MEASURING TAX EVASION. CONCEPTUAL APPROACHES

PhD Student **Cristina TIMOFTE (COCA)**
Ştefan cel Mare University of Suceava, Romania
cristinat.coca@gmail.com

Lecturer PhD **Marian SOCOLIUC**
Ştefan cel Mare University of Suceava, Romania
marians@seap.usv.ro

Professor PhD **Veronica GROSU**
Ştefan cel Mare University of Suceava, Romania
doruveronica@yahoo.it

Abstract:

Tax evasion is a transnational phenomenon, harmful for all economies, its counteracting being an important purpose for policymakers all around the world. However, in order to be able to control tax evasion, first we should be able to understand it better and also to know its extent.

Due to the nature of this phenomenon, that cannot be directly observed – fact that makes it difficult to be measured – determining its dimension by different theoretical, experimental and statistical and mathematical methods was the central theme in many scientific works.

In this context, this paper's main focus is exploring the relevant literature in order to identify and review different scientific approaches regarding the measurement of tax evasion.

It has been found that these approaches can be included in one of the following categories: direct methods, indirect methods and modeling approaches.

The main finding of the research is that no matter the method or procedure used for measuring this phenomenon the result is an estimated value that usually captures the dimension of tax evasion only partially.

Key words: Tax Evasion; Underground Economy; Measurement; Direct/Indirect Method; Estimated Value.

JEL classification: H26, E26

1. INTRODUCTION

Tax evasion can be defined, according to **Timofte and Socoliuc (2019)** as deliberately breaking the law, in order to obtain monetary benefits that lead to the deprivation of the general state budget, by tax noncompliance (avoiding or evading tax obligations) through certain actions or inactions. As main determinants of this phenomenon the authors mention the following: elevated fiscal pressure, corruption, informal education, bureaucracy and the complexity of the tax system, the level of economic development, detection risk perceived as being low and the relationship between the state and the taxpayers.

Measuring tax evasion is an extremely difficult endeavor, taking into account the fact that, by their nature the white collar crimes in general, involve manipulations and a biased behavior of the economic subject in what concerns the data and information from the tax returns and accounting records and/or an avoidance of controls performed by state authorities, and also the physical or judicial hiding of taxable assets, the stake in case of detection being a significant one, both from a monetary perspective and in what concerns the sanctions imposed by law.

Due to this fact, the direct methods used for measuring tax evasion, such as surveys and inquiries on a sample population or quantifying it based on the cases detected by competent authorities are deficient and they actually capture only a part of the whole. In what concerns other methods used for measuring this phenomenon, these are also deficient, as they usually involve estimations and choices that significantly influence the result. Moreover, many times in order to quantify tax evasion proxy measures are used for it, such as the value added tax gap or the estimated value of the underground economy.

The difficulty in discovering undetected tax evasion crimes, according to some authors **(Slemrod and Weber, 2012)** – by state authorities while performing their control duties, lies in the fact that the monetary transactions using cash are not only hidden, but unrecoverable. Moreover, state authorities only have limited resources that lead to reduced detection of tax evasion crimes.

In this article we aim to address and provide a theoretical understanding of the problem of measuring tax evasion, problem that is of interest for researchers and state authorities, as well as for the business environment, taking into account the major implications it has in practice.

In this regard, knowing the extent of tax evasion can help raise awareness among both policymakers and state authorities specialized in preventing, discovering and fighting against tax evasion crimes.

This fact can in turn lead to measures for reducing tax evasion, thus building a healthier business environment.

In this context, by ensuring the improvement of the collection levels of tax revenues to the state budget, the necessary premises for the adoption and implementation of measures for stimulating the private sector of the economy are created, as well as those for ensuring qualitative public services.

In the following sections we will firstly review the methods used by the Romanian public institutions in order to officially measure tax evasion and secondly we will critically review some measurement methods and methodologies used for determining the extent of tax evasion, according to some research studies identified on the subject matter.

2. MEASUREMENT OF TAX EVASION BY ROMANIAN INSTITUTIONS

Tax evasion is massive in the economies and societies with weak institutions, where respect for the law is distorted **(Grosu, 2018)**, such as in the case of Romania.

In what concerns the measurement of tax evasion in Romania, a popular method used is based on consumption, although the surveys regarding consumption are costly and have a certain error margin. According to the Romanian National Institute of Statistic **(INS Methodology, 2009)** "in the Romanian national accounts estimates are made regarding tax evasion in the field of value added tax. Tax evasion is obtained as a difference between the theoretical value added tax and the value added tax actually collected to the general state budget. The theoretical value added tax is estimated by use of intermediate consumption elements, final consumption of households, private consumption of public and private administration and gross fixed capital formation (investment), based on the value added tax rates on products as established by law."

According to the Romanian Fiscal Council's report for 2013 **(Romanian Fiscal Council's Report, 2013)**, "tax evasion in the field of value added tax represents the difference between the theoretical level of the value added tax implied by the dimension of the economic activity, including the unobserved economy and the value added tax revenues collected to the state budget. This measure for value added tax evasion is not necessary the exclusive result of tax evasion, as it can be explained by other factors, such as: legitimate practices for eluding the value added tax; insolvent companies that determine the reduction of the VAT revenues collected by state authorities and the accuracy of the national accounts' data on the basis of which the theoretical level of the value added tax is estimated."

Thus, it can be noted that in the case of the Romanian public institutions, a proxy measure for quantifying tax evasion is used, that is the value added tax gap.

3. METHODS USED FOR DETERMINING THE EXTENT OF TAX EVASION

Alm (2012) debates that the approaches to measuring tax evasion can be classified as follows: traditional approaches ("direct" measurement of evasion via actual audits of individual returns and survey evidence, in which individuals are asked about their evasion behavior; "indirect" methods that look for traces of evasion behavior that are left in various indicators, such as gap

measurements, evasion traces in transactions financed by currency, the input method; the model approach) and modern approaches (such as controlled field experiments, luminosity as measured from outer space to measure "true" economic activity, which can be compared to official income accounts to measure evasion and others).

He also presents as case studies on measuring tax evasion: measuring evasion via the shadow economy, measuring income tax evasion via nonfiling, measuring on-line seller evasion via Internet transactions. The conclusion he draws is that in order to measure tax evasion, there should be a full house of strategies involving theory, empirics, and experiments.

The dimension of tax evasion can also be estimated starting from the size of the underground economy.

In this regard, in some opinions (**Schneider and Buehn, 2016**), the size of the underground economy can be measured by using one of the following methods: direct approaches (surveys and tax auditing), indirect approaches (the discrepancy between national expenditure and income statistics, the discrepancy between the official and actual labor force, the transactions approach, the currency demand approach, the physical input method or electricity consumption method) and the model approach.

As per **Eurostat**, estimating the informal sector of the economy can be done by using the following methods: direct methods, indirect methods and modeling approaches.

In what concerns the direct methods they are usually applied at a micro economical level and are based for data gathering on statistical surveys (such as those related to the workforce) or on the results of fiscal controls. However these involve significant costs, thus requiring large human and financial resources.

An example of a direct method used in order to estimate tax evasion can be found in the work of **Fiorio and D'Amuri (2006)** who assumed that tax evaders might consider declaring a closer-to-true income in an anonymous interview.

Another attempt at measuring tax evasion is made by **Barrios et. al. (2017)**, who linked the survey method with administrative data, and also used cross-section studies on the hidden economy, as well as Statistics on Income and Living Conditions micro data in order to accurately assess tax evasion behavior.

The indirect methods usually are applied at macro economical level and they combine a series of assumptions and variables regarding the estimated value of the entire economy, formal and informal. Some examples of such methods would be the methods referring to discrepancies – between the aggregates regarding revenues and expenses, or those between the workforce and statistics on the working population etc.

In what concerns the indirect approach for measuring tax evasion, **Allingham and Sandmo (1972)** were identified as being the first ones that applied the micro economical theory to the tax compliance subject area. Through their modeling, that represented an adapted version of portfolio decision between two assets, a risky one and a risk-free one, they identified a positive correlation between tax rates and tax evasion, although this is dependent upon some assumptions regarding risk aversion and the punishment for tax evasion crimes.

However, according to some opinions (**Feld and Schneider, 2010**), the traditional cost-benefit economic approach, applied at the level of the individual has to be updated, by taking into account other factors as well, such as the repercussions and internal motives that drive the taxpayer to not pay taxes (tax morale) as well as the interaction between these.

Another method for measuring tax evasion, according to some authors (**Artavanis, Morse and Tsoutsoura, 2015**) is by analyzing data and information used when granting a bank loan, taking into account the fact that the private sector adapted to the existence of a semi-formal economy, banks lending money to people involved in tax evasion crimes on the basis of an evaluation performed by the bank on the size of that person's real income.

In our opinion, this estimation method has some deficiencies, by considering the fact that in reality it has been noticed that the information suffers certain modifications due to pressure applied by the expectations of the users of such information. Thus, the information communicated to banks

could be manipulated (false) in the sense that it reflects higher income levels of the borrower in order for him to obtain larger amounts of bank loans.

Yet another attempt at measuring tax evasion was made by **Leventi, Matsaganis and Flevotomou (2013)** on the basis of a micro simulation cost-benefit model, EUROMOD, available online. Thus, by comparing a database containing income tax returns made available by the Greek fiscal authorities to the statistical data from the European Union Survey of Income and Living Conditions for the same time period, the authors of the study conclude that the discrepancies between the two sets of data are more consistent in what concerns agricultural incomes and independent activities' incomes.

Based on these conclusions there are computed a series of measurement factors for underreporting depending on the income source, factors that are subsequently entered into a micro simulation cost-benefit model, EUROMOD, that produces attempts at measuring the dimension and distribution of tax evasion in what concerns the income tax in Greece.

Other indirect methods would be the monetary method – which is based on the assumption that transactions from the informal sector are carried out in cash, thus an estimation regarding the cash circulating in the economy is made, that is afterwards adjusted with some values, in order to evaluate the monetary flows engaged in informal activities and methods regarding physical measurements that estimate the size of the informal sector of the economy using discrepancy methods between electricity consumption and the GDP **(Heath and Jones, 2013)**.

Alm and Embaye (2011) have applied the method regarding the monetary demand in order to estimate the underground economy in 108 countries. The result of the research revealed the obvious tendency for larger informal economies to be in lower income countries.

As for the modeling approaches, they usually involve using structural equations for connecting the unobserved variable to measurable indicators and to causes. The most used one is MIMIC multiple indicators – multiple causes that determines the size of the informal sector starting from a series of causes, on one hand, and of measurable consequences on the other hand. Examples of this method can be found in the works of **Buehn and Schneider (2012)** and **Schneider, Raczkowski and Mróz (2015)**.

More recent studies use agent based modeling for investigating and quantifying tax evasion **(Hokamp and Pickhardt, 2010; Korobow et. al., 2007; Noguera et. al., 2013)**. In the models developed by some authors **(Hashimzade et. al., 2015)** an emphasis is made on the influence the sector of economic activity has on tax compliance and investigations are made regarding the efficiency of alternative control strategies on tax compliance increase.

4. CONCLUSIONS

The measurement of tax evasion has been the central focus of many scientific works, mainly due to the fact that it represents a problem without a clear and singular solution.

In our opinion, the measurement of tax evasion, by using one of the methods presented in the previous section can be criticized, due to the fact that such measurements rely greatly on estimates, presumptions and proxy values.

According to **Alm (2012)** all of these direct, indirect, and model methods are subject to criticism. For example, in what concerns survey data the respondents may not be representative of all taxpayers, the various "gap" estimates attribute any discrepancy to the shadow economy and/or to tax evasion, the currency demand or transactions approaches require a base year in which there is a zero shadow economy etc.

Moreover, **Schneider and Buehn (2016)** mention that the methods and tools used for measuring the extent of tax evasion are unsatisfactory, due to their methodological problems and weaknesses.

We agree with these opinions. All the methods presented and approaches from theory to empirical studies and field experiments have to a certain extent some downfalls, as they operate one way or the other with estimates.

Moreover, some of these methods are applied on sample populations, the size of these having a major impact on the result. Also, when applying direct methods of measurement the disadvantage is the results depend on the respondents' cooperation, most of them hesitating to confess to engaging in fraudulent activities.

The indirect measurement methods or indicator approaches also present a series of disadvantages as they use assumptions of questionable reliability and in some cases estimative values from the national accounts, or some weak indicators or a base year. In what concerns the physical input method there should be taken into consideration the fact that not all tax evading activities require a considerable use of electricity.

In addition to that, the result of measuring tax evasion is very sensitive when using modeling approaches, as it depends on the choices made regarding the causes and indicators (variables) used for the structure of the model.

Knowing the fact that the methods used for measuring tax evasion actually offer just a partial picture of the phenomenon can offer the possibility for researchers to further study this issue and can help raise awareness among policymakers and state authorities in what concerns the need for counteracting measures.

In this context, we believe it compulsory in order to be able to measure this phenomenon to firstly understand it better and to correctly and thoroughly identify its determinants and assess its consequences and secondly for theory and practice to come together and develop a method/tool that could quantify tax evasion with more precision.

How else could we fight against something that has undetermined proportions?

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