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THE CORRELATION BETWEEN DOUBLE TAXATION CONVENTIONS, TAX COMPLIANCE, AND TAX EVASION. EMPIRICAL EVIDENCE FROM OECD COUNTRIES

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Abstract. The topics approached in this paper are of interest due to the divergent opinions that emerged in the media academics and practitioners concerning how the double taxation conventions are constructed, the official language in which an international convention must be written, and their *de facto* application, both in bilateral situations and among triangular or multilateral situations. To be more specific, the way in which double taxation conventions are constructed, signed, and implemented will generate changes in the level of direct taxes, at a certain time interval, both economically and legally with a special focus on tax compliance and tax evasion. Consequently, tax compliance is very important because of the behavior of the taxpayer and the willingness to pay taxes both on the national and international levels. Moreover, tax evasion is a serious problem that creates distortion and undermines worldwide trade and commerce. In this article, it is approached the complex relationship between double taxation conventions, tax compliance, and tax behavior in order to establish the connections and interactions between these three important aspects. The objective of this study is o evaluate and assess the interconnections between these three variables. The empirical study is revealed for selected comprehensive OECD countries with a panel data approach and with modeling techniques using Python software. The conclusions of this study reveal that between double taxation conventions, tax compliance, and tax evasion there is manifested strong connections both positive and negative, aspects highlighted by the empirical results, because the complex relationship manifested in practice regarding the stipulation of the law, the financial aspects and the application of fiscal policy, both on national and international levels.

Keywords: tax treaty, double taxation, tax behavior, tax culture, tax evasion.

JEL Classification: H21, K34, E62.

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Introduction

A taxpayer can retain interpersonal connections with several underlying states. For example, according to the public finance and tax law of different states, a connector factor is represented by the permanent establishment at both the individual and company levels. In other states, the residence of nationality is considered a very important connecting factor. Depending on tax legislation, every set of those criteria can lead to unlimited tax liability. Therefore, in practice, it is widely encountered that the same person is subject to an unlimited tax liability in two or more states. This situation can lead to the establishment of tax collection throughout worldwide income in two or more states.

Double taxation conventions represent a sophisticated network through which the state, *inter alia*, *has* identified several financial solutions enriched with a high degree of complexity *vis – á – vis* of these new challenges of the international and European fiscal space. In this case, the problem arises regarding several counterpoints: source state *versus* residence state, double taxation *versus* double non–taxation, tax evasion *versus* tax heavens, tax compliance *versus* non – compliance, and tax culture *versus non-financial* literacy.

A double taxation convention represents, *stricto sensu*, a mutual agreement that is signed between two states with the final scope of preventing the taxation of a taxpayer for the same income or capital in both states. The typical conventions for avoiding double taxation can be seen as a list of articles that must fulfill separately distinct functions. The most known international double taxation conventions are those which are focused on income and capital. These international double taxation conventions are established for preventing tax evasion. Double taxation can encompass both judicial and economical connotations. Starting with the judicial side, double taxation occurs in the situation in which two or even several states enable taxation for the same income or capital; meanwhile, economic double taxation produces in cases in which two different persons are taxable upon the same income and/or capital.

Tax evasion has been described, over the last three decades, in different forms, but nowadays it can be seen as a moral and vicious problem. However, the tax experts have been conscient that the main cause of tax evasion is represented, *stricto sensu*, by the high tax rates. Tax evasion represents nowadays one of the most sensitive problems because the complex and multifaced aspects can lead to distortions in international commerce, can erode tax bases, and can lead to an unbalanced spread of economical and social welfare.

Tax behavior of a contributor reveals that some elements such as wealth or poverty, labor productivity, trustworthiness in state's authorities, and the level of economic growth respectively economic development are key features and influences significantly the taxpayer's attitude regarding the payment of taxes and, implicit, to the fiscal morale. Moreover, it must be highlighted the connection between the taxpayers' financial capacity and their trustworthiness in tax authorities.

With respect to the complexity of relationships manifested in theory and practice between the stipulation of the law, the financial aspects, and tax and the fiscal policy it is worth noticing that the stipulations of the law are often misunderstood or misinterpreted in practice by taxpayers. Regarding the financial and economical aspects, the critical period in the last two-three years reveals that aspects such as inflation, capital flows, and stock markets are sensible problems that in difficult times must be treated with responsibility and accountability. Fiscal policy is a short-run policy in which the effects are seen rapidly in the economy. These complex aspects mentioned above suggest that there must be enabled a *trade-off* between the complexity of the law, the cutting-edge financial technologies, and the fiscal policy which changes rapidly upon the need of the governments to collect higher funds for the state budget.

The structure, nature, and characteristics of the double taxation problem were analyzed by Dumiter et al. (2014) in the context of the multifaced complex of the phenomena followed by the appliance of double taxation conventions with their specific particularities in the German tax system (Dumiter et al., 2015). In the aftermath of previous studies, Dumiter et al. (2016) analyze the impact of the double taxation conventions network upon the American tax system, followed by interesting analyzes of the double taxation conventions agenda in Central and Eastern European Countries (Dumiter & Jimon, 2016). Consequently, bound to the double taxation conventions network is the transfer prices agenda both on theoretical and empirical levels oriented towards the Romanian economical and judicial system (Dumiter & Jimon, 2020).

A very important aspect of the double taxation problem is represented by the permanent establishment concept both in the digital age on an enterprise and on a subsidiary level (Dulevski, 2021), the connections established between the economic outcomes and double taxation conventions with a special focused upon Developing African Countries (Efobi & Adejuno, 2021), meanwhile, a very sensible aspect in the literature is represented by the fixed establishment as a subsidiary (Lipniewicz, 2021). A specific analysis must be made from the management perspective regarding the relationship between subsidiary and headquarters relations (Rodrigues et al., 2021), followed by the determination of power between the parent-subsidiary investment and allocation efficiency (Zhou & Wong, 2021) and finalizing with the importance of the transfer prices legislation regarding tax administration and tax policy (Satande et al., 2021).

The tax compliance aspects were approached by risk-based VAT invoice management (Alonso et al., 2021), establishing the optimal trade-off between moral, tax relaxation, and sanction in Pandemic times (Amah et al., 2021) and by the interconnectedness between law clarity, behaviorism, and tax compliance (Ghani et al., 2021). Moreover, the complex relationship manifested between tax morale, tax knowledge, and tax competition must not be overrun (Jusoh et al., 2021), meanwhile, another particular aspect of tax compliance that must be taken into account is revealed by the value chain among taxpayers (Olabisi et al., 2021). The complex manifestation of tax compliance must be studied in the context of model knowledge throughout tax socialization and awareness (Pattiasina et al., 2021), by the underlying factors which influence the invoice request (Pinheiro et al., 2021) with a special focus on the specific determinants enriched in personal tax compliance (Subadriyah & Harto, 2021) and on the determinants which influence the tax compliance of foreign direct investments (Trung et al., 2021).

The *nexus* between double taxation conventions and tax compliance can be seen as a quid *pro quo* in the establishment of a successful relationship between the complex network of double taxation conventions with over 3.000 conventions signed worldwide and the compliance of the taxpayer in order to fulfill these judicial and economic conditions and legal enactments in order to pay the overall amount of its duties and fiscal obligations. More precisely, in cases in which double taxation conventions are clearly and rigorously written, signed, and applied with no room to maneuver in terms of misunderstood terms and conditions regarding the payment of the worldwide income and capital tax, then the conscience of the taxpayer will increase due to trustworthiness in tax authorities, tax policy, and fiscal system, which will enhance the tax morale and lead, *mutadis mutandis*, in strengthening the soundness of the fiscal system as a whole. The role of Art. 26 in the OECD and UN Model Conventions from which derives the exchange of information enriched in the other double taxation conventions represents an important step in the enactment of a worldwide database regarding the evolution of the income and capital of the taxpayers. Moreover, the BEPS, CCCTB, and MLI convention establish more precise rules strengthening the need for tax compliance in regard to double taxation conventions.

The actuality and importance of the research theme derive from the fact that double taxation, both at the international and European Union level represents a complex problem that necessitates ingenious solutions. Interconnected to this problem are the tax behavior, compliance, and culture of the taxpayer which suppose demands from several points of view: psychological, sociological, religious, and neurological. The above-mentioned aspects establish a *quid pro quo* to the tax fraud and tax evasion problems because these complex phenomena must be combated with complex and avant-garde tools and instruments capable to deal with the multifaced aspects of these problems.

The motivation of this study starts from the premise that in the actual economical and financial crises, several states were obliged lately to undertake substantial efforts oriented towards increasing the tax administration capacity and structure, as well as reducing the amplitude of tax evasion. In this regard, it can be identified room–to–maneuver in the direction of tax system restructuring, increasing incomes to the state budget, with the direct effect of increasing the level of economic growth. Therefore, the struggle against tax evasion represents a priority from the state governments, due to the fact that additional income must be oriented towards domains like healthcare, education, social security, and public services.

The research scope prevails the necessity of promoting strategic objectives in the fiscal policy, together with the exert of rigorous tax control for the improvement of tax discipline which must lead to an increase in the income level, reducing corruption, as well as the effectiveness of the highjacked income level recovery from the tax evasion phenomenon.

The research objectives follow the motivation oriented towards tax obligation motives payments conferred by the taxpayer regarding the reception of the benefits in the moment of the public spending fulfillment process by the state. Second, the taxpayers fulfill their tax obligations due to the fear of the adverse consequences which can be produced throughout non – compliance. In the third place, *tax conscience* represents the background of the tax obligation fulfillment by the taxpayers. All three elements must be convergent with the fulfillment of the collective welfare desiderate. Therefore, voluntary tax compliance is an important factor in the improvement of collecting the financial resources for the state budget. Moreover, a high degree of tax compliance implies a lower level of tax evasion and vice versa.

The research methodology of this paper is founded on the panel data approach of selected OECD countries with several underlying econometric tool techniques in order the highlight the connections between double taxation conventions, tax compliance, and tax evasions. For the establishment of the interconnections between double taxation conventions, tax compliance, and tax evasion it was encountered three modeling techniques: Ordinary Least Square, Generalized Least Square, and Quantile Regression using Python software.

The main point and the principal idea enriched in this study can be stated as follows: Can the enactment of double taxation conventions throughout the improving the quality and quantity of the tax treaty network lead to an increase in the degree of tax compliance which will lead, *ceteris paribus*, to a decrease in the amplitude and the extent of tax evasion worldwide?

The regressions are connected to the question of the paper highlighted above throughout the hypothesis I1-I5 established in the second part of this study. The connections are established due to the enactment of these five hypotheses which transpose the main idea of the paper with the three equations in order that the empirical results can be able to give the response to the confirmation or denial of each of these five hypotheses. The empirical results based on the application of these three equations with their variables represent the econometric tool for the practical results. In the aftermath of the confirmation or denial of these hypotheses, it is established the soundness of the research results with the main idea of this study.

The novelty of the study consists in gathering three main aspects of tax policy: double taxation conventions, tax compliance, and tax evasion. Analyzing the current state of the art, it can be seen that these aspects are treated separately and debated distinctly. This paper proposed an integrated study that deals with the problem of double taxation conventions, tax compliance, and tax evasion together. These three aspects are key features of a successful fiscal policy, and their complex relationship must be analyzed in an integrated path. Moreover, this study proposes an index for measuring the soundness of international double taxation having three pillars. Consequently, the study encompasses in the empirical part several important variables in order to reveal the best variables of the double taxation conventions, tax compliance, and tax behavior. The econometric models are used to highlight the most important connections and correlations between double taxation conventions, tax compliance, and tax evasion. Overall, the main aspect of this study is the connections of the judicial part of double taxation conventions with the economical part and their impact on tax compliance and tax evasion, *stricto sensu*, and upon tax system and fiscal policy, *lato sensu.*

The structure of this paper is the following: In the first section it is presented the motivation, the scope, and the objectives of the research followed by the literature review section where is analyzed the current state of the art; the third section highlights the methodology and hypothesis together with the data and variables used in the study; the fourth section reveals the research findings with a special focus upon the empirical aspects; the final section presents the discussion part and the final considerations and future research paths.

1. Literature review and the current state of the art

The specialized literature in the field of international tax law, public finances, and international double taxation are particularly wide and varied, including studies that address the legal dimension, that is, research aimed at its economic part.

Avoidance of double taxation is dealt with at both international and national levels, especially for federal republics that can impose the same income at state and federal levels (Sherman & Brinker, 2012). Bărbuța-Mișu and Tudor (2009) and Herbei et al. (2010) show that the total exemption method benefits taxpayers and is considered to be more competitive at the global level, while the credit method only eliminates double taxation as limited to the amount of tax credit established by the state of residence (Arnold, 2012; Dudaș, 2011).

Smith (1977) advocated the need to regulate dividend tax in the US, and later, Lokken and Kitamura (2010), through a comparative study, demonstrated with Japan that the tax credit method would be the most appropriate. Also, regarding the methods of avoiding double taxation, especially indirect taxes applied in India, the need for a single taxation system for goods and services in the field of telecommunications has been established (Bandi, 2010).

The automated exchange of information represents a very important aspect of the double taxation conventions network. Huang (2018) reveal the importance of the transnational circulation of tax information with the guarantee of the taxpayers' economical and judicial rights and the corresponding administrative data protection. Moreover, Krahenbuhl (2018) suggests the importance of financial account information in the gathering of a more comprehensive tax system with important tax rulings and clear CbC procedures. Oberson and Papadopoulos (2020) explain the importance of the worldwide exchange of information and the alignment with the OECD standards; the authors analyze a large number of Swiss case laws in this matter and come to the conclusion that there is still room to maneuver regarding the international disclosure of tax information. Other authors such as Hiddleston (2021) developed a comprehensive study regarding the arguments for CRS standards of OECD and the usage of FATCA on financial institutions, meanwhile, Noseda (2022) implies the necessity of a larger process of public debate oriented toward enhancing the tax transparency measures.

A very important aspect of double taxation conventions represents the Automatic Exchange of Information (AEOI) system created by OECD. Having a background in the work of the OECD tax matter specialists and the Global Forum of Transparency in Tax Purposes the AEOI represents an integrated system that comprises DAC1-DAC7 Directives, FATCA, CRS, and CbC. Regarding this integrated system, Bhatia et al. (2018) suggest that this represents an important international tool in order to enhance worldwide the degree of tax information openness which would lead to an increase in the tax information disclosure enhancement. In the aftermath, Goulder (2020) developed a study that analyzes and assesses the road to tax transparency and the steps ahead which must be undertaken for a more transparent tax environment. Other authors as Liotti (2022) explore the (A)EoI instruments developed by OECD in the field of data protection rights and come to the conclusion that in order to enhance tax transparency it must be created a solution given by a worldwide international binding instrument.

The case of assessing the importance of tax transparency regarding the automatic exchange of information enriched in the double taxation conventions was analyzed by Ronco (2020) from the perspective of the digital transformation of tax authorities within the overall framework of enhancing the legal rights of the worldwide taxpayers'. Del Frederico et al. (2021) suggest the need for a comprehensive big digital database of worldwide taxpayers' established for increasing the transparency and soundness of the tax authorities and the connections with the international courts in cases in which it can be identified harmful tax practices, tax abuses, or illegal practices for avoiding the payment of tax and several different incentives.

McGill (2017) analyzes the future appliance of FATCA by revealing some particular cases in US and OECD countries, meanwhile, Marino (2020) establishes a comprehensive study oriented toward the appliance of the BEPS systems and its automated exchange of information procedures. The author has come to the conclusion that the DAC6 has several disadvantages and inconveniences, especially those bounded upon tax planning arrangements, tax intermediaries' privilege, and certainty and proportionality principles; the final assessment of this study is represented by the authors' recommendation with a trade-off between fundamental rights of the taxpayers' and a fair taxation process. Jackson and Brown (2021) analyze the 6th amendment in the DAC6 and MDR jurisdictions, having a special focus on the complex guidance offered by the UK and Irish tax administrations in other European countries.

Stevens and Wamelen (2021) study the enactment and future appliance of the DAC7 directive established by the European Commission in the field of tax cooperation and tax administration. The authors debate and discuss the antecedents and consequences of the DAC7 with a special focus on privacy aspects and administrative costs and its impact on the company level. Roche et al. (2022) created a connection between the enhanced tax transparency level, DAC 7 provisions, and the need for a more accurate digital platform area. The authors have come to the conclusion that it is needed a further amendment established in the future DAC8 regarding the sectors of crypto-assets and e-money.

Analyzing the literature, we can observe a shortage of specialized studies on the correlation between double taxation conventions and direct taxes. Therefore, we consider that the present paper brings added value to the economic and legal literature in elucidating the complex relationship between these two variables and the economic, legal, fiscal, and social impact.

1.1. Double taxation conventions evolution

Table 1 summarizes the main empirical results regarding the appliance of tax treaties in practice and their effects on economic variables and the business environment. A well-known empirical method to investigate the impact of double taxation treaties (DTA) on foreign direct investment (FDI) is the knowledge-capital model. This method was first used by Blonigen and Davis (2000) on a sample of 65 countries with US partners, over a time period of 27 years. The authors showed that in the case of the US, DTA has a positive impact on FDI. In 2003, Davies (2003) extends the study to a period of 35 years and modified the research method by including the OLS and Tobit specifications, showing that there is no empirical robust evidence that DTA increases the FDI. On the other hand, Lejour (2014) demonstrated by using the knowledge-capital model and gravity equations panel OLS estimations that in the case of OECD counties, DTA increase FDI. Also, Castillo-Murciego and López-Laborda (2018) used the knowledge-capital model to investigate the DTA concluded by Spain with OECD, EU, BRIC, and some Latin American countries over a period of 10 years. The study shows that double taxation agreements (DTA) have a positive impact on foreign direct investments (FDI) inward and outward flow.

Other studies have investigated the DTA impact on FDI by source (investor or donor) and host (or recipient) countries. A study made by Davies, Norbäck, and Tekin-Koru (2009) investigated the impact of DTA on Swedish multinational firms and the transfers between them. Using a regression model, in which the dependent variable was FDI, and the explanatory variables were DTA, export, import, and the characteristics of multinational enterprises (MNE), the authors showed that DTA has an insignificant effect on FDI, but increases the probability of investment in a partner state. Similar results were obtained by Braun and Fuentes (2014), which used Maximum likelihood estimators to research the DTA concluded by Austria with developing countries between 1990 and 2011. The authors showed up that DTA encourages Austrian projects in developing countries and the FDI. Pham, Pham, and Ly (2019) used Generalized Least Squares (GLS) method to study the influence of DTA on Vietnam's trade with ASEAN and EU member states, showing the positive contributions of the DTA to Vietnam's bilateral trade.

Some authors provided some studies regarding the effects of DTA on FDI in a host country. Barthel, Busse, and Neumayer (2009) made a regression model in which the dependent variable was the dyadic FDI stock and the explanatory variable was DTA, using a GMM approach and demonstrated that DTA is positively associated with FDI in a host country, but host country may have lower tax revenues. These results are supported also by Braun and Zagler (2017), which used a fixed effect Poisson model (FEPM) to investigate the asymmetric DTA in the case of 23 donor countries and 75 recipient countries. The study revealed that capital-exporting countries give often official development assistance to capital importing countries.

On the other hand, Chisik and Davies (2004) used Pareto-optimal taxes to study the relation between DTA and taxation rate. The results showed that if there is concluded a DTA, the tax rates are decreasing and the FDI increases. Egger, Larch, Pfaffermayr, and Winner (2006) applied the general equilibrium model and demonstrated that DTA has a positive impact on welfare, in the case of OECD economies. Zagler and Zanzottera (2012) used a regression model, in which the dependent variable was FDI, and the independent variables were GDP and population data, corporate income tax rates, the distance between two countries, DTA, legal traditions, and corruption index. The authors showed up that increasing corporate tax ratio and legal uncertainty have a negative impact on FDI. Also, Petkova, Stasio, and Zagler (2018) analyzed through Pseudo Maximum Likelihood Estimation (PPML) the relation between DTA, FDI, and tax rates. The study was compounded from a sample of 133 countries and revealed that indeed DTA will increase FDI, but only if there are significant tax reductions and a decreased tax burden.

Some studies had provided some insights regarding the DTA and tax revenues. Ida (2006) made an empirical study in three stages. First, in the case of the government tax rule, the author used Nash equilibrium tax rules, second, in the case of corporate income tax rate was applied Nash equilibrium tax rate and, third, in the case of the capital market, was applied Capital market equilibrium. The results revealed that capital-exporting countries have bigger benefits whereas the capital importing countries have lower tax revenues. Paolini, Pistone, Pulina, and Zagler (2012) made a study using the scenarios technique and showed that modern and fair DTA should share the revenues between partner states to support foreign investments.

Table 1. Previous empirical studies regarding double taxation conventions (source: own processing)

	Research group	Research methodology and technique	Empirical findings and results	Countries and period
1.	Barthel & Neumayer, 2015	Spatial Cox proportional hazards model	The probability to conclude a DTA increase in a competitional foreign environment.	186 countries; 1969–2005
2.	Paolini, Pistone, Pulina, & Zagler, 2012	Scenarios: (i)can move to other developing countries (ii) cannot move to other developing countries	A modern and fair DTA should provide the share of revenues between partner states.	–
3.	Zagler & Zanzottera, 2012	Regression model: – dependent variable: FDI independent variable: GDP and population data, corporate income tax rates, distance between two countries, double tax agreements, legal traditions, corruption index	Increased corporate tax ratio and legal uncertainty lead have a negative impact on FDI.	26 investor countries; 125 countries where investments have taken place; 2006
4.	Braun & Fuentes, 2014	Maximum likelihood estimators	DTA encourage Austrian projects in developing countries and the FDI.	Austria partner states of DTA; 1990–2011
5.	Braun & Zagler, 2014	Conventional ordinary least square regressions (OLS)	For developing countries, geography, size of economy, openness of a country, as well as colonial status and political similarity have significance in concluding a double tax treaty. Development aid are correlated with a concluded double tax treaty.	South Africa, Brazil, Colombia, Uruguay; 2010
6.	Lejour, 2014	Knowledge-capital model of Markusen (2002) and gravity equations panel OLS estimations	DTA increase FDI. EU subsidiary directive has a significant impact in FDI stocks.	34 OECD countries reporting inward and outward stocks towards 233 partner countries; 1985–2011
7.	Braun & Zagler, 2017	Fxed effect poisson models (FEPM)	In the case of an asymmetric DTA, capital exporting country give compensation to the capital importing country as bilateral official development assistance. The foreign aid can be used as a political instrument to negotiate bilateral treaties.	list of donors includes 23 states; recipient countries low and middle income include 75 countries; 1991–2012

End of Table 1

	Research group	Research methodology and technique	Empirical findings and results	Countries and period
8.	Castillo-Murciego & López-Laborda, 2018	Knowledge-capital model	DTA, in case of Spain, have a positive effect on FDI, both inward and outward.	OECD-35 countries; EU-28 countries; BRIC-4 countries; Latin American countries – 14 countries; 1993–2013
9.	Petkova, Stasio, & Zagler, 2018	Pseudo Maximum Likelihood Estimation (PPML)	DTA will increase FDI only if they are giving significant tax reduction and decrease the tax burden.	the econometric analysis covers 133 countries; 2005–2012
10.	Pham, Pham, & Ly, 2019	Generalized Least Squares (GLS) method	The study confirms the positive contributions of the double taxation treaties to Vietnam's bilateral trade with not only ASEAN but EU member states.	67 top trading partners of Vietnam; 2001–2016

Other studies aimed to understand the reasons to conclude a DTA in a competing tax environment. Rixen (2008) made a regression model in which the dependent variable was the negotiated withholding tax rate, and the independent variables were the dyadic investment position, the asymmetry of bilateral FDI stocks, and the bargaining power and showed that the design of DTA is correlated with the stages of cooperation. Barthel and Neumayer (2015) applied the spatial Cox proportional hazards model to a sample of 186 countries and demonstrated the probability to conclude a DTA increase in a competitional foreign environment. Braun and Zagler (2014) used conventional ordinary least square regressions (OLS) in the case of South Africa, Brazil, Colombia, and Uruguay to investigate the reasons of a developing country in concluding a DTA. The results showed that in case of developing countries have a huge importance in the geography of the country, the size of the economy, the openness of the country, as well as the colonial status and political similarities in concluding a DTA.

1.2. Tax compliance agenda

Table 2 encompasses the main results of the empirical studies which deal with the complex tax compliance aspects. Gichuru and Wahome (2022) bring forward some specific tax compliance costs regarding the rental income tax in a specific zone of Kenya; the authors have concluded that the discouragement of compliance behavior through not declaring the income or under-declaring it can be factors that increase the tax compliance costs. Tiwari (2021) reveals some specific tax compliance behavior determinants and concludes that the compliance behavior of rental taxpayers is influenced by variables like perception towards tax and taxpayers' awareness. Oladipo et al. (2022) suggest that although there can be identified among Nigeria's manufacturing companies an important level of tax compliance, issues like tax awareness, tax collection, and tax knowledge on taxpayers must be improved by the tax authorities.

Kantohe and Kambey (2021) investigate the perception of moral obligation, *per se*, of the taxpayers and trust in the government as the underlying aspects of compliance; the authors conclude that tax morale is a very important issue, the trustworthiness of tax authorities is crucial and the intention of conforming itself from the taxpayer's view are significant factors which improve tax compliance. The perception of tax compliance regarded through the e-tax system is explained by tax fairness, but there are also other aspects such as tax complexity and tax knowledge that must be considered (Shafique et al., 2021). An interesting study that connects the economic aspects of tax evaders and the judicial aspects of redistributive justice has been developed by Okafor (2022). The conclusions of this research reveal some important aspects as retributive justice is influenced by shaming punishment; the effects of shaming on the intention of tax compliance are influenced by retributive justice in shaming punishment.

Table 2. Previous empirical studies regarding tax compliance (source: own processing)

	Research group	Research methodology and technique	Empirical findings and results	Countries and period
1.	Brezeanu, Dumiter, Ghiur, & Todor, 2018	Multi Factorial Model with cross-sectional data	Negative correlation between tax compliance and financial capacity. Positive correlation between labor productivity and taxpayer's confidence.	Romania; 2004–2016
2.	Tiwari, 2021	OLS multiple regression model	Positive connections between tax compliance and tax awareness, peer influence, attitude towards tax and government incentives.	Pohara Metropolitan City; 9, 11 & 17 wards located in 196 households
3.	Kantohe & Kambey, 2021	Non-Probability Sampling method	The importance of morality, trustworthiness, and compliance of taxpayers in explaining tax behavior.	Individual payers registered at Pahama Manado
4.	Shafique, Abbasi, Khalid, Awais, & Hassan, 2021	Multiple Regression Technique	A direct relationship between tax compliance and fairness perception. Insignificant relationship between tax perception, tax morale and e-tax system.	Pakistan; Self-administered questionnaire
5.	Okafor, 2021	Experimental manipulations of shaming and salience of persuasion	Shaming evaders increases the intentions of tax compliance observers. Tax compliance intentions are affected by higher persuasion, including normative appeals and sanctions.	Canada; 2 experiments upon Canadian taxpayers

End of Table 2

	Research group	Research methodology and technique	Empirical findings and results	Countries and period
6.	Malima, Pillay, & Obalade, 2021	One Way ANOVA, Chi-Square & ordinal regression	The level of tax compliance is no affected by tax procedures, the rate of EFD and level of transparency. A high degree on impact upon tax compliance for EFD experiences, tax audits and audit effectiveness.	Tanzania; Contribution of Electronic Fiscal Devices (EFD) in the Arusha Region
7.	Larsen & Brogger, 2021	Multi-Method Ethnography regarding specifical doings of co-operative compliance	The connections between MNEs and tax administrations must be underlined by concept of time and space of creating compliance.	Norway & Sweden
8.	Levenko & Staehr, 2021	Logit estimation of tax compliance with covariates as: various control and principal components	Tax compliance is important with social norms, customs and personal norms.	Fine-graded survey of Estonian residents; 2018–2022
9.	Gichuru & Wahome, 2022	Bivariate regression analysis on tax compliance cost versus tax compliance	Negative significant correlation between the cost & behavior of tax compliance of hostel owner in sub county.	Laikipia West South County; 2017–2019
10.	Oladipo, Nwanji, Eluyela, Godo, & Adegboyegun, 2022	Multiple Regression Analysis and Correlation Analysis of Variance underpinned with Laffer Curve Theory	Significant level regarding tax compliance regarding listed manufacturing companies in Nigeria.	Nigeria; 278 out of 400 questionnaires by managers of manufactory companies

Malima et al. (2021) analyze tax compliance from the electronic fiscal devices in the region of Tanzania; in this study, the authors suggest that the level of tax compliance is not influenced by the level of transparency and the electronic fiscal devices, meanwhile, other factors have an impact of tax compliance such as audit effectiveness and tax audits with the usage of electronic fiscal devices. Larsen and Brogger (2021) study the time and space in the multinational corporation taxation process; by using the compliance dancing the authors suggest that in the relationship between multinational enterprises and tax administrations the critical elements are time and space for the creation of compliance process. An interesting study in regard to tax compliance was the assessment of taxpayers' importance, not the government one. Levenko and Staehr (2021) conclude that tax compliance is important if it is associated with aspects such as social norms, personal norms, and customs. Brezeanu et al. (2018) analyze tax compliance at the Romanian national level land come to the conclusion that through multiple regressions there can be identified two situations: first, fiscal behavior is negatively correlated with labor productivity and financial capacity; second, a positive correlation is manifested between gross domestic product per capita and the taxpayer's behavior.

1.3. Tax evasion problems

Table 3 presents the main issues of the tax evasion phenomenon and the economical and judicial implications regarding empirical studies and practical results. The problem of tax evasion and fraud was analyzed by Stankevicius and Leonas (2015) and was treated in a hybrid model approach with the outcome that tax evaders must be analyzed also through psychological and social portraits. The usage of empathy and voice in the tax evasion problem was analyzed by AbdelNabi et al. (2021) with the assessment that the experimental and behavioral approach of citizens' incentives can be a factor that underlies the fight against tax evasion. The dichotomy between fraud and legal aspects of tax evasion was debated also by Opreț et al. (2017) on the necessity of creating a common legal framework, especially at the EU level; the authors suggest that they are several factors that must be considered: accounting information and mechanisms and illicit practices.

Istok and Kanderova (2019) determine the effects of profit-shifting behavior of debt/asset ratio with a focus on the Slovak Republic and turn out to the conclusion that the empirical results show throughout debt channels several Slovak firms transfer their profits to different lower tax jurisdictions. The correlation between ethical perception and voluntary tax compliance was approached by Saragih et al. (2021) with the conclusion that tax evasion is negatively influenced by ethical perception, tax knowledge, and effects of idealism, positive effects are generated by a factor as the impact of relativism of ethical perception, meanwhile, no significant effects generate education level and religiosity. Solikah (2022) analyze if the religion factor can be determined the effect of tri pantagan on tax evasion and come to the conclusion that religion can be an important factor in the combat of tri pantagan effect on tax evasion.

Table 3. Previous empirical studies regarding tax evasion (source: own processing)

	Research group	Research methodology and technique	Empirical findings and results	Countries and period
1.	Stankevicius & Leonas, 2015	SAS Solution and Enterprise Data Analytics model	Tax evasion is influenced by wage and salary income; tax evasion can be reduced by agents' activity and the simple tax system.	Internal Revenue Service, Social network analysis & Individual Master File
2.	Bankman, Nass, & Slemrod, 2015	Adaptive questions which incorporate the taxpayer's information; data driven adaptive question system with revenue and experience	The need for a change in Tax form for risk of detection & psychological cost of lying; a short phrase inserted in the return form for increasing moral behavior of taxpayers.	Pilot studies; 40,000 taxpayers; Minnesota
3.	Opreț, Turcaș, Dumiter, & Brezeanu, 2017	Qualitative and quantitative assessments of law and economic variables	In UE it must be a Ponzi scheme with regression for tax evasion avoidance with variables as: fraud, shadow economy, corruption, and economic crime.	European Union; 27 countries

End of Table 3

	Research group	Research methodology and technique	Empirical findings and results	Countries and period
4.	Istok & Kanderova, 2019	Debt per assets indicator; nonparametric Wilcoxon signed ranks; Mann Whitney test	The enactment through debt channels of transferring profits to lower tax jurisdictions.	Slovakia; Registered office of companies in tax heavens; The firms of Slovakia debts in profits transfer
5.	Juruss, 2021	Top-down methodology; health survey questionnaires with outcome data	The need for introduction of health survey basis methodology regarding the estimation of the illicit tobacco market.	Eastern Europe
6.	Kassa, 2021	Simple random technique; Explanatory Factor Analysis (EFA); Person correlation and multiple regression analysis	The factors which underline the taxpayers to engage in tax evasion are moral obligation, tax knowledge & tax fairness.	Ethiopia; 370 respondents; Woldia City
7.	Saragih & Putra, 2021	PLS-Sem method	No important perception of tax evasion by education level and religion; positive effects of tax evasion percept upon relativism and ethics; negative effect regarding the perception of tax evasion by ethical perception, tax knowledge and idealism.	Indonesia; 291 participants with different backgrounds
8.	AbdelNabi, Wanas, & Mansour, 2021	Survey experiment regarding the impact upon tax compliance behavior of behavioral primes	Compliance is affected by a voice in a democracy; compliance behavior is affected by efficient and non-corrupt taxpayers 'money.	Egypt; 273 students form a big university in Egypt
9.	Solikah, 2022	Questionnaire primary data & quantitative description method	Tax evasion is not affected by money ethics; tax evasion is influenced by religiosity upon money ethics.	136 samples; Students at University Sarjanawiyata Tamansiswa; Indonesia
10.	Marques, 2022	LiTS sample; An index regarding the state's ability to police tax evasion	Ease of tax evasion is corelated with the decline of institutional quality; the support of redistribution by the individuals who register comparative advantages in terms of tax evasion.	28,000 individuals; 28 post-communist countries

Kassa (2021) determines the several underlying factors which engage in tax evasion. Having the Woldia city administration evidence, the author concludes that the factors which determined the taxpayers to engage in tax evasion activities are moral obligation, tax knowledge, and tax fairness. Bankman et al. (2015) gain the usage of smart returns to decrease the impact of tax evasion within three directions: first, returns of psychological costs of evasion; second, the morality in return; third, an adaptive question with the usage of online conversational agents. Another interesting study is the correlation of tax evasion with institutional quality and individual preferences; in this study, the author concludes that tax evasion becomes easier in cases in which institutional quality decreases due to the individual support of redistribution (Marques, 2022). In the aftermath, Juruss (2021) suggests that tax evasion relates to the illicit tobacco market by several determinants such as low administrative capacity, legislative gaps, price differences, and geographical factors.

2. Methodology and data

International double taxation has both microeconomic and macroeconomic effects. Furthermore, in addition to the economic effects of double taxation, it generates legal as well as social effects. To quantify the impact of international double taxation on direct taxes, we considered it important to develop an aggregate index. This was important because international double taxation conventions are a qualitative variable that can be difficult to model and quantify. By building this index, we could achieve a scale of measurement of the magnitude and the efficiency and effectiveness of conventions in different states. This fact was also important to evaluate and assess the connection between double taxation conventions, tax compliance, and tax evasion with more specific and technical soundness.

2.1. Research methodology and hypothesis

In the aftermath of the literature review presented in the previous section, the analysis of the current state of the art shows that the economic and judicial empirical literature has focused distinctly on double taxation conventions, tax compliance, and tax evasion. For each of these subjects have been derived several approaches and hypotheses with a direct or indirect link towards more or less important economical and judicial variables. In this study, the five hypotheses are developed having at the background of the previous studies presented and highlighted in the previous section. However, this study goes beyond the previous empirical studies and formulate and constructed the following distinctly five hypotheses in order to give a new approach to the complex economical and judicial aspects of double taxation conventions, tax compliance, and tax evasion.

In this study, the research hypotheses are the following:

Hypothesis I.1.: Double taxation conventions represent, ceteris paribus, both an economic and judicial tool in order to enhance the amplitude and spread of the tax system.

Hypothesis I.2.: The way in which is constructed, concluded, and applied in practice a double taxation convention can lead, ceteris paribus, to an increase in the degree of soundness of the taxpayers' willingness in order to pay taxes on an actual base.

Hypothesis I.3.: A proper and widespread network of double taxation conventions can be, ceteris paribus, a quid pro quo, for fighting against tax evasion reducing its levels both on the national and international levels.

Hypothesis I.4.: The connections between double taxation conventions, tax compliance, and tax evasion can explain, ceteris paribus, the positive and negative effects of taxes on the business environment.

Hypothesis I.5.: A strong legal system and an efficient economic structure of the economy can lead, ceteris paribus, to the overall increase in the magnitude of cross-border trade, commerce, and business environment development strengthening the worldwide economy.

The research methodology is constructed in order to measure the connections between double taxation conventions, tax compliance, and tax evasion it was considered a sample of 16 important OECD countries as Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Japan, the Netherlands, Spain, Sweden, Switzerland, Turkey, and the USA. The sample considered in this study was structured to give a specifically increased soundness to the research. The time period considered is between 2001 and 2020 and the main databases which were the data downloaded were those of OECD, worldwide governance indicators, International Monetary Fund, and UNCTAD. The countries that were included in this study have been chosen as the most representative ones in the OECD area without any data reporting data of missing values but also with the most important double taxation conventions available for this research. In this sense, it was constructed a panel data set without any missing values or spurious data in order to have more accurate and precise research results.

This empirical study tested the connections between double taxation conventions, tax compliance, and tax evasion in the following sequence: first, it approached the connections of double taxation conventions with tax compliance and tax evasion; second; it tested the connections between double taxation conventions, tax compliance, and tax evasions also with the five control variables. The models include *Ordinary Least Square* (*OLS*), *Generalized Least Square* (*GLSAR*), and *Quantile Regression* (*QuantReg*) methods the reason to establish the difference between each country regarding the correlation between double taxation conventions, tax evasion, and tax compliance. The econometric software used in Python 3.0 is the ultimate software regarding the econometric modeling used in the empirical literature.

The regression equations are the followings:

$$CRT_{it} = \alpha + \beta_1 xATDCI_{it} + \beta_2 xAGCDI + \beta_3 xASCDI + \beta_4 xAIQFIIDTC + \beta_5 PTFE_{it} + \beta_6 xGEF_{it} + \beta_7 xCOC_{it} + \beta_8 xROL_{it} + \beta_9 xRQI_{it} + \beta_{10} xGDPPC_{it} + \beta_{11} xFDI_{it} + \beta_{12} xEXP_{it} + \beta_{13} xIMP_{it} + \beta_{14} xBAL_{it} + \varepsilon_{it}; \quad (1)$$

$$COC_{it} = \alpha + \beta_1 xATDCI_{it} + \beta_2 xAGCDI + \beta_3 xASCDI + \beta_4 xAIQFIIDTC + \beta_5 PTFE_{it} + \beta_6 xGEF_{it} + \beta_7 xCRT_{it} + \beta_8 xROL_{it} + \beta_9 xRQI_{it} + \beta_{10} xGDPPC_{it} + \beta_{11} xFDI_{it} + \beta_{12} xEXP_{it} + \beta_{13} xIMP_{it} + \beta_{14} xBAL_{it} + \varepsilon_{it}; \quad (2)$$

$$GEF_{it} = \alpha + \beta_1 xATDCI_{it} + \beta_2 xAGCDI + \beta_3 xASCDI + \beta_4 xAIQFIIDTC + \beta_5 PTFE_{it} + \beta_6 xCRT_{it} + \beta_7 xCOC_{it} + \beta_8 xROL_{it} + \beta_9 xRQI_{it} + \beta_{10} xGDPPC_{it} + \beta_{11} xFDI_{it} + \beta_{12} xEXP_{it} + \beta_{13} xIMP_{it} + \beta_{14} xBAL_{it} + \varepsilon_{it}, \quad (3)$$

where:
CTR – Corporate tax revenue;
COC – Control of corruption;
GEF – Government effectiveness;
α – free coefficient;
$\beta_{1,2,3,4,5,6,7,8,9,10,11}$ – predictor coefficients;
PTFE – Personal income tax for employees;
ATDCI – Temporal aspects of the conclusion of international double taxation conventions;
AGCDI – Geographical aspects of the conclusion of international double taxation conventions;
ASCDI – Aspects regarding the types of international double taxation conventions;
AIQFIIDTC – aggregate index quantifying the fiscal impact of international double taxation conventions;
ROL – Rule of law;
RQI – Regulatory quality;
GDPPC – Gross domestic product per capita, current prices;
FDI – Foreign direct investment: Inward and outward flows and stock;
EXP – Exports of goods and services, annual;
IMP – Imports of goods and services, annual;
BAL – Balance of goods and services, annual;
ε – regression error.

2.2. Data and variables

Analyzing the results presented in Appendix 1 and 2, it can be seen the following: in the overall score of the aggregate index quantifying the fiscal impact of double taxation conventions on direct taxation in the 16 representative OECD countries, Japan and the USA hold the first place, with a score of 0.97 points, with countries such as Finland and Germany with 0.95 points; Austria, Belgium, Ireland, and Spain are on the third place with 0.92 points, while in fourth place, with a total score of 0.89 points, we find Canada, France, the Netherlands, and Sweden. Toward the end of the ranking are Greece with 0.86 points, and Denmark with 0.83 points. Turkey, with a score of 0.81 points, and Switzerland with 0.44 points are the countries that scored lowest in the sample of selected OECD countries. Considering the overall score, we can see that countries with a high aggregate index score are states that have complex commercial and business relations with international trading partners, and have instituted double taxation reforms fifty years ago, modifying their legal, economic, and financial framework in an appropriate manner to strengthen business relations with the main economic and trade partners. On the opposite end, Switzerland, which has the lowest score, has been opaque in terms of economic, financial, and legal transparency, practicing until recently both banking and financial secrecy, and a certain amount of reluctance as regards compatibility with other legal and economic systems.

The results of measuring the aggregate index quantifying the tax impact of double taxation conventions on direct taxation in selected OECD Member States are particularly interesting.

As regards Pillar, I, *Temporal aspects of the conclusion of international double taxation conventions*, the results are as follows (according to Table 1): the first place with a score of 1 point is held by Denmark, Germany, and Ireland; the second place, with a score of 0.92 points, is held by a group of states consisting of Austria, Belgium, Canada, Finland, France, Greece, Japan, Spain, Sweden, and the USA.

At the end of the Pillar I rankings are Switzerland with 0.75 points and Turkey with 0.67 points. The reasons behind the hierarchy of states in this manner were as follows: high-ranking countries have been much more interested and involved in building an appropriate legal and economic framework for economic, financial, and commercial activities from early on, and have undertaken proactive measures in this respect, while the states at the end of the ranking have acted much later to create such a framework as necessary for a good course of economic activity in general, and commercial activity in particular, based on the legal coordinates of international law.

The results of Pillar II, *Geographical aspects of the conclusion of international double taxation conventions*, summarized in Table 1, highlight the following ranking: Austria, Belgium, Denmark, Japan, Spain, and the US with a maximum of 1 point are at the top ranking of this pillar, followed closely by countries such as Canada, Finland, France, Germany, Greece, Ireland, the Netherlands, Sweden and Turkey with a score of 0.92 points. At the end of the standings is Switzerland with a score of only 0.08 points. The reasons behind the hierarchy of states in this manner were as follows: most states held a high score (over 0.92 points), which indicates that these states were largely responsible for the importance of the geographical scope of double taxation conventions, and for strengthening the network of conventions at a global level. On the opposite end, the Swiss score shows, *mutatis mutandis*, that Switzerland was much too reluctant in the past towards commercial, economic, and financial opening with the world's states, being particularly conservative in both the economic and legal framework, a fact manifested until recently when, thanks to recommendations from the states in Europe and the US, it began to revise its public policies.

Table 1 presents, in an analytical manner, the following results of the measurement of Pillar III, *Aspects regarding the types of international double taxation conventions*. Therefore, Finland, Japan, and the United States were ranked at the top of this pillar with a maximum of 1 point. In the middle of the ranking were Austria, Belgium, Canada, France, Ireland, Netherlands, Spain, Sweden, and Turkey with a score of 0.83 points, while at the end of the ranking were countries such as Greece with a score of 0.75 points and Denmark and Switzerland with a score of 0.50 points. The reasons behind the hierarchy of states in this manner were as follows: the most developed countries in the world and which normally have the most complex partnership and business relations have the most types of double taxation agreements, which shows the diversification of economic and trade activity, with an appropriate legal framework at the international level, while Denmark and Switzerland, with a low performance, did not consider it necessary until recently to build a network of conventions on types of agreements that could include a range of diverse and important areas, commercially, economically and legally.

Table 4. Data and variables (source: own processing)

Variables	Construction mechanism	Unit/Scale	Sources
Independent variables			
Aggregate index quantifying the fiscal impact of double taxation conventions on direct taxation	Temporal aspects of the conclusion of international double taxation conventions – ATDCI.	The score range between 0 (the lowest level of temporal aspects) to 1 (the highest level of temporal aspects).	Own calculations
	Geographical aspects of the conclusion of international double taxation conventions – AGCDI.	The score range between 0 (the lowest level of geographical aspects) to 1 (the highest level of geographical aspects).	Own calculations
	Aspects regarding the types of international double taxation conventions – ASCDI.	The score range between 0 (the lowest level of types of convention aspects) to 1 (the highest level of types of convention aspects).	Own calculations
	Overall score – IACIFCEDII.	The score range between 0 (the lowest level impact of the fiscal impact of international double taxation conventions) to 1 (the highest level of the fiscal impact of international double taxation conventions).	Own calculations
Personal Income Tax for Employees	Tax revenue as % of GDP.	The capital transfer has been subtracted from the total tax revenue and this reduction has been allocated between tax headings in proportion to their tax revenues.	OECD
Rule of Law	Capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	Standard normal random variable with zero mean, unit standard deviation, and ranging from –2.5 to 2.5.	Worldwide Governance Indicators
Regulatory Quality	Capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	Standard normal random variable with zero mean, unit standard deviation, and ranging from –2.5 to 2.5.	Worldwide Governance Indicators

End of Table 4

Variables	Construction mechanism	Unit/Scale	Sources
Dependent variables			
Corporate taxation	Corporate tax revenue	U.S. dollars at current prices exchange rates.	OECD
Government Effectiveness	Capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	Standard normal random variable with zero mean, unit standard deviation, and ranging from –2.5 to 2.5.	Worldwide Governance Indicators
Control of Corruption	Capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.	Standard normal random variable with zero mean, unit standard deviation, and ranging from –2.5 to 2.5.	Worldwide Governance Indicators
Control variables			
GDP per capita (GDPPC)	Gross Domestic Product per capita.	Current prices.	International Monetary Fund
Foreign direct investments (FDI)	Foreign direct investments: inward and outward floes and stock.	U.S. dollars at current prices.	UNCTAD
Exports (EXP)	Exports of goods and services, annual (BPM5) & (BPM6).	U.S. dollars at current prices exchange rates.	UNCTAD
Imports (IMP)	Imports of goods and services, annual (BPM5) & (BPM6).	U.S. dollars at current prices exchange rates.	UNCTAD
Balance of goods and services (BAL)	Balance of goods and services, annual (BPM5) & (BPM6).	U.S. dollars at current prices exchange rates.	UNCTAD

Table 4 presents the data variables within their construction mechanism, unit scale, and the organization where the data was unloaded. As it can be seen, the double taxation convention is represented by the aggregated index quantifying the fiscal impact of double taxation conventions on direct taxation – Pillar 1, Pillar 2, Pillar 3 and the overall score as independent variables; also as independent variables it can be identified personal income tax for employees, rule of law and regulatory quality; dependent variables are corporate taxation, government effectiveness and control of corruption. All these independent and dependent variables encompass the most important indicators for measuring double taxation conventions, tax compliance, and tax evasion. The last section of Table 4 presents the control variables namely: gross domestic product per capita, foreign direct investments, exports, imports, and balance of goods and services.

3. Empirical results

3.1. Scatter plots of double taxation conventions, tax compliance, and tax behavior

In Figure 1 it is presented the correlation between double taxation conventions, tax compliance and tax evasion. As it can be seen, it was chosen for the double taxation conventions the aggregate index quantifying the fiscal impact of double taxation conventions on direct taxation (AIQFIIDTC); the corporate taxation (CRT), personal income tax for employees (PTFE) and government effectiveness (GEF) for tax compliance; and for tax evasion: control of corruption (COC), rule of law (ROL) and regulatory quality (RQI).

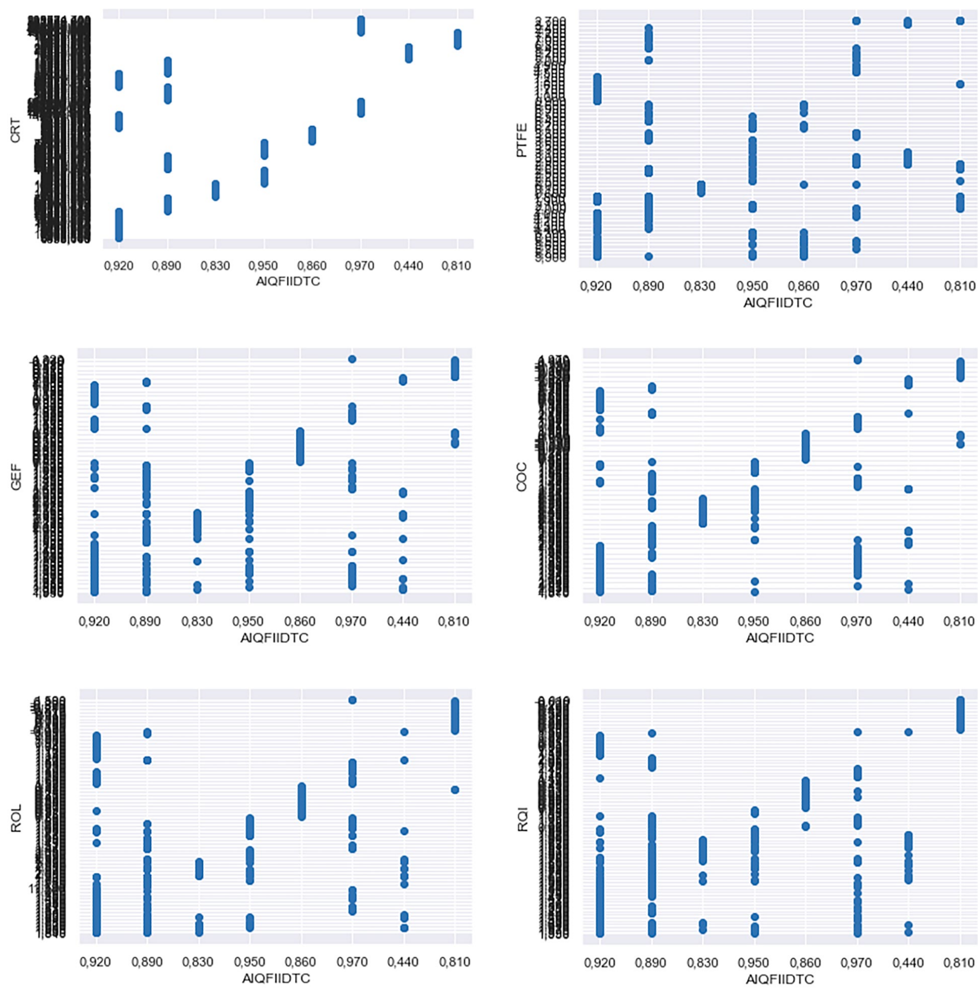

Figure 1. Scatter Plots regarding the correlation between double taxation conventions, tax compliance and tax evasion (source: own processing using Python 3.0 software)

Figure 1 shows that between double taxation conventions, tax compliance and tax evasion there is a direct connection. There can be seen that by increasing the soundness of double taxation conventions both economical and judicial there can be seen an improvement in the degree of compliance of the taxpayers both of individuals and companies, meanwhile the amplitude of the tax evasion phenomenon is reduced, due to the enhancement in the degree of compliance of the taxpayers and the improvement in the judicial and economic framework of the double taxation conventions. With other words, a consolidated *fiscal space* can lead to the strengthened of the double taxation network with a direct increase in the tax compliance agenda and decreasing the multinational effects of tax evasion both at national and international levels.

3.2. Ordinary Least Square

The Ordinary Least Square (OLS) method of estimation of the unknown parameters is enriched in a linear regression model. The OLS method chose the parameters of a linear function due to a set of explanatory variables over the appliance of the principle of least squares. The consequence is that is minimized the differences between the least square of the dependent variable in the data set and those of the linear function predictions. The reason behind presenting the empirical results of the OLS is the importance of the three equations with their dependent and independent variables applied in an OLS regression in accordance with the soundness of the empirical results. As it can be seen, a large panel of data with long-term time series and with several independent variables must be analyzed, first, throughout the OLS estimation technique. Regarding the problem of endogeneity, as can be seen in the empirical results presented in Tables 5, 6, and 7 the OLS estimation method has problems with endogeneity because the explanatory variables are correlated with the error term. However, the OLS technique has been presented in this study because of its connections and correlation with the following two estimation techniques.

Tables 5, 6, and 7 present the Ordinary Least Square results from the economic modeling techniques. Table 5 presents the OLS regression part between corporate taxation (CRT) as the dependent variable and the other dependent and control variables highlighted in equation (1). The results show a direct connection between corporate taxation and foreign direct investments, GDP per capita the three pillars of the double taxation convention index, and imports, meanwhile there can be seen as an inverse correlation between corporate taxation and personal income tax for employees, control of corruption, regulatory quality, the overall score of the double taxation convention index, export, and balance of payments.

Table 6 presents the OLS regression part between control of corruption (COC) as the dependent variable and the other dependent and control variables highlighted in Eq. (2). As it can be seen there can be identified a direct connection between control of corruption and government effectiveness, rule of law, regulatory quality, GDP per capita, exports, and the three pillars of the index for measuring double taxation conventions and exports, meanwhile, with the other variables it can be identified an inverse correlation.

Table 5. OLS regression results – Part 1 (source: own processing using Python 3.0 software)

Dep. Variable:	CRT	R-squared:	0.894
Model:	OLS	Adj. R-squared:	0.889
Method:	Least Squares	F-statistic:	184.0
Date:	Fri, 15 Apr 2022	Prob (F-statistic):	2.01e–139
Time:	07:55:17	Log-Likelihood:	–3701.2
No. Observations:	320	AIC:	7.432
Df Residuals:	305	BIC:	7489
Df Model:	14		
Covariance Type	nonrobust		

	coef	std err	t	P > |t|	[0.025	0.975]
Intercept	−1.062e+05	2.28e+04	−4.661	0.000	−1.51e+05	−6.14e+04
FDI	0.0140	0.043	0.326	0.745	−0.070	0.098
PTFE	−4653.2977	945.362	−4.922	0.000	−6513.555	−2793.040
GEF	2.238e+04	9312.129	2.403	0.017	4056.795	4.07e+04
COC	−2962.7708	8530.748	−0.347	0.729	−1.97e+04	1.38e+04
ROL	2069.2709	2599.656	0.796	0.427	−3046.261	7184.803
RQI	−2.545e+04	1.07e+04	−2.383	0.018	−4.65e+04	−4437.900
GDPPC	0.1051	0.181	0.582	0.561	−0.250	0.461
ATDCI	3.388e+06	2.33e+05	14.52	0.000	2.93e+06	3.85e+06
AGCDI	3.44e+06	2.45e+05	14.053	0.000	2.96e+06	3.92e+06
ASCDI	3.642e+06	2.49e+05	14.652	0.000	3.15e+06	4.13e+06
AIQFIIDTC	−1.03e+07	7.22e+05	−14.259	0.000	−1.17e+07	−8.88e+06
EXP	−0.0327	0.029	−1.132	0.258	−0.089	0.024
IMP	0.1042	0.029	3.563	0.000	0.047	0.162
BAL	−0.0234	0.029	−0.805	0.422	−0.081	0.034

Omnibus:	56.642	Durbin-Watson:	0.439
Prob(Omnibus):	0.000	Jarque-Bera (JB):	693.043
Skew:	0.121	Prob(JB):	3.22e-151
Kurtosis:	10.206	Cond. No.	6.13e+08

Table 6. OLS regression results – Part 2 (source: own processing using Python 3.0 software)

Dep. Variable:	COC	R-squared:	0.940
Model:	OLS	Adj. R-squared:	0.937
Method:	Least Squares	F-statistic:	342.6
Date:	Fri, 15 Apr 2022	Prob (F-statistic):	3.77e-177
Time:	07:59:51	Log-Likelihood:	110.58
No. Observations:	320	AIC:	–191.2
Df Residuals:	305	BIC:	–134.6
Df Model:	14		
Covariance Type:	nonrobust		

	coef	std err	t	P > |t|	[0.025	0.975]
Intercept	–0.0861	0.158	–0.544	0.587	–0.397	0.225
FDI	–6.177e-07	2.86e-07	–2.161	0.032	–1.18e-06	–5.51e-08
PTFE	–0.0261	0.006	–4.071	0.000	–0.039	–0.014
GEF	0.7514	0.046	16.290	0.000	0.661	0.842
CRT	–1.334e-07	3.84e-07	–0.347	0.729	–8.89e-07	6.23e-07
ROL	0.0542	0.017	3.152	0.002	0.020	0.088
RQI	0.5989	0.064	9.407	0.000	0.474	0.724
GDPPC	4.168e-07	1.21e-06	0.344	0.731	–1.97e-06	2..8e-06
ATDCI	2.2907	2.032	1.127	0.261	–1.708	6.289
AGCDI	3.1257	2.101	1.488	0.138	–1.009	7.260
ASCDI	2.9068	2.171	1.339	0.182	–1.365	7.179
AIQFIIDTC	–8.7340	6.238	–1.400	0.163	–21.010	3.542
EXP	2.098e-07	1.94e-07	1.084	0.279	–1.71e-07	5.91e-07
IMP	–1.179e-07	2e-07	–0.589	0.556	–5.12e-07	2.76e-07
BAL	3.522e-07	1.95e-07	1.809	0.071	–3.09e-08	7.35e-07

Omnibus:	3.545	Durbin-Watson:	0.745
Prob(Omnibus):	0.170	Jarque-Bera (JB):	3.571
Skew:	–0.228	Prob(JB):	0.168
Kurtosis:	2.755	Cond. No.	7.92e+08

Table 7 presents the OLS regression part between government effectiveness (GEF) as the dependent variable and the other dependent and control variables highlighted in Eq. (3). The regression results show a direct connection between government effectiveness and foreign direct investments, personal income tax for employees, rule of law, corporate taxation, control of corruption, regulatory quality, and the overall score of the double taxation conventions and imports, meanwhile, there can be identified an inverse correlation with the other variables.

Table 7. OLS regression results – Part 3 (source: own processing using Python 3.0 software)

Dep. Variable:	GEF	R-squared:	0.916
Model:	OLS	Adj. R-squared:	0.912
Method:	Least Squares	F-statistic:	238.4
Date:	Fri, 15 Apr 2022	Prob (F-statistic):	6.61e-155
Time:	08:10:50	Log-Likelihood:	141.56
No. Observations:	320	AIC:	–253.1
Df Residuals:	305	BIC:	–196.6
Df Model:	14		
Covariance Type:	nonrobust		

	coef	std err	t	P > |t|	[0.025	0.975]
Intercept	0.2965	0.143	2.078	0.039	0.016	0.577
FDI	5.983e-08	2.61e-07	0.229	0.819	–4.55e-07	5.74e-07
PTFE	0.0139	0.006	2.346	0.020	0.002	0.026
ROL	0.0021	0.016	0.130	0.897	–0.029	0.033
CRT	8.305e-07	3.46e-07	2.403	0.017	1.51e-07	1.51e-06
COC	0.6191	0.038	16.290	0.000	0.544	0.694
RQI	0.2151	0.064	3.337	0.001	0.088	0.342
GDPPC	–3.445e-06	1.08e-06	–3.180	0.002	–5.58e-06	–1.31e-06
ATDCI	–1.2797	1.847	–0.693	0.489	–4.914	2.355
AGCDI	–1.8199	1.911	–0.952	0.342	–5.581	1.941
ASCDI	–1.6497	1.974	–0.836	0.404	–5.535	2.235
AIQFIIDTC	4.8199	5.674	0.849	0.396	–6.345	15.985
EXP	–3.12e-07	1.75e-07	–1.781	0.076	–6.57e-07	3.28e-08
IMP	2.091e-07	1.81e-07	1.152	0.250	–1.48e-07	5.66e-07
BAL	–3.802e-08	1.78e-07	–0.214	0.831	–3.88e-07	3.12e-07

Omnibus:	5.392	Durbin-Watson:	0.637
Prob(Omnibus):	0.067	Jarque-Bera (JB):	5.714
Skew:	0.207	Prob(JB):	0.0574
Kurtosis:	3.508	Cond. No.	7.94e+08

3.3. Generalized Least Square

The Generalized Least Square (GLSAR) estimation technique permits the estimation of a linear model under the auspices of a certain degree of correlation between two residuals in a regression model. It can be seen that the GLSAR estimator is consistent, more efficient, unbiased, and asymptotically normal. The structure of GLSAR permits the errors standardization and their decomposition. The reason for adopting the GLSAR techniques consists of the fact that OLS is applied with homoscedastic errors. Consequently, it is applied the Gauss-Markov theorem and the GLSAR estimation technique will register the best linear unbiased estimator for the predictor. The consequence is that taking into account the autocorrelation and homoscedastic problems the GLSAR technique is much more efficient than the OLS estimation technique, especially for long-run time series as there are used in this study. As it can be seen in the empirical results presented in Tables 8, 9 and 10 the GLSAR method registers better results in terms of endogeneity problems. In the aftermath, it can be stated the GLSAR method register better results in terms of solving the endogeneity problems.

Tables 8, 9, and 10 present the GLSAR results from the economic modeling techniques. Table 8 presents. the GLSAR regression part between corporate taxation (CRT) as the dependent variable and the other dependent and control variables highlighted in Eq. (1). The results show an inverse correlation between corporate taxation, and all variables except government effectiveness, rule of law, the three pillar of the index for measuring double taxation conventions, and imports.

Table 8. GLSAR regression results – Part 1 (source: own processing using Python 3.0 software)

Dep. Variable:			CRT		R-squared:	0.892
Model:			GLSAR		Adj. R-squared:	0.888
Method:			Least Squares		F-statistic:	194.5
Date:			Fri, 15 Apr 2022		Prob (F-statistic):	5.25e-139
Time:			08:41:34		Log-Likelihood:	–3692.6
No. Observations:			319		AIC:	7413
Df Residuals:			305		BIC:	7466
Df Model:			13			
Covariance Type:			nonrobust			
	coef	std err	t	P > |t|	[0.025	0.975]
const	–9.281e+04	2.22e+04	–4.178	0.000	–1.37e+05	–4.91e+04
FDI	–0.0032	0.043	–0.075	0.940	–0.087	0.081
PTFE	–4955.6962	9 54.835	–5.190	0.000	–6834.594	–3076.798
GEF	1.805e+04	9260.879	1.949	0.052	–172.827	3.63e+04
COC	–1.257e+04	7538.370	–1.668	0.096	–2.74e+04	2262.487
ROL	2014.2505	2620.026	0.769	0.443	–3141.365	7169.866
GDPPC	–0.0136	0.174	–0.078	0.938	–0.357	0.330
ATDCI	3.48e+06	2.34e+05	14.876	0.000	3.02e+06	3.94e+06
AGCDI	3.57e+06	2.43e+05	14.698	0.000	3.09e+06	4.05e+06
ASCDI	3.764e+06	2.48e+05	15.207	0.000	3.28e+06	4.25e+06
AIQFIIDTC	–1.067e+07	7.18e+05	–14.853	0.000	–1.21e+07	–9.25e+06
EXP	–0.0389	0.029	–1.343	0.180	–0.096	0.018
IMP	0.1124	0.029	3.837	0.000	0.055	0.170
BAL	–0.0113	0.029	–0.391	0.696	–0.068	0.046
Omnibus:			54.181		Durbin-Watson:	0.421
Prob(Omnibus):			0.000		Jarque-Bera (JB):	635.200
Skew:			0.015		Prob(JB):	1.17e-138
Kurtosis:			9.913		Cond. No.	6.05e+08

Table 9 presents the GLSAR regression part between control of corruption (COC) as the dependent variable and the other dependent and control variables highlighted in Eq. (2). As it can be seen that it is manifested an inverse relationship between control of corruption and foreign direct investments, personal income tax for employees, corporate taxation, the overall score of the index for measuring double taxation conventions, and imports meanwhile with the other variables it can be seen a direct connection.

Table 9. GLSAR regression results – Part 2 (source: own processing using Python 3.0 software)

Dep. Variable:	COC	R-squared:	0.923
Model:	GLSAR	Adj. R-squared:	0.920
Method:	Least Squares	F-statistic:	280.7
Date:	Fri, 15 Apr 2022	Prob (F-statistic):	5.21e-161
Time:	08:45:21	Log-Likelihood:	69.167
No. Observations:	319	AIC:	–110.3
Df Residuals:	305	BIC:	–57.62
Df Model:	13		
Covariance Type:	nonrobust		

	coef	std err	t	P > |t|	[0.025	0.975]
const	–0.5798	0.169	–3.421	0.001	–0.913	–0.246
FDI	–2.696e-07	3.22e-07	–0.837	0.403	–9.03e-07	3.64e-07
PTFE	–0.0299	0.007	–4.073	0.000	–0.044	–0.015
GEF	1.0968	0.032	34.336	0.000	1.034	1.160
CRT	–7.188e-07	4.31e-07	–1.668	0.096	–1.57e-06	1.29e-07
ROL	0.0724	0.019	3.735	0.000	0.034	0.111
GDPPC	4.276e-06	1.3e-06	3.298	0.001	1.73e-06	6.83e-06
ATDCI	2.5691	2.319	1.108	0.269	–1.993	7.132
AGCDI	2.5230	2.396	1.053	0.293	–2.192	7.237
ASCDI	2.6064	2.477	1.052	0.294	–2.268	7.481
AIQFIIDTC	–7.3939	7.116	–1.039	0.300	–21.397	6.609
EXP	4.406e-07	2.18e-07	2.020	0.044	1.14e-08	8.7e-07
IMP	–3.368e-07	2.26e-07	–1.491	0.137	–7.81e-07	1.08e-07
BAL	1.083e-07	2.19e-07	0.494	0.622	–3.23e-07	5.4e-07

Omnibus:	4.989	Durbin-Watson:	0.721
Prob(Omnibus):	0.083	Jarque-Bera (JB):	4.954
Skew:	–0.305	Prob(JB):	0.0840
Kurtosis:	2.990	Cond. No.	.96e+08

Table 10 presents the GLSAR regression part between government effectiveness (GEF) as the dependent variable and the other dependent and control variables highlighted in Eq. (3). The empirical results show a direct connection between government effectiveness and all variables except GDP per capita, the three pillars of the index for measuring double taxation conventions, exports, and balance of trade, where there can be identified an inverse correlation.

Table 10. GLSAR regression results – Part 3 (source: own processing using Python 3.0 software)

Dep. Variable:	GEF	R-squared:	0.913
Model:	GLSAR	Adj. R-squared:	0.910
Method:	Least Squares	F-statistic:	247.1
Date:	Fri, 15 Apr 2022	Prob (F-statistic):	2.74e-153
Time:	08:46:13	Log-Likelihood:	135.34
No. Observations:	319	AIC:	−242.7
Df Residuals:	305	BIC:	−190.0
Df Model:	13		
Covariance Type:	nonrobust		

	coef	std err	t	P > |t|	[0.025	0.975]
const	0.1668	0.140	1.191	0.234	−0.109	0.442
FDI	2.154e-07	2.62e-07	0.824	0.411	−2.99e-07	7.3e-07
PTFE	0.0147	0.006	2.425	0.016	0.003	0.027
COC	0.7243	0.021	34.336	0.000	0.683	0.766
CRT	6.816e-07	3.5e-07	1.949	0.052	6.53e-09	1.37e-06
ROL	0.0029	0.016	0.177	0.860	−0.029	0.035
GDPPC	−2.448e-06	1.06e-06	−2.303	0.022	−4.54e-06	−3.56e-07
ATDCI	−1.2405	1.887	−0.657	0.511	−4.953	2.472
AGCDI	−2.1258	1.947	−1.092	0.276	−5.957	1.705
ASCDI	−1.8308	2.014	−0.909	0.364	−5.794	2.132
AIQFIIDTC	5.5209	5.785	0.954	0.341	−5.862	16.904
EXP	−2.736e-07	1.78e-07	−1.539	0.125	−6.23e-07	7.62e-08
IMP	1.652e-07	1.84e-07	0.898	0.370	−1.97e-07	5.27e-07
BAL	−1.32e-07	1.78e-07	−0.741	0.459	−4.82e-07	2.19e-07

Omnibus:	3.825	Durbin-Watson:	0.646
Prob(Omnibus):	0.148	Jarque-Bera (JB)	3.678
Skew:	0.186	Prob(JB):	0.159
Kurtosis:	3.371	Cond. No.	7.96e+08

3.4. Quantile regression

Quantile regression represents an estimation technique in which it is approximate either the other quartiles of the response variable or the median. The reason behind adopting this method is that, compared to the OLS regression technique where it is offered an estimation of the response of the variable conditional average, the quantile regression can produce a quartile modification estimation of the response variable which is generated by the predictor over the unit change. Taking into account the empirical results presented in Tables 11, 12, and 13, it can be seen that quantile regression shows improved results in terms of solving the endogeneity problems. Accordingly, it can be shown that the quantile regression technique registers better results in terms of endogeneity problems compared to OLS which registers problems of endogeneity.

Tables 11, 12, and 13 present the Quantile Regression results from the economic modeling techniques. Table 11 presents the Quantile Regression part between corporate taxation (CRT) as the dependent variable and the other dependent and control variables highlighted in Eq. (1). As can be seen in Table 11, the results show an inverse correlation between corporate taxation and all variables except for foreign direct investments, exports, and imports where it can be identified as a direct correlation.

Table 11. QuantReg regression results – Part 1 (source: own processing using Python 3.0 software)

Dep. Variable:	CRT	Pseudo R-squared:	0.5835
Model:	QuantReg	Bandwidth:	5447
Method:	Least Squares	Sparsity:	1.913e+04
Date:	Fri, 15 Apr 2022	No. Observations:	320
Time:	08:14:58	Df Residuals:	305
		Df Model:	14

	coef	std err	t	P > |t|	[0.025	0.975]
Intercept	−4.859e-07	8322.349	−5.84e-11	1.000	−1.64e+04	1.64e+04
FDI	0.0060	0.016	0.389	0.697	−0.025	0.037
PTFE	−3.803e-06	340.043	−1.12e-08	1.000	−669.126	669.126
GEF	−2.996e-07	3402.198	−8.81e-11	1.000	−6694.750	6694.750
COC	−1.841e-07	3109.086	−5.92e-11	1.000	−6117.973	6117.973
ROL	−3.232e-07	948.553	−3.41e-10	1.000	−1866.537	1866.537
RQI	−4.761e-07	3843.106	−1.24e-10	1.000	−7562.358	7562.358
GDPPC	−0.0141	0.066	−0.214	0.830	−0.143	0.115
ATDCI	−4.685e-07	1.13e+04	−4.16e-11	1.000	−2.22e+04	2.22e+04
AGCDI	−4.253e-07	5398.598	−7.88e-11	1.000	−1.06e+04	1.06e+04
ASCDI	−3.384e-07	5190.851	−6.52e-11	1.000	−1.02e+04	1.02e+04
AIQFIIDTC	−4.107e-07	2698.525	−1.52e-10	1.000	−5310.083	5310.083
EXP	0.0101	0.011	0.954	0.341	−0.011	0.031
IMP	0.0696	0.011	6.509	0.000	0.049	0.091
BAL	−0.1818	0.010	−17.758	0.000	−0.202	−0.162

Table 12. QuantReg regression results – Part 2 (source: own processing using Python 3.0 software)

Dep. Variable:	COC	Pseudo R-squared:	0.6108
Model:	QuantReg	Bandwidth:	0.1647
Method:	Least Squares	Sparsity:	0.5883
Date:	Fri, 15 Apr 2022	No. Observations:	320
Time:	08:15:55	Df Residuals:	305
		Df Model:	14

	coef	std err	t	P > |t|	[0.025	0.975]
Intercept	0.1241	0.260	0.478	0.633	−0.387	0.635
FDI	−7.577e-07	4.75e-07	−1.595	0.112	−1.69e-06	1.77e-07
PTFE	−0.0879	0.010	−8.560	0.000	−0.108	−0.068
GEF	0.4132	0.077	5.343	0.000	0.261	0.565
CRT	−5.392e-07	4.98e-07	−1.083	0.280	−1.52e-06	4.41e-07
ROL	0.3646	0.029	12.685	0.000	0.308	0.421
RQI	0.3015	0.107	2.824	0.005	0.091	0.512
GDPPC	−5.412e-06	2.02e-06	−2.676	0.008	−9.39e-06	−1.43e-06
ATDCI	0.1195	0.345	0.346	0.729	−0.559	0.798
AGCDI	0.1245	0.168	0.743	0.458	−0.205	0.454
ASCDI	0.0704	0.165	0.426	0.670	−0.255	0.396
AIQFIIDTC	0.1045	0.086	1.210	0.227	−0.065	0.274
EXP	5.186e-07	3.24e-07	1.600	0.111	−1.19e-07	1.16e-06
IMP	−3.584e-07	3.33e-07	−1.075	0.283	−1.01e-06	2.98e-07
BAL	2.337e-07	3.21e-07	0.728	0.467	−3.98e-07	8.66e-07

Table 12 presents the Quantile Regression part between control of corruption (COC) as the dependent variable and the other dependent and control variables highlighted in Eq. (2). The empirical results show a negative correlation between the control of corruption and foreign direct investments, personal income tax for employees, corporate taxation, GDP per capita, and imports, meanwhile with the other variables it can be identified as a negative correlation.

Table 13 presents the Quantile Regression part between government effectiveness (GEF) as the dependent variable and the other dependent and control variables highlighted in Eq, (3). As it can be seen in Table 13, between government effectiveness and foreign direct investments, GDP per capita, exports, and balance of trade are manifested as an inverse correlation, meanwhile, regarding the connection with the other variables, it can be seen as a direct correlation.

Table 13. QuantReg regression results – Part 3 (source: own processing using Python 3.0 software)

Dep. Variable:	GEF	Pseudo R-squared:	0.6766
Model:	QuantReg	Bandwidth:	0.09708
Method:	Least Squares	Sparsity:	0.3317
Date:	Fri, 15 Apr 2022	No. Observations:	320
Time:	08:16:44	Df Residuals:	305
		Df Model:	14

	coef	std err	t	P > |t|	[0.025	0.975]
Intercept	0.1348	0.146	0.926	0.355	−0.152	0.421
FDI	−3.791e-07	2.7e-07	−1.403	0.162	−9.11e-07	1.53e-07
PTFE	0.0016	0.006	0.269	0.788	−0.010	0.013
CRT	5.867e-07	2.78e-07	2.108	0.036	3.91e-08	1.13e-06
COC	0.5322	0.040	13.473	0.000	0.454	0.610
ROL	0.1320	0.016	8.027	0.000	0.100	0.164
RQI	0.2087	0.067	3.113	0.002	0.077	0.341
GDPPC	−1.111e-06	1.12e-06	−0.990	0.323	−3.32e-06	1.1e-06
ATDCI	0.0482	0.196	0.246	0.806	−0.337	0.433
AGCDI	−0.0407	0.094	−0.431	0.667	−0.227	0.145
ASCDI	0.1072	0.093	1.149	0.252	−0.076	0.291
AIQFIIDTC	0.0381	0.049	0.776	0.438	−0.058	0.135
EXP	−2.695e-07	1.82e-07	−1.480	0.140	−6.28e-07	8.88e-08
IMP	2.048e-07	1.88e-07	1.091	0.276	−1.64e-07	5.74e-07
BAL	−2.296e-08	1.82e-07	−0.126	0.900	−3.81e-07	3.35e-07

3.5. Results of testing the research hypotheses

The results of the derived signs of the independent and explanatory variables in the three equations and their validation by the empirical results are presented in Tables 14, 15, and 16.

The hypothesis I1 of the study is confirmed by the regression analysis performed in sections 3.2–3.4 and presented in Tables 14–16. According to the results in Tables 14–16, the double taxation conventions network and framework represent a powerful tool and instrument in order to strengthen the fiscal system, *lato sensu*, and tax system, *stricto sensu.* The economic and judicial aspects enriched in double taxation conventions can lead to a worldwide better tax and fiscal network improving tax compliance and reducing the scale of tax evasion.

Table 14. Derived signs of the independent and explanatory variables in equation and validation by the empirical results – Eq. (1) (source: own processing)

Variable	Denominations	Acronyms	Sign	Empirical Results
Dependent variables	Corporate taxation	*CRT*		
Independent variables	Temporal aspects of the conclusion of international double taxation conventions	*ATDCI*	+/–	Support
	Geographical aspects of the conclusion of international double taxation conventions	*AGCDI*	+/–	Support
	Aspects regarding the types of international double taxation conventions	*ASCDI*	+/–	Support
	Overall score	*IACIFCEDII*	+/–	Support
	Personal income tax for employees	*PTFE*	–	Support
	Rule of law	*ROL*	+/–	Support
	Regulatory quality	*RQI*	+	Reject
Explanatory variables	Gross domestic product per capita, current prices	*GDPPC*	+	Reject
	Foreign direct investment: inward and outward flows and stock	*FDI*	+	Reject
	Exports of goods and services, annual	*EXP*	+	Reject
	Imports of goods and services, annual	*IMP*	–	Reject
	Balance of goods and services, annual	*BAL*	+/–	Support

Table 15. Derived signs of the independent and explanatory variables in equation and validation by the empirical results – Eq. (2) (source: own processing)

Variable	Denominations	Acronyms	Sign	Empirical Results
Dependent variables	Control of corruption	*COC*		
Independent variables	Temporal aspects of the conclusion of international double taxation conventions	*ATDCI*	+	Support
	Geographical aspects of the conclusion of international double taxation conventions	*AGCDI*	+	Support
	Aspects regarding the types of international double taxation conventions	*ASCDI*	+	Support
	Overall score	*IACIFCEDII*	+	Reject
	Personal income tax for employees	*PTFE*	–	Support
	Rule of law	*ROL*	+	Support
	Regulatory quality	*RQI*	+	Support
Explanatory variables	Gross domestic product per capita, current prices	*GDPPC*	+/–	Support
	Foreign direct investment: inward and outward flows and stock	*FDI*	+/–	Support
	Exports of goods and services, annual	*EXP*	+	Support
	Imports of goods and services, annual	*IMP*	–	Support
	Balance of goods and services, annual	*BAL*	+/–	Support

Regarding hypothesis I2, it can be observed that it is confirmed partially. The index constructed in this article was designed in order to enhance the judicial and economic of double taxation conventions. However, this fact represents just one of the many reasons a taxpayer has to be capable to enact in order to pay at the proper time all types of taxes and duties. Beyond a good structure of an international fiscal environment created by the double taxation conventions network, there are other important features that a taxpayer must have in order to increase tax compliance such as tax conscience, tax morale, trustworthiness in tax authorities, and a minimum background regarding a good financial education.

The hypothesis I3 is confirmed by the empirical studies. The levels and the amplitude of tax evasion can be reduced both national and international by proper and complex double taxation conventions network, which will become one powerful tool in reducing tax fraud and tax avoidance. Moreover, clear, unbiased, and structured legislation combined with predictable tax and fiscal policies can be paths that lead to success in the fight against tax evasion.

Hypothesis I4 is confirmed partially. The complex relationship between taxes and their implications on the business environment is far more complex and exclusive and has multifaced aspects. Indeed, a strong network of double taxation conventions can improve the taxpayer's willingness to pay its taxes on time and can be a factor that decreases the spread of tax evasion. However, the business environment is a complex phenomenon that cannot be influenced just by these aspects. The policy mix is very important because fiscal policy alongside monetary policy and social policy must gather for the business environment developments and evolution.

Table 16. Derived signs of the independent and explanatory variables in equation and validation by the empirical results – Eq. (3) (source: own processing)

Variable	Denominations	Acronyms	Sign	Empirical Results
Dependent variables	Government effectiveness	*GEF*		
Independent variables	Temporal aspects of the conclusion of international double taxation conventions	*ATDCI*	+	Reject
	Geographical aspects of the conclusion of international double taxation conventions	*AGCDI*	–	Support
	Aspects regarding the types of international double taxation conventions	*ASCDI*	+	Reject
	Overall score	*IACIFCEDII*	+	Support
	Personal income tax for employees	*PTFE*	+	Support
	Rule of law	*ROL*	+	Support
	Regulatory quality	*RQI*	+	Support
Explanatory variables	Gross domestic product per capita, current prices	*GDPPC*	+	Reject
	Foreign direct investment: inward and outward flows and stock	*FDI*	+	Reject
	Exports of goods and services, annual	*EXP*	+	Reject
	Imports of goods and services, annual	*IMP*	–	Reject
	Balance of goods and services, annual	*BAL*	+/–	Support

The hypothesis I5 is confirmed partially. The empirical results show that alone a legal system and an efficient economic structure cannot lead to a better trade environment and commerce and the strengthening of the business environment worldwide. However, the legal system and a competitive economy which can absorb several shocks can be seen as features of judicial stability and long-term economic growth. Nowadays, the judicial medium and economic environment are accompanied by quick and rapid changes in their structure and mechanisms due to the many underlying factors which make the financial markets turbulent and the judicial system unstable.

4. Discussion and recommendations

Worldwide, there is a network of over 3,000 international tax treaties signed, with a direct link between the level of economic development of a state and the extension of this network (Dumiter et al., 2015). In this respect, the signing of international tax treaties becomes a prerequisite for the development of emerging countries and requires direct foreign investment (Radu, 2012; Dumiter & Jimon, 2016; Tafa, 2013; Steenkamp, 2014).

The effects of signing tax treaties were studied by Ida (2006), who demonstrated, contrary to other studies, that world economic well-being can be maximized through a zero-equilibrium tax rate within capital-exporting countries that earn various gains, while the importer states are registering losses, compared with the situation where there is no tax deduction. Barthel et al. (2009) demonstrated that there is a direct link between international tax treaties and foreign investment, although in Davies et al. (2009) on multinationals in Sweden, the impact is particularly small, there is the possibility of having subsidiaries in partner countries. Rixen (2008) approached the topic of international cooperation and showed that information and investment asymmetry are the reason why states prefer bilateral negotiations.

Braun and Zagler (2015) is one of the most comprehensive studies, analyzing double taxation conventions from an economic perspective in emerging countries, concluding that double taxation conventions are linked to variables such as geographical position, the size and degree of openness of the economy, political influences, and the level of state development.

Another group of authors analyzed the legal and economic double taxation, especially at the level of the European Union, the authors pointing to the existence and persistence of issues both in the legal framework and in the technical, economic and financial one (De Groot, 2015; Kahlenberg & Kopec, 2016; Kuzniacki, 2015; Marchgraber, 2014; Smit, 2016).

The taxpayer's income and profits collecting method as well as the efficiency and perceived or real justice in the relationship with the non-resident taxpayers can be factors that can influence the business environment. Starting from the non-resident taxpayer perspective, taxes represent a part of cots for the business conduct process. Several aspects such as certainty and predictability of taxation are just as important as the volume of taxes collected. Therefore, tax administrations that have authority can collect the taxpayer's due taxes and also contribute to a positive business environment, especially in regard to foreign investments. On the other hand, in cases in which tax administrations are reluctant and inefficient, they will create uncertainty, confusion, and exasperation amongst taxpayers, a fact that can lead to the discouraging of foreign companies to develop businesses or perform investments in the source state.

Tax treaties address the problem of tax jurisdiction duplication, throughout tax right allocation, according to the double taxation conventions signed by the states, thus preventing the double taxation phenomenon. The large-scale taxation process encounters the interactions between the tax treaty network and tax systems assessment of income and capital developed by the OECD; this has become the foundation stone of the international tax treaty system. Moreover, the United Nations Model Convention has at its basis the OECD Convention Model. In the momentum of constructing a double taxation convention, the signatory parts accept an international tax obligation. Thus, the signatory states commit to dropping completely or partially the taxation rights regarding several taxes in different situations.

The findings of this research emphasize that it is very important the highlight the fact that the taxpayer is the main active component of the tax system upon it reverberates the implementation of fiscal policy and its modifications from the tax compliance and tax behavior perspective. According to the provisions of the law, the taxpayer is obliged to steer at the state budget the value that it creates as a result of the carried-out activity. The research results show two directions of tax behavior: (i) tax compliance, namely the overall reporting of the tax base and timeline disposal of companies' tax obligations; (ii) non-compliance tax, which is produced in cases where the taxpayer avoid the payment of its own taxes, throughout several different methods. Regarding the establishment of tax behavior, the taxpayer must encounter the trustworthiness regarding the tax authorities, especially in the state by its control entities in cases of forced or enforced compliance, whereas these institutions react *vis – á – vis* of risk, penalties, or even detention. In the vast majority of states, there can be identified two types of non-compliance tax: lawful tax evasion by several legislative breaches very intense exploited and illicit tax evasion, through which it is violated, conscious, the law having the final purpose of diminishing tax obligations.

On the other side, it can be emphasized that the distinction of economic operators from the tax fraud chains which can include a large number of diverse operations under the auspices of double taxation and inadequate taxation can generate a distinct framework of the integrated IT system application appliance, beyond CCCTB, regarding the separate individualization of overall economic operators in the tax evasion chains or the concealment/ diminishing the incomes subject to taxes.

In the respect of the above-mentioned aspects, it can be proposed a common fiscal record at the European Union and OECD which must contain all fraud cases identified at the national tax administration level, especially the indexation of those tax subjects whose tax conduct was fraudulent throughout the final and irrevocable conviction decisions. These actions can be subsumed in a common database accessible to the overall national fiscal authorities in order to permit a permanent assessment and valuation of tax behavior.

Aggressive tax planning can be treated as tax evasion. The concept of aggressive tax planning accomplishes gains upon the technical structure of a tax system or the lack of compliance between two or several fiscal systems. In other words, aggressive tax planning subsumes the excessive use of opportunities for decreasing corporate tax burdens. The implications of aggressive tax planning are materialized in a high degree of financial resources for different states as well as the payment of unfair taxes by some taxpayers together with decreasing the degree of tax compliance, creating, *mutadis mutandis*, competitiveness distortion between several companies. This hypothesis is certified and confirmed even by the research outcomes of the OECD. Therefore, these two concepts must be debated distinctly in order to be better understood each other being important also the analysis of the measure undertaken by the governments for fighting against these problems.

There can be concluded that the most efficient method for combat tax evasion is that the tax authorities undertake and confer on reciprocal basis information regarding several incomes and capital types of taxpayers and companies in domains such as real estate, mortgages, business income, and securities. In time, tax evasion was described in many different shapes, but today it can be identified as a moral and vicious problem. However, experts have been conscient that the main problem which causes tax evasion is represented by, *stricto sensu*, the high levels of tax rates.

Conclusions

Double taxation issues enriched in the specialized literature have indicated that no matter the econometric approach was taken into account in each of these studies, it was demonstrated that double taxation conventions have a significant impact on foreign direct investments for both developed and developing countries. The empirical studies also suggest that double taxation conventions are also influenced by the taxation system of a country and also by fiscal policy. The overall conclusion regarding the studies analyzed in double taxation conventions paths suggests that by strengthened the soundness of the taxation system, improving the tax treaty network, and by worldwide fiscal cooperation among tax authorities can lead to an improvement in the global business environment, especially regarding the acceleration of foreign direct investments.

The tax compliance agenda debated in the empirical literature revealed that there were several important econometric modeling techniques for the quantification of the background and consequences of tax compliance behavior and actions. Unconcerned about the econometric technique used and the sample taken into account the results of the empirical studies present the key features for increasing tax compliance soundness and strengthening the taxpayer's behavior: first, there are important aspects such as tax morale and tax conscience regarding the essence of the fiscal capacity of a taxpayer; second, the trustworthiness of taxpayers regarding the ability of tax authorities to administer the just enactment of taxes; third, financial literacy of taxpayers by enhancing the tax culture and tax history of the financial system both on national and international levels.

Tax evasion problems are presented in the empirical literature both economical and judicial problems which undermine the economy and distort the judicial system. In this sense, it can be identified several underlying factors which influence tax evasion: first, wage salaries and other financial stimulants of the taxpayers regarding the specific amount which must earn the tax actors; second, issues such as corruption, fraud, and shadow economy and economic crime contribute to the enactment of tax evasion; finally, it can be identified moral aspects which tax evasion can interfere such as money ethics, religiosity, economic culture, economic establishment, ethical perceptions and idealism throughout taxpayers.

Analyzing the vast majority of empirical economic and judicial studies in the domains of double taxation, tax compliance, and tax evasion we can observe the issue of double taxation conventions, tax compliance, and tax evasion were treated separately. This study has the scope of an integrated approach in which it is tackled the three issues mentioned about by both economic and financial perspectives, the outline of the judicial problems, and the overall impact of double taxation conventions, tax compliance, and tax evasion upon the business environment and the worldwide economy.

The economic interpretation, in view of the results generated by the linear model through the regression equations presented above, underlines the fact that an efficient and effective structure of the double taxation convention network can be achieved through the following factors: compliance and tax culture as much as possible from taxpayers in fulfilling their tax obligations; reducing the scale and scope of tax fraud and tax evasion, both nationally and internationally; a stable and efficient fiscal system built in the long term and predictably, with no unexpected "surprises" that disrupt the business environment.

The legal interpretation of the correlation between double taxation conventions, tax compliance, and tax evasion wishes to highlight that the degree of development of the legal system of a country, in conjunction with the level of development of the tax system, is a factor that leads to the establishment of a friendly framework for taxpayers, both at the level of one state and at the international level, by strengthening international and European fiscal space.

Considering the construction of the aggregate index and its quantification in the most representative OECD member states, as well as the testing of its correlation with tax compliance and tax evasion indicators, it is considered that the proposed article adds value due to highlighting, *mutadis mutandis*, the legal and economic connections which are manifested in theory and practice between the legal system and the tax system in general, on the one hand, and the direct taxation indicators on the other hand, which are particularly important in the good course of the economy and the rule of law.

The results of the econometrical tests reveal that independent of the modeling technique used in the empirical part: OLS, GLSAR, or QuantReg the results show a strong correlation between double taxation conventions, tax compliance, and tax evasion. The double taxation framework is very sensitive and needs to be constructed in a proper judicial manner in order to consolidate the fiscal space both, especially on the OECD countries. Moreover, tax compliance is a very important characteristic, due to the need for conformity, culture, and tax conscience of the taxpayer. These aspects will lead to an improvement of the fiscal space, *lato sensu*, especially toward reducing the scale and soundness of tax evasion across the world.

The most important empirical results presented in this study were the GLSAR and Quartile regression techniques because of their soundness and clarity regarding the empirical research findings. However, it was important to present also the OLS technique and its application *vis – á – vis* of the complex relationship between double taxation conventions, tax compliance, and tax evasion for having an initial starting point and the background agenda established.

Taking into account the quantitative nature of the research enriched in this article the most important results are those provided by the GLSAR estimation technique because it has a high degree of accuracy in the estimation of the three equations, dealing with a large amount of run-run time series panel data, and solving also the problem of the multicollinearity and endogeneity.

The overall conclusion of this study stipulates that the construction, interpretation, and implementation of double taxation conventions will represent a *quid pro quo* regarding the enhancement of the degree of tax conformity, tax compliance, and tax culture of the taxpayer. This is especially the case of increasing the tax conscience of a taxpayer, a feature which is responsible for decreasing the tenure and negative effects of tax evasion and tax fraud.

The limitation of the study regards the limited amount of data and conventions network availability regarding tax treaties. A double taxation convention network is difficult to access and evaluate on a timeline basis because of the large number of tax treaties that countries conclude each day. The data available regarding several important indicators for the evaluation of tax compliance and tax evasion is limited and has several limitations in terms of countries and different years. Moreover, the list of OECD countries considered in this study was selected as the most representative ones from the specific country list.

In future research studies, this study will be continued with the appliance of the index for measuring double taxation conventions which can be expanded both at the OECD country level, but also on the EU country level. Consequently, it is considered interesting in future studies to build three types of countries: developed, emerging, and less developed countries in order to have a more precise look at the structure and appliance of double taxation conventions. In this regard, the MLI convention type which includes a large number of countries with several interconnections can be an interesting tool to establish new features of double taxation conventions. It is interesting to expand also the indicators for evaluating tax compliance and tax evasion to a whole range of cultural, moral, social, and anthropological aspects. Finally, the interconnections between double taxation conventions, tax compliance, and tax evasions must be explained by a large scale of indicators and factors which must be taken into account at the international level.

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APPENDIX

Appendix 1. Aggregate index quantifying the fiscal impact of international double taxation conventions

Pillar I – Temporal aspects of the conclusion of international double taxation conventions

1. Date of signature of the first double taxation convention:

1.A. During the timeframe: 1950 → 1960.
1.B. During the timeframe: 1961 → 1970.
1.C. During the timeframe: 1971 → 1980.
1.D. During the timeframe: 1981 → 1990.
1.E. During the timeframe: 1991 → 2000.
1.F. During the timeframe: 2001 → 2010.
1.G. During the timeframe: 2011 → present.

(a) Within the first time frame (1.A. → 1.G.)	1.00 point
(b) Within the second time frame (1.A. → 1.G.)	0.75 points
(c) Within the third time frame (1.A. → 1.G.)	0.50 points
(d) Within the fourth time frame (1.A. → 1.G.)	0.25 points
(e) Within the last three time frames (1.A. → 1.G.)	0.00 points

2. Timeframes when double taxation conventions were concluded:

2.A. During the timeframe: 1950 → 1960.
2.B. During the timeframe: 1961 → 1970.
2.C. During the timeframe: 1971 → 1980.
2.D. During the timeframe: 1981 → 1990.
2.E. During the timeframe: 1991 → 2000.
2.F. During the timeframe: 2001 → 2010.
2.G. During the timeframe: 2011 → present

(a) Within at least five time frames (2.A. → 2.G.)	1.00 point
(b) Within at least four time frames (2.A. → 4.G.)	0.75 points
(c) Within at least three time frames (2A. → 2.G.)	0.50 points
(d) Within at least two time frames (2.A. → 2.G.)	0.25 points
(e) One single time frame (2.A. → 2.G.)	0.00 points

3. Timeframe when the last double taxation convention was concluded:

3.A. During the timeframe: 2011 → present.
3.B. During the timeframe: 2010 → 2001.
3.C. During the timeframe: 2000 → 1991.
3.D. During the timeframe: 1990 → 1981.
3.E. During the timeframe: 1980 → 1971.
3.F. During the timeframe: 1970 → 1961.
3.G. During the timeframe: 1960 → 1950.

(a) Within the first time frame (1.A. → 1.G.)	1.00 point
(b) Within the second time frame (1.A. → 1.G.)	0.75 points

(c) Within the third time frame (1.A. → 1.G.) 0.50 points
(d) Within the fourth time frame (1.A. → 1.G.) 0.25 points
(e) Within the last three time frames (1.A. → 1.G.) 0.00 points

Total score for temporal aspects of the conclusion of international double taxation conventions = total number of points / 3 (number of subcriteria) → minimum level 0 points, maximum level 1 point.

Pillar II – Geographical aspects of the conclusion of international double taxation conventions

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4. Countries from different geographical areas (continents) with which the state has concluded double taxation conventions:

4.A. Europe.
4.B. North America.
4.C. South America.
4.D. Asia.
4.E. Africa.
4.F. Australia.

(a) At least five geographical areas (4.A. → 4.F.) 1.00 point
(b) At least four geographical areas (4.A. → 4.F.) 0.75 points
(c) At least three geographical areas (4.A. → 4.F.) 0.50 points
(d) At least two geographical areas (4.A. → 4.F.) 0.25 points
(e) One single geographical area (4.A. → 4.F.) 0.00 points

5. Geographical areas (continents) with which the state has concluded the least international double taxation conventions:

4.A. Europe.
4.B. North America.
4.C. South America.
5.D. Asia.
5.E. Africa.
5.F. Australia.

(a) Mostly Africa (5.A. → 5.F.) 1.00 point
(b) Mostly Australia and South America (5.A. → 5.F.) 0.75 points
(c) Mostly Asia (5.A. → 5.F.) 0.50 points
(d) Mostly North America (5.A. → 5.F.) 0.25 points
(e) Mostly Europe (5.A. → 5.F.) 0.00 points

6. Geographical areas (continents) with which the state has concluded the most international double taxation conventions:

4.A. Europe.
4.B. North America.
4.C. South America.
6.D. Asia.
6.E. Africa.
6.F. Australia.

(a) Mostly Europe (6.A. → 6.F.)	1.00 point
(b) Mostly North America (6.A. → 6.F.)	0.75 points
(c) Mostly Asia (6.A. → 6.F.)	0.50 points
(d) Mostly Australia and South America (6.A. → 6.F.)	0.25 points
(e) Mostly Africa (6.A. → 6.F.)	0.00 points

Total score for Geographical aspects of the conclusion of international double taxation conventions = total number of points / 3 (number of subcriteria) → minimum level 0 points, maximum level 1 point.

Pillar III – Aspects regarding the types of international double taxation conventions

7. Types of double taxation conventions concluded:

7.A. Income.
7.B. Income and capital.
7.C. Inheritances and donations.
7.D. Air and sea transport.
7.E. Income and properties.
7.F. Protocol.
7.G. Agreement to implement taxation.
7.H. Technical/Administrative/Arbitration.
7.I. Individuals/Legal entities.
7.J. Cooperation and information exchange.

(a) At least five types of conventions (7.A. ÷ 7.J.)	1.00 point
(b) At least four types of conventions (7.A. ÷ 7.J.)	0.75 points
(c) At least three types of conventions (7.A. ÷ 7.J.)	0.50 points
(d) At least two types of conventions (7.A. ÷ 7.J.)	0.25 points
(e) One single type of convention (7.A. ÷ 7.J.)	0.00 points

8. Correspondence of the type of international double taxation convention concluded with states which have signed one single type of fiscal treaty

7.A. Income.
7.B. Income and capital.
7.C. Inheritances and donations.
7.D. Air and sea transport.
7.E. Income and properties.
7.F. Protocol.
7.G. Agreement to implement taxation.
7.H. Technical/Administrative/Arbitration.
7.I. Individuals/Legal entities.
7.J. Cooperation and information exchange.

(a) First two types of conventions (8.A. → 8.J.)	1.00 point
(b) Conventions of third and fourth types (8.A. → 8.J.)	0.75 points
(c) Conventions of fifth and sixth types (8.A. → 8.J.)	0.50 points
(d) Conventions of seventh and eighth types (8.A. → 8.J.)	0.25 points
(e) Conventions of ninth and tenth types (8.A. → 8.I.)	0.00 points

9. Correspondence of the type of international double taxation convention concluded with states which have signed several types of fiscal treaty

7.A. Income.

7.B. Income and capital.

7.C. Inheritances and donations.

7.D. Air and sea transport.

7.E. Income and properties.

7.F. Protocol.

7.G. Agreement to implement taxation.

7.H. Technical/Administrative/Arbitration.

7.I. Individuals/Legal entities.

7.J. Cooperation and information exchange.

(a) At least five types of conventions (9.A. → 9.J)	1.00 point
(b) At least four types of conventions (9.A. → 9.J)	0.75 points
(c) At least three types of conventions (9.A. → (9.J)	0.50 points
(d) At least two types of conventions (9.A. → 9.J)	0.25 points
(e) One single type of convention (9.A. → 9.J)	0.00 points

Total score for Aspects regarding the types of international double taxation conventions = total number of points / 3 (number of subcriteria) → minimal level 0 points, maxim level 1 point.

Total score of the aggregate index quantifying the fiscal impact of international double taxation conventions = total score of Pillar I - Temporal aspects of the conclusion of double taxation conventions + total score of Pillar II – Geographical aspects of the conclusion of international double taxation conventions + total score of Pillar III – Aspects regarding the types of international double taxation conventions / 3 (number of criteria) → minimum level 0 points, maximum level 1 point.

Appendix 2. Measuring the fiscal impact of double taxation conventions by the aggregate index in OECD according to the three pillars (source: author's computation)

	State	DSFDTC[1]	TWDTCC[2]	PDU CEDI[3]	CDGASCDTC[4]	ZGSÎR CEDI[5]	GASCL IDTC[6]	TDTCC[7]	CTIDTCCSSOTFT[8]	CTIDTCCSSSTFT [9]
1.	Austria	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50
2.	Belgium	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	0.50
3.	Canada	1.00	1.00	0.75	1.00	0.75	1.00	1.00	1.00	0.50
4.	Denmark	1.00	1.00	1.00	1.00	1.00	1.00	0.75	1.00	0.75
5.	Finland	1.00	1.00	0.75	1.00	0.75	1.00	1.00	1.00	1.00
6.	France	1.00	1.00	0.75	1.00	0.75	1.00	1.00	1.00	0.50
7.	Germany	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	0.75
8.	Greece	1.00	1.00	0.75	1.00	0.75	1.00	0.75	1.00	0.50
9.	Ireland	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	0.50
10.	Japan	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00
11.	Netherlands	1.00	1.00	0.75	1.00	0.75	1.00	1.00	1.00	0.50
12.	Spain	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.50
13.	Sweden	1.00	1.00	0.75	1.00	0.75	1.00	1.00	1.00	0.50
14.	Switzerland	0.75	0.75	0.75	0.75	0.00	0.00	0.75	1.00	0.75
15.	Turkey	0.50	0.75	0.75	1.00	0.75	1.00	0.75	1.00	0.50
16.	USA	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00

Notes:

1 – Date of signature of the first double taxation convention;

2 – Timeframes when double taxation conventions were concluded;

3 – Timeframe when the last double taxation convention was concluded;

4 – Countries from different geographical areas (continents) with which the state has concluded double taxation conventions;

5 – Geographical areas (continents) with which the state has concluded the least international double taxation conventions;

6 – Geographical areas (continents) with which the state has concluded the most international double taxation conventions;

7 – Types of double taxation conventions concluded;

8 – Correspondence of the type of international double taxation convention concluded with states which have signed one single type of fiscal treaty;

9 – Correspondence of the type of international double taxation convention concluded with states which have signed several types of fiscal treaty.