improbability due to the low incisiveness of the controls (for quantity and quality) and subsequently, in the case of assessment, a high level of indulgence. In the accounting industry, Blockchain comes to help the companies to write their transactions directly into a join bookkeeping, creating an interlocking system of enduring accounting records. Double entry accounting has been used for a very long time now. Triple entry accounting adds a level of clarity and honesty to bookkeeping that double-entry accounting cannot offer [17].

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