Journal of Infrastructure, Policy and Development 2024, 8(11), 8115.
https://doi.org/10.24294/jipd.v8i11.8115

Article

Tax knowledge in connection with tax compliance in Hungary

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CITATION

Ambrus RA, Borbély K. (2024). Tax knowledge in connection with tax compliance in Hungary. Journal of Infrastructure, Policy and Development. 8(11): 8115. https://doi.org/10.24294/jipd.v8i11.8115

ARTICLE INFO

Received: 21 July 2024
Accepted: 27 August 2024
Available online: 23 October 2024

Abstract: During the examination of tax education, a significant part of the professional literature defines taxpayers as a homogeneous group, however, among others, the level of educational attainment and the digital skills of taxpayers are also important. This research investigates the role of knowledge in connection with tax compliance. The article is based on the statements from the professional literature and analysis of secondary data from national and international authorities and institutions. It also includes some comparisons of the components of the COM-B model on the data of nine European countries and sets up a model of tax behaviour based on Hungarian conditions. According to the classification based on the comparison, the performance of Hungary is at the lowest level among nine examined countries. Considering the complexity of the tax system, the knowledge of taxpayers is incomplete in Hungary. A developed version of the COM-B model points out that there is a close connection between capability and opportunity as well and these components can reinforce each other. With the adequate motivation and literacy as well as the knowledge of procedures can facilitate tax compliance. It can be concluded that successful tax education recognises and targets various groups of taxpayers. The Hungarian tax authorities treat taxpayers as a homogeneous group, however, there are slight developments by using several communication channels. In the current situation, the most important is to find the forms and levels of tax education to make the taxpayer able to comply.

Keywords: education; tax compliance; tax knowledge; tax system; Hungary

1. Introduction

The introduction One of the key points of the international tax literature is tax compliance. The issue of tax compliance necessarily also raises the question of non-compliance. Our article uses the tax compliance definition of Pukelienė and Kažemekaitytė (2016) which ‘defines a degree to which taxpayers follow their tax duties contrary to the degree of tax evasion and avoidance’ (p. 30) and does not distinguish between tax evasion and avoidance while using the non-compliance. The examination of them gives the most important characteristics of taxpayers’ behaviour. This means that tax behaviour, the drivers behind it and tax compliance are unavoidable concepts in tax studies of financial sciences. This research question is an excellent example of interdisciplinary research, as it has psychological, social, sociodemographic, educational and extremely important state budget implications. Based on several studies, Saad (2014) states that the complex tax system can take many forms, such as the complicated language, calculations and procedural system of the laws. Every tax system collects tax information usually digitized which is determined by the tax administration provisions e.g., registration, tax assessment, preparation of tax declaration, tax payment, tax advance payment, preparation of the provided registry (bookkeeping), regular supplying of data, tax deduction, tax

collection. As a result of the changes in tax systems, primarily related to the fulfilment of tax administration obligations because of the widening digitisation processes, tax education has high importance from the perspective of both taxpayers and the state. In terms of personal income tax, self-taxation is common, for which a certain level of tax knowledge is essential.

Based on the literature and the international and national data, there might be a correlation between tax knowledge and tax compliance. The necessary educational channels and methods of various groups can differ significantly from each other. The critical point of tax education is that the information from the tax office is often misinterpreted, or it does not reach the taxpayers, since the same educational method is applied to a homogeneous group.

The close link between education and tax compliance differs from country to country, depending on cultural and social norms, legislation and many other factors. The 'inequity in digital tax services' further complicates this fact. Bassey et al. (2022) in their conceptual framework on the digital tax administration point out that there are also many influencing factors in this area, which are very similar to the education's ones. The authors identify geographical, economic, cultural and social areas and the approach as influencing factors. They give 'avenues for further research' (p. 12) i.e., to investigate the connection among digital taxation, fairness and tax compliance.

This study aims to compare some elements of the Hungarian tax system to selected European countries from an approach of tax complexity and education, then attempt to set up a model specific to Hungarian conditions. The main purpose is to present the role of tax knowledge and tax education based on the elements of COM-B model (Michie et al., 2011). After reviewing the international literature, the next chapter describes the applied methodology. According to the ranking of Pukelienė and Kažemekaitytė (2016), nine European countries were selected, then a comparison and a classification were created based on specific criteria to evaluate the Hungarian case study. In addition, as a further result of this research, a special version of COM-B model has been developed to highlight the opportunities to improve tax compliance in Hungary and influence tax behaviour with the help of tax knowledge. This model is suitable for defining tasks by each educational level and is followed by the conclusion.

2. Materials and methods

This research aims to investigate the main elements of tax behaviour focusing on education attainment and the complexity of the Hungarian tax system. Examining tax compliance, among the models created by behavioural psychology, the models of Ajzen (1991) or a further version (Fishbein and Ajzen, 2009) and Michie et al. (2011) are the most frequent in the literature. Due to our research aspect, we apply the latter one. In this model 'Behaviour' is the dependent variable, while 'Capability', 'Motivation' and 'Opportunity' are the explanatory variables. Later they have elaborated some further versions of COM-B model (West and Mitchie, 2020, 2023).

West and Michie's model (2023), which can be used in several fields, examines behaviour and its determinants. As the **Figure 1** shows, the model drivers are capability, motivation and opportunity. They interact with each other and determine behaviour. Capability shows whether the individual has adequate knowledge of

physical and mental abilities. Opportunity shows whether an action is feasible in a given place and time under specific conditions (which include social norms). The authors emphasise that motivation is a prominent factor in the model, as it influences behaviour directly. One of the further versions of the diagram (they signed ‘d’) depicts the influence of opportunities and capabilities on behaviour with arrows leading to the arrow between motivation and behaviour. According to the authors this version of the model ‘states that if either capability or opportunity are not present, no matter how strong the motivation is, it will not happen’ (West and Michie, 2023, p. 3).

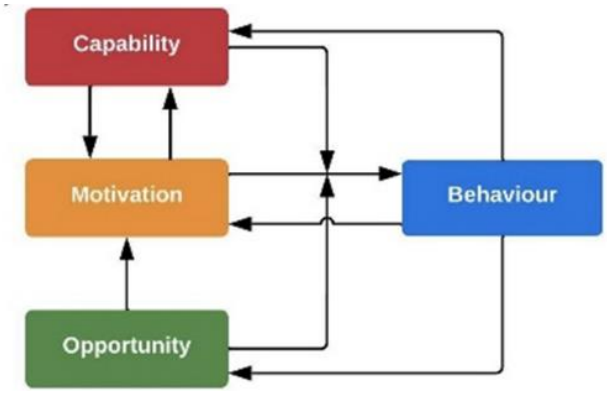

Figure 1. A (‘d’) variant of the COM-B model diagram (West and Michie, 2023, p. 3).

As a first step, the elements of the model were identified for this research in connection with taxation and its background was defined (**Table 1**). The identification of tax knowledge (as ‘Capability’) in several tax systems can be very different and does not provide an opportunity for international comparison, without the conclusions of research being less objective. This is the result of investigating the skills and knowledge that form the basis of tax knowledge will be examined, such as educational attainment, reading skills and digital skills.

Table 1. Identification of the elements of COM-B model.

C			**O**	**M**	**B**
Capability			Opportunity	Motivation	Behaviour
achievement in reading	digital skills	educational attainment	tax complexity	tax morale	Tax compliance

Source: authors’ compilation based on Michie et al. (2011).

The presentation of the Hungarian situation does not provide sufficient information, therefore, a comparison of secondary data from national and international authorities and institutions is made (e.g., National Tax and Customs Administration in Hungary, Eurostat, OECD, Tax Foundation). This is the reason to examine the factors related to education and the complexity of the tax system within a group of countries. The study of Pukelienė and Kažemekaitytė (2016) is used to select the countries of the research. They determined three influence factors on tax behaviour: impact from the relationship with tax authorities, individual characteristics (such as tax morale) and socio-cultural variables. They found a positive link between tax morale and compliant behaviour. In their research 9 groups of European countries were created, where the highest tax morale index average (6.95) belongs to the group of three Baltic post-

Soviet countries (Estonia, Latvia, Lithuania), and the second highest score (6.14) for the group of four Central European countries (Czechia, Poland, Slovakia, Slovenia). It is interesting that two other countries from Central Europe, Hungary and Croatia, joined the group with the lowest tax morale index average (4.70) based on their measurement.

Based on abovementioned grouping of Pukelienė and Kažemekaitytė (2016) the data of nine selected countries are compered in this research in terms of 'Capability' (reading skills, digital skills and education attainment) and 'Opportunity' (complexity of the tax system). As a summary of this part of the analyses and added the results on tax morale of Pukelienė and Kažemekaitytė (2016), the strengths and weaknesses of each participating country are presented. According to this, a classification is the starting point of the Hungarian case study. The other pillar of the methodology is the COM-B model, following the research objectives. Using West and Michie's model (2023), we attempt to set up a model based on Hungarian conditions to highlight the main elements of the different educational levels of the social institutional system.

The interactions presented on **Figure 1** are investigated and expanded to create our version of the COM-B model. Its primary purpose is to demonstrate the impact of education on all three drivers.

Applying the model, the focal point is education, which is related not only to capability but even opportunity and motivation, from the aspects of the sociodemographic surveys of taxpayers. Consequently, there is mutual dependence between variables, this model emphasizes interactions. In this case, they are especially the basic ability required for taxation (digital skills, financial knowledge) and the complexity of the Hungarian tax legislation.

3. Results

In this section, after a comparison, a classification is created, then a case study describes some special features of Hungarian taxation. The third subchapter presents the developed COM-B model.

3.1. Comparison of main components of COM-B model in nine countries

Some countries from the nine included in the study ranked quite high in both European and OECD comparisons for certain elements of their tax system. Estonia has stood in one of the first places (usually first) in various rankings for many years.

From the perspective of individuals, the income tax is the most important. Using the ranks of the Tax Foundation (Bray and Mengden, 2023; Mengden, 2023), beside the income tax score, two others were selected. One of them is the tax policy, focusing on individual taxes, where a country's score is determined by three subcategories, which are the rate and progressivity of personal income tax, the complexity of the income tax system, and the extent to taxes on incomes by double taxation (Bray and Mengden, 2023). To compare the performance of the nine countries (**Figure 2**), even the scores of individual tax complexity was taken into account as the size of the bubbles.

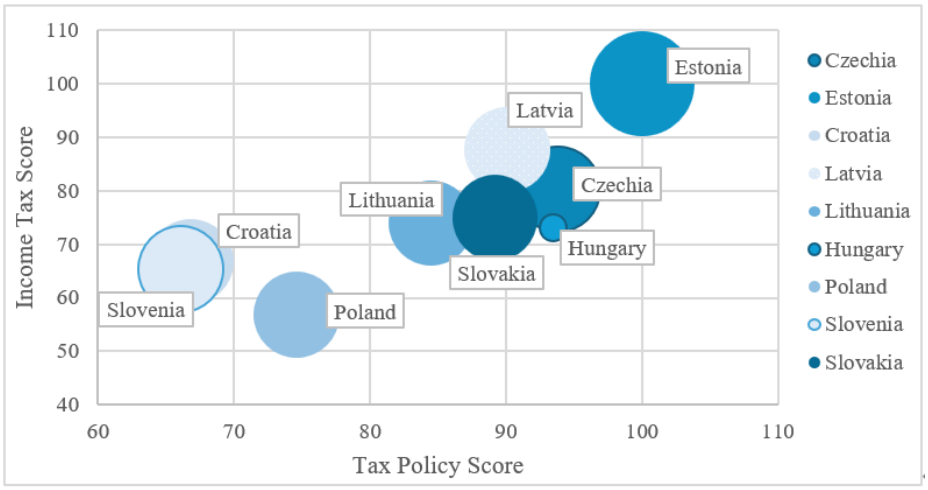

Figure 2. Individual taxes scores (Estonia = 100).
Source: Author's compilation according to Bray and Mengden (2023) and Mengden (2023).

It seems that besides the European countries, Hungary's position in terms of income tax and tax policy scores is good, however, the position in the case of income tax complexity is the worst (most countries received similar scores).

According to OECD survey, adults who have attained a higher level of formal education have higher levels of financial literacy in many participating countries (OECD, 2023). The overall financial literacy score is assumed the scores from financial knowledge, financial behaviours (how the people can apply this knowledge in practice), and financial attitudes. This survey was conducted for 39 countries but does not contain data for Czechia, Slovakia and Slovenia.

Among the other six countries, Estonia has the best overall score (and 3rd out of 39). It is interesting, however, that Hungary scored better than average in terms of financial knowledge, the score was lowest in financial behaviours (from 39), while, on the other hand, the situation was the opposite in Lithuania, where the acquired knowledge is applied much more efficiently. There is hardly any difference in scores of financial attitudes.

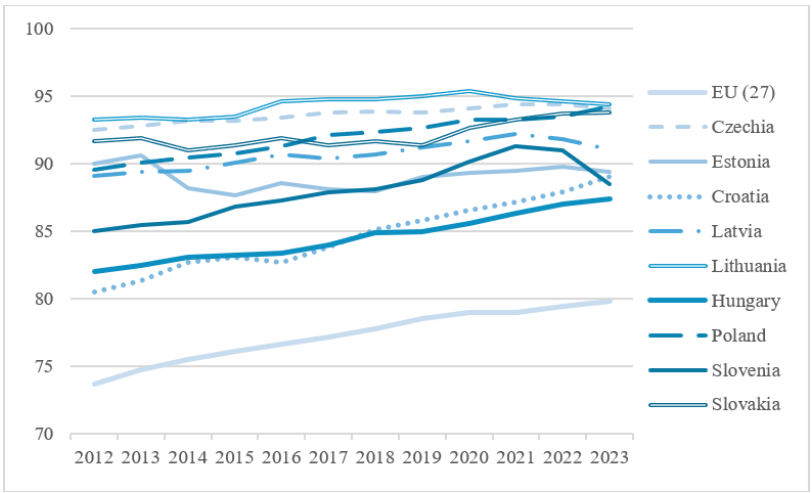

Figure 3. At least upper secondary educational attainment, age group 25–64, percentage (upper secondary, post-secondary non-tertiary and tertiary education).
Source: authors' compilation according to Eurostat (2024a) database.

To compare the level of educational attainment, it can be concluded, that the percentage of individuals with at least upper secondary educational attainment is the highest in Lithuania and the lowest in Hungary, however, this percentage exceeds the EU (27) average (**Figure 3**).

Looking at the details, after secondary school, more and more individuals are choosing from several post-secondary non-tertiary education instead of going to a university. The percentage of tertiary educational attainment, from 25 to 34 years, was below 30 % in Hungary in 2023 and did not reach the level of 2012. It is also the lowest in Hungary while the EU (27) average is 43.1%.

One of the most important for conducting studies at different levels is reading skills. Unfortunately, in nine countries, the percentage of young people with low achieving in reading has increased by an average of 8% over 10 years. Given the fact that reading comprehension is the most important element of learning, the level of education is not expected to increase in the coming years, considering the poor performance of young people in this area. Slovakia has the highest proportion of people with modest reading skills, while Estonia has the lowest, with the other seven countries almost equal to or slightly over the EU average.

With the development of digitalization processes, digital skills are essential for fulfilling tax obligations. The level of skills of young Hungarians is slightly above the EU average and around the average of the nine countries examined. However, this only means that 41% of the age group has digital skills above basic knowledge (**Figure 4**).

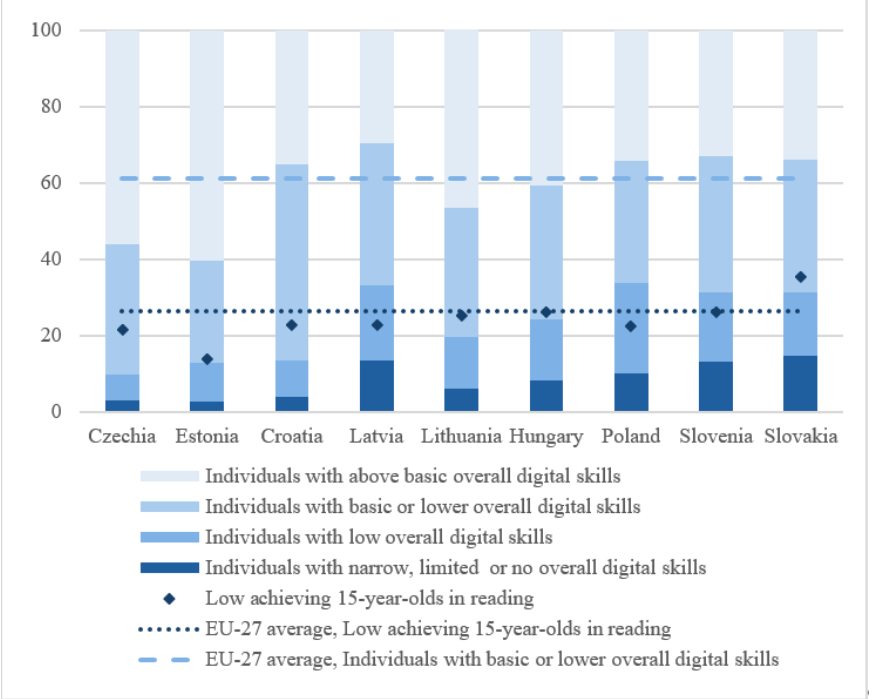

Figure 4. Individuals' level of digital skills, 16 to 29 years old (2023) and low achieving 15-year-olds in reading (2022), percentage of individuals.
Source: authors' compilation according to Eurostat (2024b and 2024c) database.

Digital financial literacy levels are higher among individuals who have a secondary and/or tertiary degree compared to adults who have not finished secondary

education (OECD, 2023). Estonia is also the best in this comparison (64/100), while there is no significant difference among the other five countries (their scores 45-50/100).

Based on the above, the main elements of COM-B model (Michie et al., 2011) are collated for 9 examined countries following tax behaviour (**Figure 5**). The classification was made according to **Figures 2**–**4**, while in the case of motivation it based on the groups of Pukelienė and Kažemekaitytė (2016). Countries, which have the best performance (or above the average of nine countries) received the label of 'Class 1'. 'Class 2' means that the performance close to average or grouped to the second best in terms of the tax morale.

	Capability			**Opportunity**	**Motivation**
	achievement in reading	digital skills	educational attainment	tax complexity	tax morale
Czechia					
Estonia					
Croatia					
Latvia					
Lithuania					
Hungary					
Poland					
Slovenia					
Slovakia					

Class 1
Class 2
Class 3

Figure 5. Classification of main components of COM-B model.
Source: authors' compilation.

Considering the 3 aspects all together, Hungary's position is the worst, since in this classification was presented. The next subchapter highlights some issues, where the lack of knowledge/literacy leads to tax non-compliance.

3.2. A case study from Hungary

The following few examples highlight that the fulfilment of various obligations is challenging not only for individuals but also for professionals with higher education and/or several years of experience due to the complexity of tax rules.

In such a complicated regulation method, it is even more important that the tax authority cooperates with taxpayers and encourages them to follow the tax rules to reduce tax evasion. Thus, the National Tax and Customs Administration in Hungary (NTCA) has developed new, data-based artificial intelligence models which can uncover certain anomalies significantly more effectively than before by comparing data from notification, provision and declaration. To find out the cause of the data discrepancies, NTCA conducts so-called legal compliance investigations (NTCA, 2023). In the case of value-added tax (VAT), the discrepancy between data of the online invoice system and the VAT returns, as well as the missed VAT return despite using the online invoice system. In the case of personal income tax (PIT) of individuals, less than 10% of the procedures ended with an actual tax audit (**Table 2**).

Table 2. The numbers of legal compliance investigations and tax audit, in 2022.

	Compliance investigations	**Tax audit**	**Tax audit, %**
VAT	11.1	2.2	16.5
Social Tax, SSC	6.3	1.5	19.2
PIT (individuals)	22.8	2.3	9.2

Source: authors' compilation according to NTCA (2023).

The data in the last column of **Table 2** show that the incentive to comply with the law carried out by the auditors was usually effective, hence, in most of the cases it was not necessary to conduct a tax audit. In terms of legal compliance investigations, taxpayers could settle their tax liability in the framework of self-correction by paying the self-correction fee and the late payment penalty. If the tax difference is revealed during the tax investigation, a tax penalty is imposed with the late payment penalty.

Based on the above, it can be concluded that in majority there was no intention of tax avoidance, but rather the lack of tax literacy and applicable knowledge led to incorrect/missing data/tax return (see financial behaviours in previous subchapter).

Development is inevitable in many aspects. The former (offline) form-filling program is planned to be abolished, however, most of taxpayers still prefer this method. Despite the various campaigns, the percentage of those who file their tax returns online using the pre-filled ePIT, increased only by 6% in the last five years.

The pre-filled draft version becomes a tax return even without acceptance if the individual has income exclusively from employment. Hence, the number of taxpayers who have not even checked the draft has not changed in the last five years (approx. 40%). There might be several reasons for this. On the one hand, they trust that the data is correct, however, on the other hand, it is also possible that they do not care about the tax returns, or they cannot navigate and interpret what they see on this online platform.

In Hungary, financial knowledge is taught as an independent subject only in vocational schools of economics, while in other schools some topics appear in the subjects of mathematics, geography and civics. To teach financial matters, online materials from the Money Compass Foundation help teachers (who have not learnt about it before). The Foundation follows the fashionable trend of 'edutainment' (education + entertainment) and the digital interests of young people; therefore, mobile applications are offered, and various online competitions are organized for both individuals and teams.

To reach young adults (and others, who use these platforms), NTCA creates several videos and shares on social media platforms (Facebook, Instagram, YouTube, LinkedIn, TikTok). That is how the opportunity to acquire knowledge and increase tax awareness are combined in order to form the behaviour.

At the beginning of 2022, the NTCA website was also renewed. The number of visitors is constantly increasing; however, the purpose of the visit is to download the various forms to be filled in. In order to obtain information, the internet search engine is used in most of the cases. In general, there are 3 factors in the background:

- the taxpayers do not know where or how to search on the NTCA page;
- they tried the NTCA page before, but they did not find what they were looking for;

- even if they found it, they wouldn't be able to interpret it, because the language used is just as complicated as the law.

Among others, it might be dangerous, because it is not certain that they will find an up-to-date and accurate description of the problem they are looking for. Therefore, these taxpayers cannot comply with tax obligations regardless the sufficient motivation.

To comply with tax obligations, the appropriate level of knowledge and even available assistance is required to help taxpayers how to fulfil their obligations. These two components can reinforce each other and actuate tax behaviour.

3.3. Developed version of the COM-B model

This developed version of the COM-B model highlights that in case of taxation there is a close connection between capability and opportunity as well (**Figure 6**). Moreover, these components can reinforce each other. With an adequate motivation, literacy and the knowledge of procedures can facilitate the tax compliance, however, if the intention is tax avoidance, this knowledge can enhance tax non-compliance.

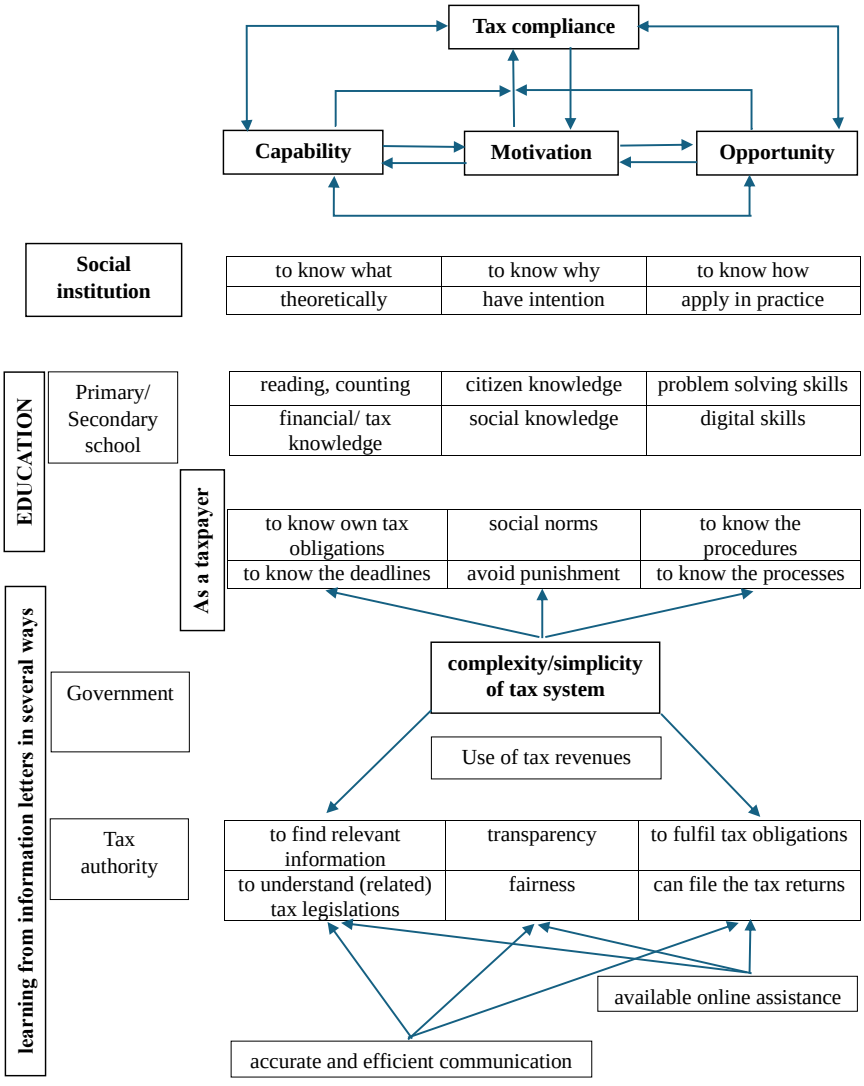

Figure 6. Achievable knowledge by the levels of tax education.

Source: authors' compilation.

The formation of tax-conscious behaviour begins at school age. Both education and even the social norms play an important role to become a tax aware citizen. Later, as a taxpayer must know whether the government spends taxes usefully and effectively. The more complicated the tax system, the more it is necessary to continuously support taxpayers, so they are able to fulfil their tax obligations.

4. Discussion

At the beginning of the 21st century, most EU countries had well-functioning digital tax systems. The tax authorities can keep in touch with not only businesses but also with individuals electronically. At the same time, the complexity of the digital environment and the tax system can also be difficult for taxpayers. SAS (Self-Assessment System), 'that is the shift of responsibilities to compute the tax payable from the tax authorities to taxpayers' (Saad, 2014, p. 1069) is becoming increasingly frequent in tax administration. This may raise several questions. What knowledge do taxpayers have about their tax liability? How can taxpayers interpret tax legislation? How can they use digital access and tools related to SAS? How the tax authority cooperates with taxpayers is also a relevant aspect.

Lestari and Daito (2020), referring to Indonesian researchers, emphasise the importance of 'tax socialisation'. It means various dissemination activities (behavioural, psychological and sociological techniques) of the tax authority to increase tax compliance (Kuandykov et al., 2021).

Hoffman et al. (2017) stated, that 'tax compliance varies across sociodemographic categories' (p. 63) and prepared a meta-analysis on the relationship between tax compliance and sociodemographic factors. They base their analysis on age, gender, education and income differences. The social norms and financial situations of different generations can differ significantly. At the same time, 'older citizens might, thus, treasure the benefits of taxes more than younger ones and be more compliant' (p. 64). According to further research, they claim that tax avoidance is less typical for women, their financial risk-taking is lower and they are more cooperative in social matters. The connection between education differences and tax evasion is not clear. Higher education means 'lower evasion, but higher avoidance tendencies' (p. 64). Lower education and lack of financial knowledge can breed mistrust and lead to tax evasion. The authors refer to several studies on the effect of income differences and state that the correlation between income and tax compliance is not obvious. This is especially true in countries with progressive taxation. Based on their meta-analysis, they conclude: 'Although the examined sociodemographics correlate significantly with tax compliance their predictive power is limited for age and sex, and negligible for education and income' (p. 68).

Erul (2020) emphasises the importance of fiscal sociology. I.e., social, economic, cultural, institutional, psychological and sociological characteristics and the tax system of the given country as best as possible, so that tax compliance can be strengthened as much as possible. The author also presents the components of the OECD model which gives a comprehensive picture of 'Previous Studies About Tax Compliance', presenting the variables, method and results (see **Table 1**. pp. 6–8).

In the opinion of Pukelienė and Kažemekaitytė (2016, p. 30) 'tax behaviour

describes an individual's approach towards tax compliance that defines a degree to which taxpayers follow their tax duties (contrary to the degree of tax evasion and avoidance)'. In their study, the authors present taxpayer behaviour from several perspectives first, from the point of view of the behaviour economy. They resume the classical determinants, the dynamic (learning) models, the social norms, attitudes and the agent-based models with an international literary background. In the second part, the authors present theoretical suggestions, individual tax behaviour determinants and models of tax behaviour for the period 2003–2014. In the last part, they provide the results of tax behaviour in the European Union. They conclude significant statements based on their comprehensive study. Legislators should carefully implement tax reforms and maintain the trust of taxpayers. It is crucial to consider the socio-cultural environment and other factors influencing taxpayers to prevent tax evasion and avoidance (p. 46).

4.1. Complexity and tax compliance of the Hungarian tax system

The European Commission is also intensively dealing with the issue of tax compliance. In its 2023 publication 'Compliance Risk Management (CRM) in the Digital Era', it presents the most important factors influencing taxpayer behaviour, defines the concept of compliance risk management, presents the process in a digitised environment and the internal risks of the system. The CRM is a process 'in which a tax administration makes deliberate choices on which measures to use, based on the knowledge of all taxpayers (behaviour) and related to the available capacity, to stimulate compliance effectively and prevent non-compliance' (p. 8). Its model is a 'loop of decision making' with steps identification, analysis, prioritisation, treatment, and evaluation. It 'takes place in a context, with objectives and a strategy' (p. 5).

The authors also describe noncompliance as '... ignorance, carelessness, and fraud. Non-compliance can also result from complex legislation, the design of tax administration processes, or the enforcement methods employed by administrations' (p. 2). They highlight the importance of voluntary compliance and the proactive activity of the authorities in this regard.

The future ideas regarding the functioning of the CRM as mentioned earlier became completely clear during the pandemic. The EU publications 'The Future of Government 2030+' (Vesnic Alujevic et al., 2019) and 'Whitepaper on Artificial Intelligence' (European Union 2020) state the following to influence taxpayer compliance in the desired direction. 'Using digitalisation and technology to build a taxation system based on tax compliance (e.g., simple, public-friendly, secure, citizen-centric), enabling a trustworthy and secure development of AI within the EU' (European Commission, 2023. p. 10). The authors emphasise the impact of the connectivity provided by the Internet and the need to change the tax mixes of the countries, which reflects demographic, social and environmental changes. They also point to the security requirements for digital tax administration.

Braunerhjelm (2022) highlights governments play a prominent role in implementing these tasks. Their decisions in the business sector can only be effective if special authorities emphasise training programs in companies and higher education. 'It seems reasonable that governments take the major brunt of the costs associated with

knowledge upgrading due to externalities likely to benefit society as such. Nevertheless, firms and employees should also bear part of the costs to incentivise their choices and participation.' (p. 976).

With the acceleration of technological development, digital knowledge transfer is necessary to exercise citizen's rights and obligations. Tax compliance has an outstanding role, as part of social responsibility, which also requires basic financial knowledge. In our opinion, both should start already in public education. The relationship between the digital tax system and tax administration and education points out that the continuously developing ICT (Information Communication Technology) necessitates the planning and implementation of long-term and complex processes. 'On the other hand, non-financial benefits are high (i.e., taxpayers' satisfaction increase, better transparency, easier control and data processing etc.' (Dečman, 2010, p. 56).

The complexity of tax legislation may hinder tax compliance (Saad, 2014), while taxpayers are also more likely to meet their tax obligations under a simpler tax system. The situation is particularly difficult if taxpayers' knowledge of the complex tax system is lacking. This knowledge applies on the one hand to content issues, and on the other to tax-related skills in the SAS system (Saad, 2014). However, measuring the latter is not easy and comparison between countries is hampered by several factors. Therefore, we have selected some indicators that can affect the opportunity to acquire tax knowledge.

There are several approaches which give the complexity, such as the complicated language, calculations and procedural system of the laws (Saad, 2014). He quotes James and Alley's tax compliance definition on the willingness of individuals who can comply with the tax provision 'without the application of enforcement activity' (p. 6). 'Translating' the tax laws into a common language can be difficult when there are complicated regulations, like in Hungary (Ambrus and Borbély 2023). In addition, there are other difficulties in Hungary, such as the high number of tax types and the frequent changes in the legislation.

The Hungarian tax system is one of the extremely complex systems in European comparison (Veszprémi, 2018) the characteristics of which are also included in the international literature review. At the same time, tax education plays a distinguished role in research internationally among the factors influencing tax compliance (De Clercq, 2023; Horodnic, 2018; Habibov et al., 2019; Lois et al., 2019). In addition, Babic and Zarić (2022) concluded that increasing the share of tertiary education affects the reduction of tax evasion. In this case, education means lifelong learning through various communication channels. The tools for this are now primarily digital due to the ICT.

4.2. COM-B model

Michie et al. (2011) studied the areas in which the model can be applied. In **Table 1** (p. 7), they define interventions and policies (with examples) as 'The Behaviour Change Wheel', including their possible use in the investigation of tax evasion. The model 'identifies three factors that need to be present for any behaviour to occur: capability, opportunity and motivation. These factors interact over time so that

behaviour can be seen as part of a dynamic system with positive and negative feedback loops' (West and Mitchie, 2020, p. 1). West and Michie (2023) did further research and found that there are several versions of the COM-B model in use. 'The precise definitions of the constructs in the COM-B model have evolved with usage' (p. 2) and provide the ontological and informal definitions of the labels. They conclude: 'When using the COM-B model it is recommended to consider which of the causal links between components to include depending on the use to which the model is being put, in general opting for the simplest version that will meet the requirements at the time.' (p. 5).

The CRM Guide of the European Commission gives the most important questions and the relevant aspects of all three drivers. The capability means whether the taxpayers can fulfil their tax obligation. It depends on their degree of knowledge, skills and self-efficacy. The motivation means whether the taxpayers were willing to comply. 'This driver is about the varying motives taxpayers must be willing or unwilling to comply.' (p. 13). The opportunity means whether the taxpayers can comply (or not to comply). It presents how the tax legislation and the systems and procedures of the tax administrations are designed and implemented.

The investigation of taxpayer behaviour and the strategy of the tax authorities has also changed significantly, recognising that cooperation with taxpayers and their support generates more tax revenue and less tax evasion than the previously used deterrent strategy in the last five decades. There are psychological phenomena and processes behind the behaviour of taxpayers, which can affect an individual business or a small company. The situation is quite different in the case of large and globalised companies. The factors of the COM-B model can be examined from the point of view of taxpayer behaviour.

The context presents the external environment in which the tax administration operates and breaks it down into external and internal factors. The most important external factors include, for example, 'the complexity and innovations in business structures, new financial products, e-commerce', while internal factors, for example, 'organisational culture and structure, human resources and new-era positioning status' (p. 6). Objectives can be local, regional and central. All three serve efficient tax administration and accurate tax collection. 'The strategy is the link between the activities and the objectives' (p. 5). The study deals in detail with taxpayer behaviour and uses the COM-B model for its findings, referring to Michie et al. (2011).

Used as a starting point the COM-B model of Michie et al. (2011), West and Mitchie (2020, 2023), which was adapted by the European Commission (2023), and the results of other studies (Hautman et al., 2024; Paleka et al., 2022; Surugiu et al., 2021) in subchapter 3.3 an improved version has been presented (**Figure 6**). In our model, education was put into focus and pointed out that in the case of taxpayer behaviour education and any way of learning can influence not only the capability of individuals but also opportunity and even motivation as well.

Broadening tax knowledge can result in taxpayers' commitment to tax-conscious behaviour, compliance with tax rules, etc. At the same time, taxpayers must be able to apply the theoretical knowledge in practice (**Figure 6**). In fact, these factors might have a mutual strengthening effect on each other ('Capability', 'Motivation' and 'Opportunity") and consequently can enhance tax compliance ('Behaviour').

The COM-B model of West and Michie (2023) emphasizes the behaviour of a given person at a given moment in time, while we have aimed to set up a model based on Hungarian circumstances to reveal the main elements of the different educational levels of the social institutional system.

In our developed version of the COM-B model we pointed out that tax education should be needed at all levels of the social institutional system. The short-term goal is to reduce the non-compliance resulting from the complexity of the tax system, and the long-term goal is to increase tax compliance regardless of age.

4.3. Limitations, future research directions and recommendations

Each tax system requires different content and levels of tax knowledge (Saad, 2014). During our interdisciplinary research, it was a relevant limitation that there is no measured data for the 'Capability' factor of the COM-B model that is directly related to tax knowledge. This is the reason to create and use a three-dimensional approach (achievement in reading, digital skills and educational attainment).

As for future research directions, it would be advisable to conduct primary research and bring the examined dimensions even closer to the investigation of the system and the capability required for this. The more precise directions could identify the elements and levels of tax education and thereby tax compliance can be increased. Possible additional research can highlight Hoffman et al.'s (2017) opinion on the connection of higher education and higher tax avoidance.

The European Commission in its CRM Guide (2023) points out the risk analysis process the importance of the treatment of the root cause of non-compliance and instances of the complexity of a tax system as the reason for non-compliance. It gives two options to solve the problem: either to educate the taxpayer or to change the legislation (p. 43). Educational support packages for use by schools' is also mentioned as a recommendation to reduce compliance risk (p. 53).

To change a complex tax system means to change its background as well. Prasopoulou (2011) emphasises the impact of politics and legislation. The latter one defines the country's public administration. If it is not flexible enough it can react upon the complexity of the tax system. In addition, there can be a conflict between the tax administration and several digital systems of the public administration (Prasopoulou, 2011; Veszprémi 2018). This rigidity can increase the complexity and occasionally can lead to contradictions. In such circumstances, the decision-makers in Hungary need a long-term strategy to simplify the tax system, develop the digitised tax administration, and educate the taxpayers parallel.

5. Conclusion

There are several aspects to investigate the groups of taxpayers and their tax behaviour. This research focuses on the level of education and tax literacy. The main purpose of this research is to identify how to improve tax compliance through the components of the COM-B model with the help of several methods and levels of education. It can be concluded that any level of education can influence the behaviour of taxpayers, it can reduce tax evasion and develop an increasing tax-conscious behaviour.

Based on the analysis and comparison of the components of the COM-B model in connection with taxation a classification was created. This classification shows that the performance of Hungary is at the lowest level among the examined nine countries regarding capability, opportunity and motivation.

From the point of view of both individuals and even economic and social processes, it would be an important step if, the opportunity to acquire the basic financial knowledge and skills for everyday life was provided as an independent subject for all students in public education. The possibility exists, but it would be a huge challenge for teachers, therefore, it does not actually take place in practice.

The complexity of the tax system and even the continuous changes of certain elements require informing taxpayers regularly, primarily digitally, to fulfil their tax obligations as efficiently as possible in Hungary. As already mentioned in the literature review, the communication of the tax authorities has changed significantly and instead of deterrence, cooperation is its attitude. In recent years, NTCA has been using various channels for the transfer of knowledge to reach the young(er) generation(s). Furthermore, there would be a need for additional informative materials using everyday language even in printed form and the reduction of tax complexity should also be considered, to comply with the rules. Old school option(s) must be left for digitally untrained taxpayers to complete tax returns, so that digitization does not push them out of tax compliance and due to their lack of skills lose their motivation.

The key issue of tax compliance is the creation of conformity between the tax system and the general education characterizing the society. In this process, legislators have an important task. This aspect of educational development is a long-term issue, for which the COM-B model developed by the authors can be used. Furthermore, tax compliance could be improved in Hungary by applying some elements of the model in practice and not only the tax behaviour of an individual but also a group of taxpayers or the whole society.

Author contributions: Conceptualization, RAA and KB; methodology, RAA and KB; formal analysis, RAA and KB; investigation, RAA and KB; resources, RAA and KB; data curation, RAA; writing—original draft preparation, RAA and KB; writing—review and editing, RAA and KB; visualization, RAA; project administration, RAA. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Ajzen, I. (1991). The Theory of planned behavior. Organizational Behavior and Human Decision Processes, 50, 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Ambrus, R. A., Borbély, K. (2023). Relationships between tax communication, education and tax administration in Hungary between 2018 and 2022. Theoretical Journal of Accounting/Zeszyty Teoretyczne Rachunkowości, 47(4), 173-190. https://doi.org/10.5604/01.3001.0054.0889

Babic, V., Zarić, S. (2022). Tax evasion and education level: evidence from the European Union countries. Knowledge, 51(1), 17-21.

Bassey, E., Mulligan, E., Ojo, A. (2022). A conceptual framework for digital tax administration—A systematic review. Government Information Quarterly, 39(4), 1-15. https://doi.org/10.1016/j.giq.2022.101754

Braunerhjelm, P. (2022). Rethinking stabilization policies; including supply-side measures and entrepreneurial processes. Small

Business Economics 58, 963–983. https://doi.org/10.1007/s11187-021-00520-6

Bray, S., Mengden, A. (2023). 2023 European Tax Policy Scorecard. Available online: https://taxfoundation.org/research/all/eu/2023-european-tax-policy-scorecard/ (accessed on 1 June 2024).

De Clercq, B. (2023). Tax literacy: what does it mean? Meditari Accountancy Research, 31(3), 501-523. https://doi.org/10.1108/MEDAR-04-2020-0847

Dečman, M., Stare, J., Klun, M. (2010). E-government and cost-effectiveness: E-taxation in Slovenia. Transylvanian Review of Administrative Sciences, 6(31), 48-57.

Erul, R. D. (2020). Socio-economic variables and tax compliance in the scope of fiscal sociology: A research on the European Union and OECD. The Journal of Social Science, 4(7), 1-17. https://doi.org/10.30520/tjsosci.655840

European Commission, Directorate-General for Communications Networks, Content and Technology. (2020). White Paper on Artificial Intelligence—A European approach to excellence and trust. Available online: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52020DC0065 (accessed on 3 June 2024).

European Commission. (2023). Compliance risk management in the digital era, FPG083/FPG012 Update of the CRM guide. Available online: https://taxation-customs.ec.europa.eu/system/files/2024-01/2023_CRM_Guide.pdf (accessed on 29 May 2024).

Eurostat. (2024a). At least upper secondary educational attainment, age group 25-64 by sex. Eurostat. https://doi.org/10.2908/TPS00065

Eurostat. (2024b). Individuals' level of digital skills (from 2021 onwards). Eurostat.

Eurostat. (2024c). Low achieving 15-year-olds in reading, mathematics or science. Eurostat.

Fishbein, M., Ajzen, I. (2009). Predicting and Changing Behavior, 1st Edition. Psychology Press. pp. 1-538. https://doi.org/10.4324/9780203838020

Habibov, N., Auchynnikava, A., Luo, R. (2019). How does the quality of public education influence the citizens' willingness to support it? Evidence from a comparative survey of 27 countries. International Journal of Comparative Education and Development, 22(2), 115-130. https://doi.org/10.1108/ijced-04-2019-0029

Hauptman, L., Žmuk, B., Pavić I. (2024). Tax Compliance in Slovenia: An empirical assessment of tax knowledge and fairness perception. Journal of Risk and Financial Management, 17(3) 1-32. https://doi.org/10.3390/jrfm17030089

Hofmann, E., Voracek, M., Bock, Ch., et al. (2017). Tax compliance across sociodemographic categories: Metaanalyses of survey studies in 111 countries. Journal of Economic Psychology, 62, 63–71. https://doi.org/10.1016/j.joep.2017.06.005

Horodnic, I. A. (2018). Tax morale and institutional theory: a systematic review. International Journal of Sociology and Social Policy, 38(9/10), 868-886. https://doi.org/10.1108/IJSSP-03-2018-0039

Kuandykov, N., Abil, Y., Utepov, A., et al. (2021). Investigating the relationship between tax culture and tax communication in Kazakhstan. Problems and Perspectives in Management, 19(3), 197-210.

Lestari, S. M., Daito, A. (2020). The influence of taxation knowledge, tax socialization and tax administration on taxpayer compliance (Empirical study in micro small and medium enterprises (MSMEs) Tobat Village, Balaraja Sub-District, Tangerang Regency, Banten Province). Dinasti International Journal of Management Science, 1(5) 732-739. https://doi.org/10.31933/dijms.v1i5.287

Lois, P., Drogalas, G., Karagiorgos, A., et al. (2019). Tax compliance during fiscal depression periods: the case of Greece. EuroMed Journal of Business, 14(3), 274–291. https://doi.org/10.1108/emjb-02-2019-0028

Mengden, A. (2023). International Tax Competitiveness Index 2023, 10th Edition. Tax Foundation. Center for Global Tax Policy.

Michie, S., van Stralen M. M., West R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implementation Science, 6, 1-12.

National Tax and Customs Administration. (2023). Yearbook of 2022 (Hungarian). Nemzeti Adó és Vámhivatal.

OECD. (2023). OECD/INFE 2023 International survey of adult financial literacy. OECD Business and Finance Policy Papers, 39, 1-76. https://doi.org/10.1787/56003a32-en

Paleka, H., Karanović, G., Badulescu, D. (2022). Tax compliance determinants: empirical evidence from Croatia. Technological and Economic Development of Economy, 28(6) 1915–1932. https://doi.org/10.3846/tede.2022.18130

Prasopoulou E. (2011). Inquest for accountability in Greek public administration: The case of the Taxation Information System (TAXIS). London School of Economics and Political Science.

Pukelienė, V., Kažemekaitytė, A. (2016). Tax behaviour: assessment of tax compliance in European Union countries. Ekonomika, 95(2) 30-56. http://doi.org/10.15388/Ekon.2016.2.10123

Saad, N. (2014). Tax Knowledge, Tax Complexity and Tax Compliance: Taxpayers' View. Procedia—Social and Behavioral Sciences, 109, 1069–1075. https://doi.org/10.1016/j.sbspro.2013.12.590

Surugiu, M. R., Mazilescu, C. R., Surugiu, C. (2021). Analysis of the Tax Compliance in the EU: VECM and SEM. Mathematics, 9(17), 2170. https://doi.org/10.3390/math9172170

Vesnic Alujevic, L., Stoermer, E., Rudkin, J., et al. (2019). The future of government 2030+. A citizen centric perspective on new government models. Publications Office of the European Union.

Veszprémi, B. (2018). Barriers to the spread of electronic administration in state task performance (Hungarian). E-Közigazgatás, 11(1), 63-75.

West, R., Michie, S. (2020). A brief introduction to the COM-B model of behaviour and the PRIME theory of motivation. Qeios, 1-6. https://doi.org/10.32388/WW04E6

West, R., Michie, S. (2023). Why are there different versions of the COM-B model diagram? Qeios, 1-6. https://doi.org/10.32388/AWANWG