*Corresponding Author's Email: blerta.doka@unitir.edu.al
Proceedings of the International Conference on Modern Research in Management, Economics and Accounting, Vol. 1, Issue. 2, 2024, pp. 32-47
DOI: https://doi.org/10.33422/meaconf.v1i2.891

ISSN: 3030-0479 online

Diamond Scientific Publishing

Methods of Measuring Tax Evasion Factors

Blerta Kodra (Doka)* **and Sotiraq Dhamo**
University of Tirana, Faculty of Economy, Department of Accounting, Tirana, Albania

Abstract

There are many academic studies about tax evasion and its determinants but according to the most accurate information, few studies have collected all the methodologies applied while measuring tax evasion factors. The purpose of this article is to identify the methods used in previous studies for measuring tax evasion factors and to analyse the methodological issues related to the measurement of tax evasion factors such as data collection and data analysis technique. To complete this purpose, in this paper a narrative review of the methodologies of the existing articles in the past 10+ years is used, summarizing 27 papers published from the year 2010, in which has been established the Convention on Mutual Administrative Assistance in Tax Matters from The Organization for Economic Co-operation and Development with the purpose of reducing tax evasion with the help of collaborative network. Our findings show that it is difficult for researchers to measure tax evasion factors, and there is still limited evidence and unexplored approaches to measure tax evasion factors. Additionally, mixed results have been reported and the methods are divided into micro and macro level methods.

Keywords: empirical approach, data analysis, data collection, methodology review, technical analysis

1. Introduction

Tax evasion is a widespread phenomenon that has been discussed by many academics since 1972 by Allingham and Sandmo. Before 2010, when The Organization for Economic Co-operation and Development established the Convention on Mutual Administrative Assistance in Tax Matters, some authors mentioned in the tax evasion literature were Yitzhaki (1974), Falkinger (1988), Klepper et al. (1991), Das-Gupta (1994), Pestieau et al. (1994), Caballe and Panades (1997), Sandmo (2005), Christie and Holzner (2006), Feld and Frey (2006), Richardson (2006), Gahramanov (2009) and Cequeti and Coppier (2009), followed by Russo (2010), Turner (2010), Alm (2012), Pickhardt and Prinz (2013) and many others. Historically, tax evasion has been seen as a technical problem from the perspective of economists and as a social problem from the perspective of social scientists, including psychologists, (Kirchler, 2009). Due to its impact on government revenue, many studies have

used a multidisciplinary approach to identify and measure tax evasion and its factors, such as artificial intelligence and different statistical methods. From a careful look, it seems that there is no specific measurement method. According to Tsakumis et al. (2007), tax evasion is unknown and impossible to determine, thus, studies on tax evasion use surrogate measures for actual evasion. From the review, many studies use hypothetical or perceptions of evasion, and others use government estimates of evasion. No single measure has been shown to be better than any other measure. According to Gemmell and Hasseldine (2012), there are two categories of tax evasion literature: micro direct and macro indirect approaches. Micro direct approaches are based on taxpayer data, surveys and tax audits to measure the extent of tax noncompliance and macro indirect approaches estimate the size of the hidden economy on the basis of macroeconomic assumptions and models. According to Guiaș and Hăinealã (2021), the size and causes of this phenomenon differ from one geographical region to another. Previously, in 2019, Collosa concluded that the causes are different in different countries and in the same country through time and moments in history. Recently, Kassaw (2023) concluded that countries are unable to control it, which is why he sees tax evasion like a pandemic for them. To the best of our knowledge few studies in which all these methodologies are applied while measuring tax evasion factors exist. The purpose of this study is to identify the methods used in previous study for measuring tax evasion factors and to analyse some methodological issues related to the measurement of tax evasion factors such as data collection and data analysis techniques. By summarizing 27 papers published from the year 2010, in which has been established the Convention on Mutual Administrative Assistance in Tax Matters from The Organization for Economic Co-operation and Development with the purpose of reducing tax evasion with the help of collaborative network, the paper aims to complete the objectives as shown below:

1) *Identifying the overall methodologies used for measuring tax evasion factors;*
2) *Highlighting the most used method for measuring tax evasion factors;*
3) *Identifying the influencing elements in choosing the method for measuring tax evasion factors.*
4) *Identifying the relation between the number of tax evasion factors and the method used for measuring them.*

This paper analysed the methods used for data collection and data analysis techniques in the literature review section. Then, the methodology used to complete this article is described, and finally the findings are outlined with discussions and conclusions. Previous literature has focused on identifying the factors of tax evasion while applying a certain method for measuring them. Meanwhile, there is no study who summarize these methods and provide a guidance in selecting the most appropriate method for future studies. In order to fulfil this research gap, the contribution of this study is to clarify the appropriate method to for identifying and measuring the factors of tax evasion. This contribution is particularly important for Albania, since there are limited studies for the measurement of tax evasion and its determining factors. Choosing the right method for measuring tax evasion factors is important because the conclusions of the study can be used by the authorities while designing a relevant anti-tax evasion strategy in each country. This study is the first attempt to give a guide towards a successful choice of the best method for measuring tax evasion factors.

2. Literature Review

2.1 Identifying the Overall Methodologies Used for Measuring Tax Evasion Factors

There are many models that attempt to interpret tax evasion factors and motivations, one attempt has been made to examine the multiple factors or interactions that are related to the origin of tax evasion. Alfredo Collosa (2019) identified four models:

- **Economic models:** This model provides that expected revenues and expected costs are the factors of tax evasion, and the aim is to maximize the earnings of the evader.
- **Empirical evidence models**: This model indicates that the level of sanctions, the perception of detection, age, etc., are factors of tax evasion. According to Collosa (2019), this model is based on the model of Spicer and Lundstedt (1980).
- **Simulations and experimental methods**: This method provides that certain conditions of individual environment are the factors of tax evasion of individuals, according to this model individuals are subjected to hypothetical decisions of evasion.
- **Psycho-economic models of tax fraud:** This model provides that the taxpayer's psychological factors and his social environment are very important to consider when examining fraud, according to this model, the decision to evade depends on the inclination to defraud, ability to defraud and opportunity to defraud.

These models are a general representation of the measurement of tax evasion factors used in literature, while in this research, another way will be given on how to select the appropriate method for identifying and measuring tax evasion factors. In order to fulfil the first objective, are analysed the methodological issues related to the measurement of tax evasion factors such as data collection and data analysis technique.

2.1.2 Methods Used for Data Collection

Historically, the first data collection method was local telephone directories, however, this method excludes low-income earners because they are less likely to have a telephone which results in a smaller selected sample (Kasipillai & Baldry, 1998). A few years later, Evans et al. (2005) concluded that to obtain a larger sample, the most effective method is the use of a mail survey. According to him, this method will reach a large number of respondents in a large geographical area and will help respondents to complete the questionnaires by themselves without the influence of the researcher. In his study he created the design of the questionnaire that was subsequently developed by other authors, which consists of short and simple questions. The paper used the A4 questionnaire booklet in questions to minimise the time spent stapling and collating the booklet, and the total number of questions was 48 for SMEs and 37 for tax practitioners. In the table below, several methods used by several authors for data collection, the reason for choosing this method, total survey distribution and response rates are presented.

Table 1: Previous data collection methods of tax evasion factors

Nr	Year	Authors	Methods for data collection	The reason for choosing the method by the authors	Total Survey distribu ted	Total usable Survey returned	Response rates
1	2024	Anjarwi et al.	Survey method	based on the associative nature of this study	236	236	100%
2	2024	Gjoni et al.	Survey and Interview	no specific reason	300	150	50%
3	2024	Chayati et al.	Survey method	no specific reason	245	245	100%
4	2023		Survey method	The quantitative research method is	371	NA	NA

		Kassaw		typically used			
5	2023	Allam et al.	Data from three different sources	Availability of data	NA (26 countries of EU)	NA	NA
6	2022	Hoxhaj and Kamolli	Survey method	no specific reason	NA	244	NA
7	2021	Todorović et al.	Survey method	The survey has a great advantage over others	NA	107	NA
8	2021	Kassa	Survey method	no specific reason	370	370	100%
9	2021	Abdella et al.	Explanatory type of research	no specific reason	255	233	91%
10	2021	Erul et al.	Panel data analysis	no specific reason	NA (24 countries of EU)	288	NA
11	2020	Kemme et al.	Observations	no specific reason	7451	NA	NA
12	2018	Todorović et al.	Empirical analysis	Availability of data	NA	NA	NA
13	2017	Andoni et al.	Survey method	no specific reason	200	200	100%
14	2017	Abdixhiku et al.	BEEPS database	no specific reason	12692	NA	NA
15	2016	Dulleck et al.	Laboratory experiments	Captures the psychobiological or neural equivalents of psychic stress	volunteers' students		NA
16	2016	Alasfour et al.	Survey method	Typically used by other authors	475	329	69%
17	2016	Ameyaw and Dzaka	Survey method	no specific reason	500	432	86%
18	2014	Engida	Survey method	To have a better understanding of the situation and gather pertinent data	NA	102	NA
19	2014	Awan and Hannan	Survey method	no specific reason	200	150	75%
20	2013	Yalama and Gumus	Survey method	no specific reason	500	420	84%
21	2013	Tabandeh et al.	Government Data	Concentrates on the main causes of tax evasion	NA	NA	NA
22	2012	Noor et al.	Financial ratio analysis	no specific reason	222	73	33%
23	2011	Benk et al.	Survey method	Proposed by Efebera et al. (2004)	820	369	47.80 %.
24	2011	Ahangar et al.	Survey method	no specific reason	144	144	100%
25	2011	Hai and See	Survey method	Proposed by Fishbein and Ajzen (1975)	515	196	38%
26	2010	Fagbemi et al.	Survey method	Because of its ability to view comprehensively and in detail the major questions raised in the study.	127	127	100%
27	2010	Nor et al.	Data on audited companies	no specific reason	470	396	78.5%

Source: Authors (2025)

From the literature review, it was found that the methods used for primary data collection are survey methods, explanatory types of research, panel data analysis, observations and laboratory experiments. Additionally, the methods used for secondary data collection are the available data from authorities or from audited companies. It is shown that the most used method for data collection is the survey method, but the information collected from the literature review shows that there are different number of surveys distributed and the number of useable surveys returned. This means that even the survey response rates various between 33% and 100%. At this point of the research, it is important to explore the reasons for choosing the data collection method by the authors. These reasons are placed in the table for each study. While the survey method is the most commonly used, it looks like is a traditional method because many authors have used it as a typically method. There are authors who suggest that questionnaires have many advantages using, including honest responses and a valid indirect measure of behaviour (Spicer & Lundstedt, 1976), low cost and fast administration, the absence of interviewer influence, anonymity, access to wide geographic reasons, the potential for the inclusion of token gifts if necessary, and easy dissemination and response electronically (Bryman & Bell, 2003; Sekaran, 2000). A strong advantage was added by Elffers et al. (1992), who concluded that questionnaires distributed to taxpayers to self-report their tax compliance are the most popular method. Other authors declare that there are some disadvantages when questionnaires are used, which consist in the tendency to include more closed questions in addition to open questions because respondents are more willing to answer closed questions (Bryman & Bell, 2007), and another disadvantage is the low response rate (Sekaran, 2000; Das Gupta, 2008).

2.1.3 Methods Used for Data Analysis Technique

The other methodological issues related to the measurement of tax evasion factors is the method used for data analysis technique. In academic literature, there are many econometric methods to be used in order to estimate the relationship between variables. Among them, there are regression models such as the ordinary least squares (OLS), the two-stage least squares (2SLS), the three stage least squares (3SLS), the vector autoregression (VAR), the autoregressive moving-average (ARMA), the autoregressive integrated moving average (ARIMA), the generalized autoregressive conditional heteroskedasticity (GARCH), the autoregressive conditional heteroskedasticity (ARCH). These methods have been used even before by Tanzi (1980, 1983), following by Embaye (2007), Cebula and Saadatmand (2005), Richardson (2006) and many other researchers, to estimate the relationships among tax evasion, the underground economy and economic variables. In the following table, some of the methods used for analysing data from previous studies, the reason written by each author for choosing that method and the number of factors of tax evasion that had been analysed by these methods are identified.

Table 2: Previous data analysing methods of tax evasion factors

Nr	Year	Authors	Methods for data analysing	The reason for choosing the method by the authors	No. of the factors of tax evasion analysed
1	2024	Anjarwi et al.	Moderated Regression Analysis	Aims to determine whether moderating variables will strengthen or weaken the relationship between independent and dependent variables.	4 factors
2	2024	Gjoni et al.	Regression analysis	no specific reason	12 factors
3	2024	Chayati et al.	Ordinary Least Square	no specific reason	7 factors

4	2023	Kassaw	Binary logistic regression	Is therefore a good model for understanding how explanatory variables affect the probability of tax evasion for individual taxpayers	8 factors
5	2023	Allam et al.	MIMIC model	Is considered a confirmatory technique as the model is constructed in advance based on economic theories and literature	11 factors
6	2022	Hoxhaj and Kamolli	Linear Regressions analysis	no specific reason	5 factors
7	2021	Todorović et al.	Chi-square test on SPSS	Is one of the most commonly used non-parametric tests in empirical research, used when the population distribution is unknown.	2 grouped factors
8	2021	Kassa	Pearson correlation and multiple regression analysis	no specific reason	5 factors
9	2021	Abdella et al.	Multiple regression analysis	no specific reason	6 factors
10	2021	Erul et al.	Data for the European Union	no specific reason	13 factors
11	2020	Kemme et al.	Basic regression model	no specific reason	1 grouped factor
12	2018	Todorović et al.	Linear multiple regression analysis	no specific reason	4 factors
13	2017	Andoni et al.	Dummy and multinomial econometric models	no specific reason	12 factors
14	2017	Abdixhiku et al.	Basic regression model	no specific reason	6 factors
15	2016	Dulleck et al.	Heart rate variability	It is nonintrusive and requires only compact equipment, which allows to design a complex environment	1 grouped factor
16	2016	Alasfour et al.	Multivariate tests procedure	Is consistent with other related studies like McGee and Maranjyan (2006), Nasadyuk and McGee (2006) and Fagbemi et al. (2010).	6 factors
17	2016	Ameyaw and Dzaka	Multiple regression analysis	no specific reason	4 grouped factors
18	2014	Engida	Ordered logistic regression analysis	no specific reason	9 factors
19	2014	Awan and Hannan	Arithmetic mean, percentages, standard deviation, t-tests, ANOVA etc	no specific reason	11 factors
20	2013	Yalama and Gumus	Factor analysis and multiple regression	no specific reason	4 grouped factors
21	2013	Tabandeh et al.	Artificial Neural Network methodology	Determine the factors affecting tax evasion and their relative importance.	5 factors
22	2012	Noor et al.	Univariate and multivariate statistical techniques, the ordinary least square model	no specific reason	6 factors
23	2011	Benk et al.	multiple regression analysis	Model by Efebera et al. (2004)	3 grouped factors
24	2011	Ahangar et al.	AHP method	no specific reason	effective factors on

					tax evasion
25	2011	Hai and See	multiple regression analysis	no specific reason	6 factors
26	2010	Fagbemi et al.	descriptive and inferential statistics.	Is consistent with other related studies like McGee and Maranjyan (2006), Nasadyuk and McGee (2006).	4 factors
27	2010	Nor et al.	Tobit regression analysis	The OLS regression technique is not suitable in testing these hypotheses due to the possibility of obtaining a biased result	3 factors

Source: Authors (2025)

According to Table 2, many authors such as Gjoni et al. (2024), Allam et al. (2021), Erul et al (2021), Andoni et al. (2017) and Awan et al. (2014), have not described a specific reason for choosing the method for data analyses even thought they had analysed 11 to 13 factors. Authors such as Anjarw et al. (2024), Kassaw et al. (2023), Alasfour et al. (2016), Fagbemi et al. (2010) and Nor et al. (2010), have described their reason even for analysing 3 factors and more. Table 2 presents a chronological view of the methods used over the years 2010-2024, where obviously the traditional method is the OLS regression technique while the recent regression method is Moderated Regression Analysis method, while the most commonly used method for data analyses is multiple regressions**.** Despite the different regression models, it is noticeable that the "artificial neural network" method as an artificial intelligence method was used before 10+ years.

2.2 The Method for Measuring Tax Evasion Factors According to Earliest Studies

According to Hair et al. (2006), the best method for predicting multivariate associations is stepwise multiple regression. He claimed that any independent variables that are not statistically significant with the dependent variables would be eliminated via this method automatically. Additionally, he noted that the first reason this method is appropriate at this stage is that the data are metric and transformed appropriately, and the second reason is that the variables are clearly classified as dependent and independent prior to testing. Also, the artificial neural network method has been used by many studies for forecasting financial market or macroeconomic variables but it seems that this method is not often used for estimating tax evasion factors. Research has revealed three types of artificial neural networks: multilayer perceptron, radial basis functions, and projection pursuit regression. Moreover, this method was previously applied 10+ years ago by Tabandeh et al. (2013) to estimate the tax evasion factors and determine their importance. In his study, he used secondary data collected from government reports for the period of 17 years (1963–1980) and World Development Indicators for the period of 31 years after (1980–2011). The factors of tax evasion selected as the main factors were the tax burden, size of the government, income of the taxpayer, inflation rate and trade openness. According to their study, a certain percentage of data for training and for testing should be allocated while using the Artificial Neural Network method. Specifically, 70% of the data was allocated for training and 30% of them was allocated for testing, utilizing a MLP with 5 factors for the input layer. Many previous studies have compared the use of artificial neural method and econometrics method for analysing data in empirical science. A comparison has been performed since the year 1994 by Hill et al. (1994), who suggested that, in some cases, the most precise method was the artificial neural network method rather than other econometrics method. Another comparison was made by Kohzadi et al. (1995), who concluded that by using the neural network method, the error of the forecast is 18–40% lower than that of the ARIMA model. Another study was performed by Fu (1998), who also concluded that the most precise method is the neural network method rather than the

regression model. He mentioned that by using the neural network method, the error for out-of-sample is 10–20 % lower than that of the regression model.

3. Methodology

This article adopts a narrative review of the methodologies used in previous studies published in the past 10+ years. The narrative approach was chosen due to the heterogeneous nature of the tax evasion literature, which use different methodologies for measuring tax evasion factors (Radoš et al., 2024). A traditional systematic review usually requires a homogeneous structure and would limit the possibility to comprehensively describe the wide range of existing approaches (Grant & Booth, 2009; Ferrari, 2015).

3.1 Research Design

The research was performed between June 2024-November 2024 and the data was systematically collected, although not fully systematized as in systematic reviews, utilizing various databases (e.g., Web of Science, Scopus, and Google Scholar) and other sources including Research Gate. The keyword terms used while searching was “tax evasion factors”, “tax evasion determinants” and “tax evasion compliance” and language include in english. The number of articles retrieved is 27 articles published in the period 2010–2024 that are related to corporate tax evasion factors. Table 1 shows in details the authors of these articles, while table 3 below shows the journal database and the number of the articles published in these journal databases in the period 2010-2024.

Table 3: Summarise of journal database of the articles published in 2010-2024

	Years													
Journal database	**2010**	**2011**	**2012**	**2013**	**2014**	**2016**	**2017**	**2018**	**2020**	**2021**	**2022**	**2023**	**2024**	**Total**
Web of Science, Scopus	1	1			1	1	1		1			1	1	**8**
UiTM Institutional Repository			1											**1**
Scientific Research Publishing						1								**1**
Science publishing group										1				**1**
ResearchGate		1		1				1		1			1	**5**
Progressive Academic Publishing							1							**1**
Google Scholar		1								2	1	1	1	**6**
European Centre for Research Training and Development UK					1									**1**
Emerald						1								**1**
CSCanada				1										**1**
Academia	1													**1**

Total	**2**	**3**	**1**	**2**	**2**	**3**	**2**	**1**	**1**	**4**	**1**	**2**	**3**	**27**

Source: Authors (2025)

The most journal database used is Web of Science and Scopus with 8 articles published in both of them, while the year in which more articles were published is 2021.

3.2 Inclusion and Exclusion Criteria

The studies included in this research met the criteria as below:

- Articles published from 2010 to 2024.
- Scientific reviews and empirical articles that focus on methods for measuring tax evasion factors.
- Articles that use of econometric or statistical methods.

The studies excluded in this research met the criteria as below:

- Publication before 2010 that do not address modern approaches.
- Literature that only addresses the legal aspects of evasion.
- Non-peer-reviewed studies and studies without empirical basis.
- Literature in non-academic sources.

4. Results and Discussion

Previous literature review had tried to identify and measure tax evasion and its determinants factors. The aim of this study is to identify the methods used in previous studies for measuring tax evasion factors and to analyse the methodological issues related to the measurement of tax evasion factors such as data collection and data analysis technique. This purpose will be complete by identifying the overall methodologies used for measuring tax evasion factors. To achieve this objective, which is the first one, an attempt has been made in the literature review by creating tables for data collection and analysis methodology and it will be completed with summarizing the studies presented in Table 1 and Table 2. According to Table 1 “Methods used for data collection”, the study conducted by Ameyaw and Dzaka (2016) had the highest response rate (86%) from usable returned surveys completed from employees working in different public or private institutions, and those who were self-employed business owners. Many authors agree with Spicer and Lundstedt (1976), who listed the advantages of using the questionnaire such as faster administration, high anonymity, access to wide geographic reasons, absence of interviewer effects, the potential for the inclusion of token gifts if necessary and the fact that it is convenient for respondents to respond to questions and easy to disseminate electronically.

4.1 Highlighting the Most Used Method for Measuring Tax Evasion Factors

The second objective of this study is to highlight the most used method for measuring tax evasion factors. In the following table are summarized all the methods used for data collection by the studies listed in Table 1. A significant result is that the most commonly used method for data collection is the survey method. Specifically, 13 studies from 27 in total have used this method, approximately 48% of total articles.

Table 4: The most commonly used methods for data collection

Data collection method	**Count of Studies**
Business Environment and Enterprise Performance Survey (BEEPS) database	1
Laboratory experiments	1
Experimental design involving postgraduate students (individual taxpayers) in local universities.	1

Postal survey involving random sampling via telephone book directories	1
Postal survey involving random sampling. The addresses were obtained from every state government.	1
Postal surveys to SMEs	1
Survey cum meetings with respondents to salaried white collars middle and senior	1
Survey method	13
Total of quantitative data collection methods used	**17**
Empirical analysis based on tax authorities' analyses	1
Explanatory type of research	1
Financial ratio analysis	1
Observations	1
Panel data analysis	1
Structural equation modelling	1
Time series data	1
Total of qualitative data collection methods used	**7**

Source: Authors (2025)

While exploring the reasons described by the authors for choosing the method for data collecting, it seems that studies worked by the authors Kassaw (2023) and Alasfour et al. (2016) have followed the traditional method, while earlier studies done by Benk et al. (2011) and Hai and See (2011) have followed the models of other authors. Other studies worked by Todorović et al. (2021), Engida (2014), Tabandeh et al. (2013) and Fagbemi et al. (2010) have chosen the method based on their opinion for the appropriate method to apply. Additionally, there are other studies where the method used for data collecting had been applied without giving a reason for choosing it by the authors**.** The result from summarizing the studies listed in Table 2, is that the most commonly used method for data analysis over 4 factors of tax evasion is multiple regression analysis. Additionally, even linear regression is used for analysing 5 factors of tax evasion. In the following table are listed all the methods used for data analysing by the above studies.

Table 5: The most commonly used methods for data analysing

Data analysing method	***Count of Studies***	***No of factors of tax evasion analysed***
Arithmetic mean, percentages, standard deviation, t-tests, ANOVA etc.	*1*	*10*
Basic regression model	*3*	*6, 12*
Binary logistic regression	*1*	*8*
Chi-square test on SPSS	*1*	*2*
Data for the European Union	*1*	*11*
Dummy and multinomial econometric models	*1*	*14*
Factor analysis and multiple regression	*1*	*4*
Heart rate variability	*1*	*1*
Linear multiple regression analysis	*1*	*4*
Linear Regressions analysis	*1*	*5*
Moderated Regression analysis	*1*	*4*
MIMIC model	*1*	*11*
Multiple regression analysis	*2*	*4 to 6*
Multivariate tests procedure	*1*	*6*
Ordered logistic regression analysis	*2*	*7, 10*
Pearson correlation and multiple regression analysis	*1*	*5*
short-run model	*1*	*5*

Source: Authors (2025)

While exploring the reasons described by the authors for choosing the method for data analysing, it seems that studies worked by the authors Alasfour et al. (2016), Benk et al.

(2011), Fagbemi et al. (2010) have followed models for data analysing of other authors like McGee and Maranjyan (2006), Nasadyuk and McGee (2006), Fagbemi et al. (2010) and Efebera et al. (2004). Other studies worked by Kassaw (2023), Allam et al. (2023), Todorović et al. (2021) and Nor et al. (2010), have applied a different regression method for analysing the tax evasion factors in accordance with the reason described by the authors of each study. Additionally, there are many other studies where the method used for data analysing had been applied without giving a reason for choosing it by the authors.

4.2 Identifying the Influencing Elements in Choosing the Method for Measuring Tax Evasion Factors

The third objective is to identify the influencing elements in choosing the method for measuring tax evasion factors. The purpose of this objective is to lighten on the selection of the appropriate method from future studies. According to the reviews of the literature and considering the country where is applying the methodology for measuring the tax evasion factors, the first element that is suggested is how available and how reliable are the data collection. Since primary data must be reliable to be taken into consideration when measuring tax evasion factors, it can be said that the choice of using questionnaires should only be made when the target group is reliable and when the number of responses received from the questionnaire is high. Otherwise, the analysis of the questionnaire will not provide the correct answer to which are the factors influencing the occurrence of tax evasion in a country, and consequently the results will not be used to create the appropriate strategies anti evasion. Under these conditions, it is recommended to use secondary data published by state institutions. Another influencing element in choosing the method for measuring tax evasion factors is the number of factors which will be used to analyse if they influence in tax evasion of a country or not. According to Tabandeh et al. (2013), the econometric methods are used to estimate the relationship between the underground economy, tax evasion and economic variables, but they do not determine the importance of the factors on tax evasion. In accordance with him and considering the high number of variables, the appropriate method for analysing is the Artificial Neural Network Method in order to determine these factors of tax evasion and also to identify their relative importance. Table 6 summarise all the methods used for data collection, all the methods used for data analysis and the numbers of factors of tax evasion analysed in these studies. The most common method for collecting data is the survey method by using questionnaires, the results of which can be used via different statistical methods.

Table 6: Summarise of methods for data collecting and data analysis

Methods for data collection	**No of studies**	**Methods for data analysis**	***No of factors of tax evasion analysed***
Business Environment and Enterprise Performance Survey (BEEPS) database	1	Basic regression model	6, 12
Empirical analysis based on tax authorities' analyses	1	Linear multiple regression analysis	4
Explanatory type of research	1	Multiple regression analysis	4 to 6
Experiments	2	Heart rate variability	1
Observations	1	Moderated Regression Model	4
Panel data analysis	1	Data for the European Union	11
Structural equation modelling	1	MIMIC model	11
Survey method	17	Arithmetic mean, percentages, standard deviation, t-tests, ANOVA etc.	10
		Binary logistic regression	8

		Chi-square test on SPSS	2
		Dummy and multinomial econometric models	14
		Factor analysis and multiple regression	4
		Linear Regressions analysis	5
		Multiple regression analysis	4
		Multivariate tests procedure	6
		Ordered logistic regression analysis	7, 10
		Pearson correlation and multiple regression analysis	5
Time series data	1	Short-run model	5

Source: Authors (2025)

4.3 Identifying the Relation Between the Number of Tax Evasion Factors and the Method Used for Measuring Them

The fourth objective and the last one is to identify the relation between the number of tax evasion factors and the method used for measuring them. According to Table 6, statistical methods used for measuring over 10 factors are ANOVA (10 factors), OLS (10 factors), MIMIC model (11 factors), Multinomial econometric models (14 factors). Additionally, the statistical methods used for measuring below 10 factors are binary logistic regression (8 factors), multiple regression (6 factors), multivariate tests procedure (6 factors), basic regression (6 factors), Pearson correlation and multiple regression analysis (5 factors), linear regression (5 factors) and linear multiple regression (4 factors). This result shows that there is no specific link between the statistical method and the number of factors.

4.4 Discussion

Tax evasion is a global phenomenon that has existed and continues to exist even in modern times. Due to its complex nature and very large losses overall the world, researchers have continuously trayed to identify the reasons for individuals or businesses to evade paying taxes. The question remains the same "*why do these individuals or businesses not pay their taxes while they are required by national tax legislation to pay them*?" Over the years there have been many attempts as shown in early literature or those reflected in tables 1 and 2, but it is obviously that there is no unique or general accepted method, but there is a wide range of approaches that vary according to the availability of data and as a result to the country of the study. According to Table 1, while the availability of data is crucial for cross-country and empirical studies (macro level method), looks like in countries where there is lack of the availability of data it is most used the survey method (micro level method). Since in earliest studies, there is a major discussion between researcher about the most appropriate method for measuring tax evasion factors. The empirical approaches based on regression models can provide a more objective and direct assessment of the impact of certain factors on tax evasion while the empirical approaches based on artificial neural network can provide more precise results. However, their validity in finding the factors of tax evasion, depends on the quality of data and on the appropriate selection of variables and statistical modelling. This means that in countries where data or statistical reports are lacking, this model may not be effective in finding the reason for not paying taxes. In conclusion to this discussion, since no single method is sufficient to reliably and comprehensively measure the factors of tax evasion, it would be relevant for researches to mix methods of data collection and data analysis depending to the institutional context of each country, to the level of development, fiscal culture, data quality and analysis objectives.

5. Conclusion

In this study, the factors of tax evasion were evaluated through methods of measuring tax evasion. During the literature review, various methods were used for collecting data and for analysing these data. Survey method and multilinear regression analysis are identified as the most common method for measuring tax evasion factors. While multilinear regression is used for analysing the data collected from the questionnaire for a short period of time, the neural artificial method is used for analysing the data from the annual Economic Report for a large period of time. All the methods are used to measure tax evasion factors, but there is no specific link between the number of tax evasion factors and the method used for measuring them. Some studies have used linear regression, and other studies that have used multilinear regression to analyse more than 4 factors of tax evasion.

5.1 Contribution to Theory and Practice

This research represents a significant contribute in theory and practice, by clarifying the appropriate method to choose in following studies for identifying and measuring the factors of tax evasion. This contribution is important for international studies and especially for the case of Albania. Actually, there are still limited studies for the measurement of tax evasion and its determining factors in Albania, and under this condition choosing the right method for measuring tax evasion factors is crucial for the authorities while designing a relevant anti-tax evasion strategy. This study is the first attempt to give a guide towards a successful choice of the best method for measuring tax evasion factors and for the Albanian practice it is recommended to be used the survey method and the regression method**.**

5.2 Limitation of the Study

Although the use of narrative review method is appropriate for an interdisciplinary and non-standardized field, it does not follow the systematic selection and quality assessment procedures that characterize systematic reviews (Grant & Booth, 2009). The limitation of the study is in the random selection of relevant studies in fulfilling the objectives of the purpose. Another limitation is that it does not include advanced statistical methods for quantitative comparison of the effectiveness of measurement methods. Lastly, the study is based on English publication, which may have limited the inclusion of relevant studies in other languages.

5.3 Future Research

ظAnother significant recommendation is identifying the link between the type of factors and methods used for measuring these factors.

References

Abdella, M., Karafo, A., Mengistu, A., & Nguse T., (2021). Determinants of Tax Evasion in South Omo Zone Revenue and Custom Authority. *Research Journal of Finance and Accounting*, *12*(1),17–29.

Abdixhiku, L., Krasniqi, B., Pugh, G., & Hashi I., (2017). Firm-level determinants of tax evasion in transition economies. *Economic Systems*, *41*(3), 354–366. https://doi.org/10.1016/0047-2727(72)90010-2\

Ahangar, R., Bandpey, H., & Rokny, H. (2011). An Investigation into the Determinant of Effective Factors. *European Journal of Scientific Research.* https://www.researchgate.net/publication/262414712_An_Investigation_into_the_Determinant_of_Effective_Factors

Allingham, M.G., & Sandmo, A. (1972). Income tax evasion: A theoretical analysis. *Journal of Public Economics*, *1*(3-4), 323–338. https://doi.org/10.1016/0047-2727(72)90010-2

Allam, A., Moussa, T., Abdelhady, M., & Yamen, A. (2023). National culture and tax evasion: The role of the institutional environment quality. *Journal of International Accounting, Auditing and Taxation*, *52*(00559),1–12. https://doi.org/10.1016/j.intaccaudtax.2023.100559

Ameyaw, B., & Dzaka, D. (2016). Determinants of Tax Evasion: Empirical Evidence from Ghana. *Modern Economy*, *7*(14), 1653–1664. https://doi.org/10.4236/me.2016.714145

Andoni, M., Osmani, M., & Kambo, A. (2017). Assessing Determinants of Tax Evasion in Albania-A Multinomial Econometric Approach. *European Journal of Business, Economics and Accountancy*, 5 (1), 9–21.

Awan, A., & Hannan, A. (2014). The Determinants of Tax Evasion in Pakistan-A Case Study of Southern Punjab. *International Journal of Development and Economic Sustainability*, 2(4), 50–69. https://eajournals.org/wp-content/uploads/The-Determinants-of-Tax-Evasion-in-Pakistan-A-Case-Study-of-Southern-Punjab.pdf

Benk, S., Çakmak, A., & Budak, T. (2011). An Investigation of Tax Compliance Intentions: A Theory of Planned Behaviour Approach. *European Journal of Economics, Finance and Administrative Sciences*, 28(1), 180–188.

Collosa, A. (2009). Which are the causes of tax evasion? Inter-American Center of Tax Administrations. CIAT Press. https://www.ciat.org/which-are-the-causes-of-tax-evasion/?lang=en#_ftnref3

Dulleck, U., Fooken, J., Newton, C., Ristl, A., Schaffner, M., & Torgler, B. (2016). Tax compliance and psychic costs: Behavioural experimental evidence using a physiological marker. *Journal of Public Economics, 134*, 9–18. https://doi.org/10.1016/j.jpubeco.2015.12.007

Engida, T., & Baisa, G. (2014). Factors Influencing taxpayers' compliance with the tax system: An empirical study in Mekelle City, Ethiopia. *eJournal of Tax Research*. *12*(2), 433–452. https://www.austlii.edu.au/au/journals/eJTR/2014/19.pdf

Erul, R. (2021). Socio-Economic Determinants of Tax Evasion: Evidence from the European Union. *İzmir Journal of Economics*, *36*(1), 155–170. https://doi.org/10.24988/ije.202136111

Fagbemi, T., Uadiale, O., & Noah, A. (2010). The Ethics of Tax Evasion: Perpetual Evidence from Nigeria. *European Journal of Social Science*, *17*(3) (Academia), 360–371.

Feige, E., & Cebula, R. (2012). America's Underground Economy: Measuring the Size, Growth and Determinants of Income Tax Evasion in the U.S. *Crime, Law and Social Change, 57*(3), 265–285. https://doi.org/10.1007/s10611-011-9346-x

Ferrari, R. (2015). Writing narrative style literature reviews. *Medical Writing*, 24(4), 230–235. https://doi.org/10.1179/2047480615Z.000000000329

Fu, J. (1998). A Neural Network Forecast of Economic Growth and Recession. *The Journal of Economics*, *24*(1), 51–66. https://www.journalofeconomicinsight.com/index.php/joei/article/view/1034

Gemmell, N., & Hasseldine, J. (2012). The tax gap: a methodological review. *Advances in Taxation*, *20*, 203–231. https://doi.org/10.1108/S1058-7497(2012)0000020011

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, 26(2), 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Guiaș, E., & Hăineală, C. (2021). Tax Avoidance and Tax Evasion in EU: Trends and Effects. *The Annals of the University of Oradea. Economic Sciences*. TOM XXX (2nd). https://doi.org/10.47535/1991AUOES30(2)024

Hai, O., & See, L. (2011). Behavioral Intention of Tax Non-Compliance among sole-proprietors in Malaysia. *Centre for Promoting Ideas*, 142–152. https://ijbssnet.com/journals/Vol._2_No._6%3B_April_2011/15.pdf

Hassan, M. (2024). Data Collection – Methods Types and Examples. *ResearchMethod.Net*. https://researchmethod.net/data-collection/

Hill, T., Marquez, L., Oconnor, M. & Remus, W. (1994). Artificial Neural Network Models for Forecasting and Decision Making. *International journal of forecasting, International Journal of Forecasting*, *10* (1), 5–15 10. https://doi.org/10.1016/0169-2070(94)90045-0

Hoxhaj, M., & Kamolli, E. (2022). Factors Influencing Tax Evasion of Businesses: The Case of Albania. *European Journal of Economics and Business Studies*, *8*(1), 48–64. https://doi.org/10.26417/233qcq96

Kassa, E. (2021). Factors influencing taxpayers to engage in tax evasion: evidence from Woldia City administration micro, small, and large enterprise taxpayers. *Journal of Innovation and Entrepreneurship*, *10*(8), https://doi.org/10.1186/s13731-020-00142-4

Kassaw, M. (2023). Determinant of Tax Evasion of Category "A" Taxpayers in East Addis Ababa. *International journal of development and economic sustainability*, *11*(4), 74–86. https://doi.org/10.21203/rs.3.rs-1933046/v1

Kemme D., Parikh, B., & Steigner, T. (2020). Tax Morale and International Tax Evasion. *Journal of World Business*, *55*(3). https://doi.org/10.1016/j.jwb.2019.101052

Kirchler, E. (2009). The Economic Psychology of Tax Behaviour. Cambridge University Press. https://doi.org/10.1017/CBO9780511628238

Kohzadi, N., Boyd, S., Kaastra, I., Kermenshahi, S., & Scuse, D. (1995). Neural Network for Forecasting: An Introduction. *Canadian journal of Agricultural Economics*, *43.* 463–474. https://doi.org/10.1111/j.1744-7976.1995.tb00135.x

Nor, J., Ahmad, N., & Saleh, N. (2010). Fraudulent financial reporting and company characteristics: tax audit evidence. *Journal of Financial Reporting and Accounting*, *8* (2), 128–142. https://doi.org/10.1108/19852511011088389

Noor, R., Aziz, A., Mastuki, N., & Ismail, N. (2012). Tax Fraud Indicators. *Malaysian Accounting Review*, *11*(1), 43–57. https://ir.uitm.edu.my/id/eprint/31125/1/AJ_ROHAYA%20MD%20NOOR%20MAR%20B%2012.pdf

Radoš, S., Akik, B., Žutić, M., Rodriguez-Muñoz, M., Uriko, K., Motrico, E., Moreno-Peral, P., Apter, G., & Lambregtse-van den Berg, M. (2024). Diagnosis of peripartumdepression disorder: A state-of-the-art approach from the COST Action Riseup-PPD. *Comprehensive Psychiatry*, *130*(152456). https://doi.org/10.1016/j.comppsych.2024.152456

Tabandeh, R., Jusoh, M., Nor, N., & Zaidi, M. (2013). Causes of Tax Evasion and Their Relative Contribution in Malaysia: An Artificial Neural Network Method Analysis. *Jurnal*

Ekonomi Malaysia, 47(1), 99–108. https://journalarticle.ukm.my/8093/1/5576-13419-1-SM.pdf

Terzić, S. (2017). Model for determining subjective and objective factors of tax evasion. *Notitia - journal for sustainable development*, *3.* 49–61. https://doi.org/10.32676/n.3.5

Todorović,J., Đorđević,M., & Cakić M. (2021). The determinants of tax evasion: empirical evidence from Serbia. Economics. *Information technologies*, *48*(3), 514–527. https://doi.org/10.52575/2687-0932-2021-48-3-514-527

Todorović, J., Đorđević, M., & Ristić, M. (2018). Estimating the Determinants of Tax Evasion Using Empirical data. *7th Scientific Conference with International Participation "Jahorina Business Forum 2018: Sustainable tourism and institutional environment*", March 23–24, Jahorina, East Sarajevo. Received: 12th February 2018, https://doi.org/10.7251/ZREFIS1716011D

Tsakumis, G., Curatola, A., & Porcano, Th. (2007). The relation between national cultural dimensions and tax evasion. *Journal of International Accounting, Auditing and Taxation*, *16*(2), 131–147. https://doi.org/10.1016/j.intaccaudtax.2007.06.004

Vousinas, G.L. (2017). Shadow economy and tax evasion. The Achilles heel of Greek economy. Determinants, effects and policy proposals. *Journal of Money Laundering Control*, *20* (4), 386–404. https://doi.org/10.1108/JMLC-11-2016-0047

Yalama, G., & Gumus, E. (2013). Determinants of Tax Evasion Behavior: Empirical Evidence from Survey Data. *International Business and Management*, *6*(2), 15–23. http://dx.doi.org/10.3968/j.ibm.1923842820130602.1085