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Foreword

Benjamin Franklin believed that only death and taxes are certain, but, as it turns out, he was not right. Taxes have always been more or less arbitrary, representing a compromise balancing the society's or its leaders' needs against the interests of individuals and social groups. At the same time, tax problems, most often resulting from a country's budget problems and from a limited economic growth and development, are among the most often discussed topics not only in economic circles. This means that taxes are widely talked about because in one form or another everybody is subject to taxation. This does not mean, however, that we are all well versed in taxes—quite the contrary. Meanwhile, even the most honest individuals in a society may have a natural penchant for own utility maximisation (taken in a good sense), which may result in lower-than-expected budget receipts, and even economic difficulties if most of the society, or, more precisely, most taxpayers do the same. The state's power of taxation is each day confronted with attempts at tax contest, tax avoidance or tax evasion by enterprises and households alike. At the same time, states, depending on their economic power or key competitive advantages, support national enterprises in all economic activities, whether in an increasingly formal or less official manner. Together with the enterprise itself, they, too, become an actual beneficiary of the support if it results in higher budget receipts of central or local government entities in the state providing support.

We believe that tax policy, together with monetary policy, is the main tool for driving the state's overall policy and economic processes. Its particular role was demonstrated after the financial crisis of 2008+. It turned out that it is impossible to stimulate the economy to the desired extent and effectively increase performance by using unconventional monetary measures such as quantitative easing, that is printing money, even if doing so for ca. 10 years. Negative interest rates, which, in the long run, may do

more harm than good, did not help, either. Thus the metrics of monetary policy intervention, known and widely used for decades, were modified and the market did not respond as expected by the neoclassical models. In parallel, many countries of the world, noting the signs of economic stagnation and even forecasting a recession in the coming years, implemented major tax changes that, on the one hand, were useful in tightening the tax system, and, on the other hand, contained mechanisms to stimulate and develop the economy, and, on top of that, imposed the state's unwanted power of taxation, mainly on top earners. The United States as the world's largest economy indirectly used the tax system—especially custom tariffs—for a trade war, not only the one with China of 2018+, reminding other countries that the market's rules of play are subject to change. China, balancing the costs of the trade war with the United States, has increased the consumption demand by reducing income taxes for low and middle income earners in 2019, which has resulted in an economic growth exceeding the expectations thanks to this GDP component. South Africa increased its tax base and from 2020 onwards is introducing a *de facto* taxation of top-earning non-residents as residents. India lowered the corporate income tax rate in 2019, which, if applied irrespective of the systemic approach, may not be an effective decision from an economic perspective. In turn, Poland, by introducing a social transfer policy, eliminated poverty among children, but this did not contribute, in parallel, to the initially expected increase in the total fertility rate.

From a theoretical and practical point of view, we are taking you in this book on an intellectual journey where we will present taxes and the tax system in economic terms. We understand tax system economics as the overall governance of a country's or integration grouping's revenues and public expenditure aimed to create a smart economic policy that stimulates economic growth and development, and safeguards against the functional risk to the current and next generations. We present a theoretical tax system model and its reflection in the global economy, or a division of the tax system into productive and non-productive fiscal and redistributive functions.

We discuss respective types of tax which are of greatest importance to the economy, offering an extensive methodological and systematising study on the economic analysis of the tax system, including an economic analysis of law. Next, we present behavioural economics and its application in the tax system, showing a model of mental accounting relating to the decision

to pay tax according to Richard Thaler. Then, we demonstrate the tax system's efficiency taking account of social welfare, trust in authorities and the power of the authorities. Last but not least, we try to present, based on research into innovation and tax system of the future, the clash of developed economies with the new reality of developing economies as well as changes facing tax systems in the accelerating process of digitalisation and robotisation.

We hope that this book will enable a different perspective on tax system economics, challenging the perception of the tax system as merely a collection of taxes, and the created and interpreted regulations. We believe that the current economic and tax reality may not be understood without drawing historical conclusions but, at the same time, also without rejecting, in some respects, the continuous nature of changes and mentalities known from the 20th century.

Finally, we must note that at the time the book was being sent to the press, it turned out that the 2020 coronavirus pandemic would lead to a recession in the global economy. The coronavirus has brought a simultaneous supply and demand shock and exposed the total dependence of respective countries' budgets on borrowing. It has revealed the structural problem of maintaining debt of companies that have long lost real liquidity but roll over their debt with cheap money from monetary policies. Under those circumstances, we hope that a wise application of tax system economics in the overall economic policy will reduce the risk of global financial deprivation, preventing the creation of further bubbles and safeguarding against the functional risk to the current and next generations.

Konrad Raczkowski, Friedrich Schneider, Joanna Węgrzyn

Chapter I
The role of taxes and tax system in economic science

Introduction

The institutional structures of the tax system are expected to identify respective social and economic processes leading to a specific government activity, which should contribute to an increased demand (among others, alleviating the consequences of economic crises, bringing economic recovery) and higher supply (among others, long-term economic growth). One should note that further to the accelerating economic globalisation and technological progress, designing a tax system that increases tax revenues while minimising the administrative and economic inefficiencies, maintaining a simple and transparent tax structure, avoiding an arbitrary tax differentiation among private individuals, business entities and economic activities, is becoming a challenge. The limiting factors include the results of the ongoing digitalisation, growing distributional tensions, e.g. between economic powers such as the USA, China, the European Union, tax system models becoming outdated and lack of institutional tools to negotiate a global agreement (Christensen and Hearson, 2019). Tax has become a legally sanctioned form of the state taking over a part of revenue, income and wealth of economic operators legally subordinated to this state. The same type of tax has a varying impact on economies characterised by similar economic, social and political parameters, the same form of taxation may stimulate or hinder long-term development (*Taxing*…, 2008).

Flexibility of taxation in economic integration projects such as the EU and BRICS does not indicate that common tax policy is necessary for the success of integration (Durusu-Ciftci, 2018). The condition for building a global tax system model is an all-or-none consensus of all participating

parties, which is difficult to reach in practice. Therefore, to create such a system, ideal (nearly laboratory-grade) conditions would be required, which are impossible to fulfil since the market is not perfect. It should be pointed out that tax policy is one of many other policies, and in the tax doctrine these policies should be all aligned to ensure proper fulfilment of their objectives.

A current analysis of institutional solutions, a description and explanation of the causes and nature of economic phenomena helps develop a tax policy that takes account of social objectives. One should also reckon with the state's decisions (political decisions) as regards taxation of citizens and enterprises, and with the international tax policy. Tax policy secures funds for maintaining and fulfilling the state's public tasks (fiscal function), determines the taxpayers' disposable income and property (redistributive function) and the adequate social behaviours needed to stimulate the economic development (stimulating function), as well as informs the society of the current condition of the economy (informative function). Tax system plays a crucial role in implementing the national and international economic policy. It finances expenditure on public services and other obligations (e.g. debt), it helps implement capital preferences (e.g. through redistribution of resources), shapes the society's attitudes and behaviours (e.g. voluntary nature of taxation, environmental protection and healthcare), and plays an important role in alleviating macroeconomic fluctuation, and supports employment and economic development. Such a broad extent of the subject allows only a general identification of areas of the state it should encompass.

Tax systems evolve in parallel with the changes in the public sector's role in the economy and in the financial needs of the state. When analysing or comparing tax systems from different national economies, it seems important to note that they were shaped by different country-specific economic, social and political circumstances as well international political and economic relations. This multi-aspect trend observed in theories of taxation and in practical systemic solutions alike can or even must be systemised into certain categories. The appropriate assessment of tax is not the only challenge to economic theories, which is why the economic aspect of taxation requires a detailed analysis of the relations at play, with many variables, as presented further in the book.

1.1. The tax system as an economic category

All literature on tax theory concurs that tax is one of the oldest economic categories in the world. A systemic perspective on taxation encompasses: 1) a set of taxes applicable in a given time and place; 2) the authorities that create and implement the tax law; 3) the administration that operates the system; 4) current and future taxpayers and their attitudes to taxation; 5) geopolitical situation of the area covered by taxation. The contemporary economic science does not call into question the superiority of the fiscal goal, however, in light of the civilisational changes of the 21st century, it is becoming crucial to adapt tax solutions to the fast changing economic conditions related to globalisation and digitalisation, and to the ever growing role of multinational companies in world trade (Persson and Tabellini, 1994; Norregaard and Khan, 2007). The global tax governance faces a challenge of whether and how to adapt sovereign tax systems, most of which were developed in a traditional industrial economy system, to the global economic and political situation. Rasmus C. Christensen and Martin Hearson (2019) talk of obsolescence of the over a hundred year-old global international tax system and of the uselessness of the institutional tools currently in place, as can be observed, for example, in the advanced tax strategies applied by multinational companies such as transfer pricing, hybrid structures and shell companies (Christensen and Kapoor, 2004; Nellen, 2015). The fast aging of new technologies and that of economic models also means that legislators do not have enough time to bring the applicable tax law up to date (Nellen, 2015). Tax systems are confronted with the challenge of adjusting to the global digital service- and knowledge-based economy, where households and firms have an extensive access to cutting-edge telecommunications technology and are not afraid of digitalisation (Gupta et al., 2017).

Hence, tax systems, their origins, evolution and current changes must be seen as a reflection of the ongoing changes in respective countries' economic, social and political life. They are "fine-tuned" as social and economic development proceeds, with respect to the economic process of income generation and use, so tax economics must refer to all those aspects. Tax system economics requires finding answers to globalisation challenges posed by the economic activities of interrelated multinational corporations, international financial operations, global goods and services market and tax evasion (Dietsch and Rixen, 2016; Christensen and Hearson, 2019;

Diamond and Saez, 2011). Furthermore, it should build a systemic resilience to the global macroeconomic risk, to the growing job cuts and labour market changes, trade wars and lack of market liquidity.

The ongoing worldwide geopolitical and geoeconomic changes are shaping a new paradigm of the 21st century tax system, verifying the countries' existing regulatory model which represents a cumulative set of legal responses to crises occurring in the past.

The key issue of the economic policy is to ensure the state's prosperity as well as economic security and progress of this and next generations through an interaction between entities that shape the economic policy and those being object thereof and impacted by it. As regards social policy, the activities of the central government, local governments and non-governmental organisations aim to satisfy fundamental needs without which the society cannot function. This includes shaping general working and living conditions, pro-development social structures (generation renewal, human capital development) and social relations that are based on equality and social justice. The idea of sustainable development assumes that the society and the economy can and should satisfy the current generation's needs without diminishing the future generations' prosperity. This is conditional upon a good economic governance translating into relations between economic growth, environmental protection, and quality of life by means of economic and environmental performance. The quality of social and economic policy implementation depends, to a great extent, on identifying the underlying circumstances that impact on its objectives, directions and tools. Economic pragmatism involves thinking and acting in economic terms when governing a country, by adopting a monetary and fiscal policy that determine a balanced profit and (acceptable) loss account for the social policy, and requires "tightening" reforms, especially on the spending side, by greatly increasing job activation and diversity of benefit recipients. To explore all of the above indicated areas, we suggest that tax system economics should be defined as an overall management of a state's or integration grouping's public revenues and expenditure to shape a smart economic policy that stimulates economic growth and development and safeguards against a functional risk for the current and next generations.

This will allow us to revise the currently functioning and determine new rules of taxation economics for such essential areas of science as public finance, management of the economic security of the state and tax policy, which are facing new challenges related to scientific and technical

progress that are the basis for the Fourth Industrial Revolution (Industry 4.0). This requires an analysis of the mechanisms of socio-economic relations functioning in economies, national and international tax policy, taking into account the relationships between:

1) **managing sources of tax revenues and expenditure** (national and international income, assets, consumption, social transfers, public investments),
2) **managing public administration and private sector institutions** (e.g. international institutions, government, tax administrations, corporations, enterprises, households),
3) **managing financial results** (e.g. budget incomes and expenditure; tax advantages and losses; mobile capital—savings—investments; social cash transfers; tax competition) (Diamond and Saez, 2011),
4) **managing economic operators' behaviour—behaviourism** (professional and personal activity: education, retirement, unemployment, marriage and divorce; energy invested in tax avoidance instead of increasing one's prosperity; tax system rationality; international cooperation).

This necessitates institutional market conditions that should, by their definition, foster economic growth and development.

Such a perspective does not only relate narrowly to tax economics or to the set of applicable taxes but also to the social system, whose elements include the economic system and an efficient and fair allocation of resources. Thus it expresses a position that aspires to explain and pragmatically apply tax policy as the most important—together with monetary policy—instrument of governance within the framework of the general systems theory, and the need to build and apply a legal system that will prioritise the economic and social context, reducing systemic risks.

1.2. The economic concept of tax and tax system

To properly define tax, one should start by making an assumption that the same is both a legal and economic category. The public law nature of taxation requires that the tax imposed should be governed by laws. One should bear in mind that looking at tax economics in isolation from institutional law issues may result in its misinterpretation. And the other

way round, the analysis of tax system only in its formal and legal aspect focusing on a narrow perspective i.e. on the general functions of taxes, principles, methods for establishing respective types of taxation that set them apart from other public charges and levies (Braithwaite, 2002; Zander, 2004), requires adding an economic and social dimension. In economics, a reference is often made to the formal and legal definitions of tax indicating its compulsory nature, universality, non-refundability and unrequitedness. One of the most often cited definitions suggested by OECD (*Definition*…, 1996) for the purposes of comparing tax systems of countries with varied local tax structure models, ascribing to taxes characteristics such as being compulsory and of public-law nature, defines taxes as compulsory unrequited payments to the sector of central government, local government and international institutions. Therefore, when extending this definition to include the formal and legal aspect, we can talk of tax if a given payment is:

1) of monetary nature because a payment to a legally defined institution is required (Thuronyi et al., 2016); as well as (Bitner et al., 2017),
2) compulsory — the duty to pay stems from the provisions of law and administrative decisions, and thus the obligation to pay is secured by the authority of the state, which has the bodies and tools to enforce the due payment (state's tax sovereignty),
3) unilateral — the amount of tax is regulated in the provisions of law, and a taxpayer has no option to negotiate the amount of the liability payable (state's tax sovereignty), because the state participates in the outcomes of citizens' economic activities, while tax payments do not result from state-taxpayer market relations,
4) non-refundable — because its nature is that of a definite movement of assets between taxpayers and the public authority,
5) non-equivalent (unrequited) — taxpayers have no right to expect from a tax jurisdiction any specific service or product in return for meeting their obligation (James and Nobes, 1997); they only benefit from specific public goods because they belong to a given society,
6) general, i.e. uniform, imposed based on the provisions of law, relating to a relevant group of taxpayers who meet the conditions for the liability to pay tax to arise but are not specified by name,
7) made to public authorities represented by central government's and local governments' tax bodies.

Such a broad definition of tax includes a set of public fiscal charges applied as part of national tax systems, as well as social security contributions, customs duties, export taxes and parafiscal charges. The need to lay down the principles of tax law is, beyond dispute, intrinsically linked to the taxpayer's economic situation and relations with tax authorities. These relations are characterised by subordination, and in tax economics we can even talk of coercion arising from the competences awarded to the authorities representing the state's interest (Etel et al., 2015). One can agree that the structure of tax system is a legal matter seeing as it involves public interest and administrative and legal power, whereas the object of taxation itself is an economic matter, with sources of tax depending on the social and economic potential of the economic operators taxed.

In economic theories, taxes are the condition of an efficient sourcing of budget revenues (fiscal goal), and represent an instrument influencing the taxpayer-state relationship, which designes the current economic and social policy in place (non-fiscal goals). The classic tax system economics is based on two main principles: non-distortionary tax efficiency and fairness of taxation while meeting the economic condition of maintaining the taxpayer's ability to bear the burden of taxation (Stiglitz and Rosengard, 2015). Non-distortionary tax efficiency encompasses the following principles:

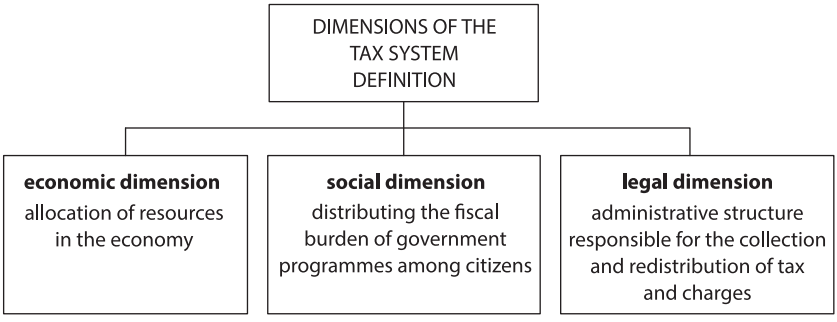
1) **fiscal:** taxes yield a source of publice income at a low cost and relatively low political risk, taking account of the ongoing changes to the state's and taxpayer's economic situation, and limiting frequent changes to the tax system, which make it difficult for taxpayers to make relatively rational decisions, and destabilise the national economy;
2) **economic:** this principle takes account of the economic and social consequences of taxation such as the impact of the economic crisis and the decrease in budget receipts or a functional risk to the society;
3) **statutory form of taxation:** it guarantees adopting substantively and formally correct measures to design and amend the principles of tax law.

Therefore, the definition must consider the issue of rationality of taxation, making sure its burden does not enforce on taxpayers any actions whose outcomes are detrimental to the state. One should examine the

question of the ability to pay tax, which safeguards the current existence and provides conditions for creating new tax sources, which will also result in higher national budget revenues.

When defining the tax system from an economic perspective, it is worth analysing its dimensions in the following order (Fig. 1.1). Firstly, it has an impact on the allocation of resources in the economy (economic dimension). Secondly, it plays an instrumental role in distributing the financial burden of governmental programmes among citizens (social dimension). Thirdly, it is a legally sanctioned administrative structure responsible for the collection and enforcement of tax receivables (legal dimension). The essence of each tax system is to provide the funds necessary to finance public goods and services. Tax systems evolve as a result of fulfilling citizens' needs which have to be financed from the central government or local government budget. They help identify a certain level of income depending on a number of wide-ranging political decisions which traditionally have influence on the development of tax systems.

FIGURE 1.1. Legal, economic and social dimensions of the tax system definition



Source: own elaboration.

Considering that the tax system is also characterised by specific functionalities involving not only fiscal but, most of all, social and economic relations, this system can be defined as a common base of public levies, established and enforced by organisational and legal provisions, financial institutions (and for the EU, also by Community institutions), paid by households and enterprises oriented to improving the competitiveness of the national economy and maximising social prosperity (Raczkowski, 2016: 75), pointing to the significant co-participation of all the stakeholders in

designing the tax system. From an economic perspective, tax system can be treated as a comprehensive set of taxes applicable and used at a time by a given state or integration grouping, which directly impacts the economic growth and development in the monetary dimension (secondary income distribution), and indirectly supports taxpayers' efforts with respect to their professional, economic and welfare-enhancing activities.

One should observe the crucial role of tax system as a countercyclical and rescue tool after the financial crisis 2008+ (Jordà and Taylor, 2016), sustainable growth driver (*Fiscal…*, 2015) catalyst for public investment in the economy (Summers, 2014), direct instrument supporting structural reforms and elimination of inequalities (Piketty and Saez, 2013; Piketty, 2014; 2015) or, last but not least, a mechanism for enhancing a state's credibility and influencing the interest risk, building the room for transfer policy in the sphere of productive expenditure or sustainable tax cuts (IMF, 2017). Hence, it is legitimate to say that both fiscal and monetary system are the most important mechanisms for designing social and economic processes as part of a relevant policy, complementing each other as part of the financial security network. Tax system should be defined as a fiscal mechanism designing shaping social and economic processes as part of a state's or integration grouping's macroeconomic policy.

Tax system defined this way becomes an integral part of the economy, responsible for the economic and legal form of the social income distribution. Its goal is to guarantee financing for the state's functions (allocative, redistributive and stabilising), without which it would be impossible to perform even the most basic public service tasks oriented to the prosperity of citizens. The functioning of tax system is visible at the national, regional and local level, and its efficiency results in social and economic development, and higher social prosperity, which should be considered, on par with the fiscal objective, as the ultimate goal of each tax system in the global economy. It is a system of interconnected institutions, instruments and measures that help perform the fiscal, redistributive and stabilising functions.

1.3. Principles of taxation

A lot has been said about the principles of taxation, with each respectable scientific paper or book referring to canons formulated by Adam Smith (18th century), David Ricardo (18th/19th century), John S. Mill (19th century),

Adolf Wagner (19th century) and Fritz Neumark (second half of the 20th century). Why are they so often revisited? The functioning of the tax system in economic practice required developing some principles of taxation and calls for action by the legislator (Musgrave and Musgrave, 1989) to guarantee an efficient collection of tax, limit the negative impact of fiscalism on the economic processes and minimise the inconvenience of the tax collection to taxpayers. Principles of taxation are considered as fundamental standards that determine the correctness of the tax system theory and of practical tax models. These are desirable features that should characterise tax system. The knowledge of the legacy of previous generations helps appreciate which of our present rules are owed to the historical economic thought and make us wonder which postulates we should bequeath to the next generations.

In the traditional classical economics, four canons of taxation are most often cited (Smith, 2007): equality, certainty, convenience and economy, which result from the analysis of the underlying causes of the 18th century political, economic and social circumstances (Table 1.1).

How did Adam Smith envisage the tax payment process then? All citizens participate in the state's operating costs pro rata to their income. They are subject to the same tax liability as, in line with the canon of equality and economic rationality, the same tax must be paid on the same amount of income generated. Taking account of the social dimension means exempting from the liability to pay tax those whose income only covered basic living essentials. Taxation should not compromise the sources of tax income or interfere with the economy. The canon of certainty of taxation details the economically significant elements of tax, i.e. amounts to be paid, payment method and due date. It can be compared to the currently applied principles of respect for acquired rights, of non-retroactivity of law and *nullum tributum sine lege* (no taxation without law). This stems from the taxpayers' need to have transparent and exact information on their rights and obligations as to when, in what amount and as a result of what activities taken by them they must pay the tax. The canon of convenience of taxation raises a socially significant dilemma — the due date of payment of the tax liability. Adam Smith defined the key universal economic and social dilemma of the authorities — if you impose a tax (you need money), consider whether the current regulations guarantee timely payment of this tax (you will collect the money). Presently, within the framework of corporate and household finance one can refer to such frequently used terms as maintaining financial liquidity and stability so that taxpayers, when

TABLE 1.1. A. Smith's canons of taxation and their anticipated effects

Canon of taxation	Dimension	Reasons for formulating the canon	Anticipated effect
Equality of taxation	Economics	The same amount of income did not equal the same amount of tax. Some groups within the society were favoured due to the social class they belonged to.	The same income generated equals the same tax paid by all taxpayers. No group favouritism; fair taxation that is proportional to the income generated—taxpayer's ability to pay. Introducing a preferential tax policy for people with minimum income.
Certainty of taxation (taxpayers are aware of their rights and obligations)	Technical design of the tax	Uncertainty of tax regulations may result both in their misinterpretation by taxpayers and possible abuse by fiscal officers	Precise identification of: liabilities (upfront), the amount of tax to be paid, the moment when the liability to pay tax arises, the due date of payment.
Convenience of taxation (tax collection due date and method)	Technical design of the tax	Problem with the taxpayer's liquidity at the time of liability to pay the levy	Taxpayers make the payment when they have the financial means to meet their liabilities. The solutions used for indirect taxes are preferred.
Economy of taxation	Technical design of the tax	Major cost of tax collection, thus the lack of estimated proceeds becomes the reason to raise taxes.	Minimal expenditure on tax collection generates higher net proceeds from taxes (the canon of economy of taxation).

Source: Smith (2007).

meeting their tax liability, would not face a deterioration of their financial situation. Another canon, the one relating to economy of taxation, focused on the issue of maximising the fiscal function by limiting the administrative costs of tax collection; looking at the present tax system and the challenges of tax compliance, Adam Smith seems to have rightly anticipated the tax collection consequences on both ends—both for state institutions and for taxpayers themselves. To sum up, a good tax system, according to Adam Smith, firstly, guarantees a universal and proportional taxation that is adapted to taxpayers' income (the canon of equality taking account of the taxpayer's ability to pay). Secondly, the due date and amount of the tax liability are precisely formulated in legal regulations (canon of certainty). Thirdly, taxpayers are guaranteed the most convenient manner, place and due date of payment of the required tax liability (canon of convenience). Fourthly, it is important to minimise the costs of tax collection both at the state's end and that of taxpayers' (canon of economy of taxation).

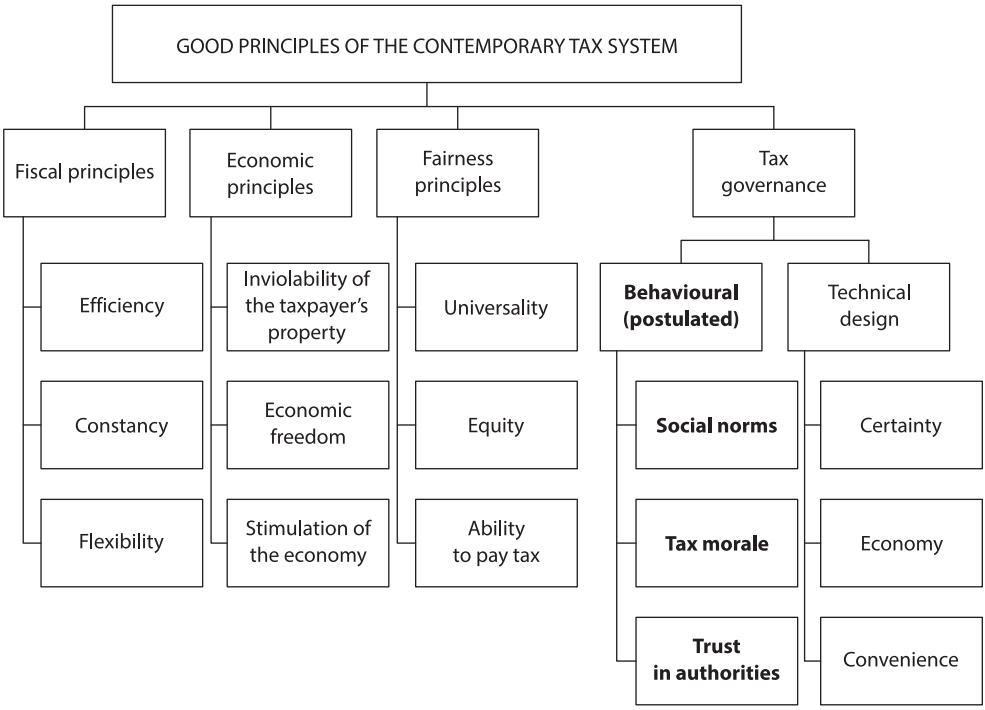
To this fiscal policy postulated by liberalism, Adolf Wagner (1967) added further functions: economic function, and the functions of justice and of administrative efficiency of the tax system. Thus he envisaged a much more extensive impact of taxes on the economy and society. The fiscal principle was based on adequacy of yield, flexibility and on guaranteeing tax proceeds that are high enough to finance the state's current needs. Indeed, the amount of receipts is subject to natural fluctuation according to changes in the taxable object, phases of the economic cycle, and social and civilizational evolution. The fundamental principle of the economic function is the protection and inviolability of capital and property (sources of taxation), so that the tax payment should not limit taxpayers' economic freedom or freedom to manage and accumulate property and capital. When applying this in the current practice, one should consider whether and how tax system makes an arbitrary distinction between taxpayers, i.e. when it is in breach of the principle of horizontal fairness. This is the case if a consumption tax is charged on a merchandise purchased at a local shop and when the same person buys the same merchandise online, this tax no longer applies (Wise and Berger, 2010). The function of the administrative efficiency (tax administration) refers to Adam Smith's canon of certainty, convenience and economy of tax collection.

A systematic approach to historically established principles was proposed by representatives of the German school of economics (F.K. Mann, W. Gerloff, G. Schmölders, F. Neumark), who extended the principles with economic, social and political aspects. The most representative theory of Fritz Neumark's tax rules divides tax principles into four basic groups: fiscal and budgetary (providing the state with budget revenue as part of the fiscal function of the tax system), ethical and social (principles equality and universality in taxation, redistribution of tax revenues), economic (the effect of taxation on the economy- stimulating function) and the principles of tax technique (cheapness and convenience of collection). Fritz Neumark (1970) assumed that the taxation should be levied in accordance with the principles of universality and equality, as well as the principle of redistribution of income and property, ensuring sufficient tax revenue of the state without exceeding the level of tax liabilities.

In the contemporary tax system, the above presented postulates and good practices that have evolved throughout the history of economics still remain very valid. Meanwhile, one needs to bear in mind that the paradigm is changing as a result of the evolution in the prevailing scientific views, which, most commonly, happens as a result of external shocks, especially in the form of financial crises. Testing the resilience of the

principles of taxation to external shocks is probably the best way to check if their underlying assumptions are correct, and to formulate normative proposals aimed to modify the existing regulatory and supervisory model. Therefore, the classical principles need to be reviewed to include the understanding of the impact of taxation on prosperity, which is increasingly important for the post-crisis economics, taking account of the principles of behavioural economics (Fig. 1.2). The social (behavioural) perspective complements the principles of a good tax system by ensuring the correction of irrational biases in the complex decision-making process relating to compliance with tax laws. This correction is needed due to the awareness of the objectively existing shortcomings in the transparency of an institutional organisation, and legislative imperfections which characterise the contemporary tax systems. The power of social norm in behavioural economics is considered as one of the most significant determinants of behaviour; hence, it may be deliberately or unconsciously used when taking relevant decisions on compliance with tax laws.

FIGURE 1.2. Postulated principles of taxation in the contemporary tax system



Source: own elaboration.

One's place in the social structure and identification (and its intensity) with a specific social group plays a meaningful role in the negative or positive perception of tax frauds, tax evasion and harmful tax practices, which is also influenced, among others, by general social expectations, and other taxpayers' actual behaviours (Hallsworth et al., 2017; Torgler 2016). The demand to include the behavioural dimension in the principles of tax governance stems from the need to emphasise the society's impact on an individual when it comes to compliance with tax liabilities, reaction to tax burdens, tax mentality and morale, as well as the social criteria for considering a tax system and respective taxes fair. This will help highlight the role and the attitudes determining efficiency and effectiveness of a wide range of entities, on the one hand, those complying with tax laws and, on the other, those responsible for legislation and the collection and enforcement of tax liabilities. Another issue that becomes important in this respect is an adequate evaluation of the applicability of laws (understanding of laws) taking account of the impact of information asymmetry and of the regulators' and stakeholders' limited perception of the legislation process. When it comes to social norms and tax morale, another step involves measures aimed to build social trust in the authorities, which results in a more voluntary compliance with laws (long-term effect).

The dynamic of economic changes and global crises make principles of taxation difficult to apply when taxation is complicated by short-term political goals, which are not necessarily aligned with long-term economic goals. One must concur with William J. Congdon, Jeffrey R. Kling and Sendhil Mullainathan (2009: 378) that: "while the traditional case for tax simplicity is indirect, related to achieving broad tax bases, or administrative, the behavioural approach suggests that the degree of simplicity directly enters the optimal tax calculation". When the state uses its superior position, a risk of regulatory moral hazard may arise. It consists in the government following its own interest as the owner of relevant assets rather than the public interest when laying down regulatory standards or taking relevant decisions on the tax policy in place. The larger these assets are compared to the state's economic potential, the stronger the possible temptation to behave that way.

1.4. Goals of tax system

The tax system fulfils specific economic and social goals in accordance with the state's political strategy in place. Not every tax may have advantageous redistributive characteristics from the systemic perspective, nor

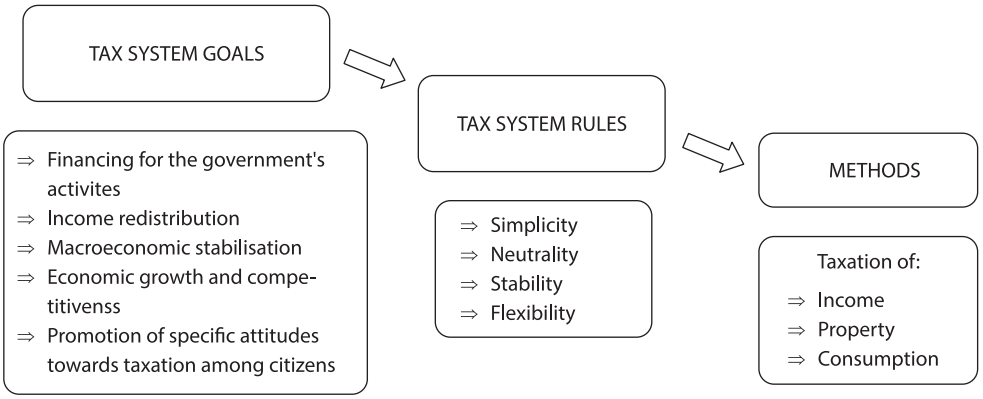
can each tax be pro-social or pro-environmental. Meanwhile, when looking at taxes through the lens of the system as a whole, one should analyse how its respective components impact one another and enable the fulfilment of relevant goals.

Most of all, the tax system should ensure the funds to finance the spending needs. The state's fiscal goals require that tax system should be based on taxes that are efficient, flexible and consistent with social justice. Efficient taxes guarantee the fulfilment of the essential public needs; flexible taxes help satisfy those needs irrespective of the current market situation. Social justice guarantees the adequate amount of taxes paid by due dates, while not compromising taxpayers' economic situation and the market situation. This should be guaranteed by a transparent tax policy and by administrative authorities following a policy of low operating costs. With tax system influencing so many social and economic areas (labour market, consumption and output) and social and economic life being so complex, it is extremely difficult to fully evaluate tax policy's outcomes (Greenwald and Stiglitz, 1990; Gilchrist et al., 2014). The goals attributed to tax system in a market economy are strongly linked to the role the state plays in the process of creating a favourable environment for social and economic development, broken down to:

- fiscal goal — ensure budgetary receipts that are relatively high considering the economy's level of development but not so high as to encourage taxpayers to resort to acts that are detrimental to all beneficiaries of the public finance sector, such as tax avoidance and evasion, or operating in the shadow economy (Darvas and von Weizsäcker, 2010);
- redistributive goal — ensure transfer of income and protection of socially and economically vulnerable groups;
- regulatory goal — use taxes as a regulatory instrument in support of macroeconomic policy goals;
- stabilising and economic goal — support and drive a competitive economy and social prosperity.

In other words, **the goals of tax policy** are as follows: guaranteed ongoing financing for the government's activities, income redistribution, macroeconomic stabilisation, support for economic growth and competitiveness, and promotion of specific citizen behaviours (Fig. 1.3). Their fulfilment is based on the principles of taxation, the most fundamental of which are simplicity, neutrality, stability and flexibility, the best tax system being **simple, neutral and stable** (Mirrlees and Stuart, 2010), and making an efficient use of taxation of income, property and consumption.

FIGURE 1.3. The main tax system goals, rules and methods



Source: own elaboration.

In existing tax systems, the principal classification of taxes by taxable object is as follows:

1) **Income taxes, including, without limitation, corporate and personal income taxes, which are levied on income at the time of its generation.** These are charged to taxpayers at the time of generation of income treated as the difference between the revenues generated and the cost incurred to generate revenues (the so called net profit). For PIT, the so called tax individualisation is additionally taken into account. Income taxes are characterised by universality when it comes to taxable persons, meaning that all legal and natural persons generating income are subject to taxation. Direct taxes, in particular those relating to taxpayers' personal income, including income from salary and capital income alike, have an impact on taxpayers' decision on the supply of labour, and on the amount of savings and investment (Stiglitz and Rosengard, 2015). They can affect the economy as an automatic business cycle stabiliser. Maria G. Attinasi, Cristina D. Checherita-Westphal and Malte Rieth (2011) studied the impact of PIT on production volatility between 1982 and 2009 in OECD member states, indicating that countries with a more progressive taxation experienced less fluctuation in production. The drawbacks of direct taxes that need to be pointed out include the delayed collection of tax dues (their annual settlement and payment, and flow into the budget takes place several months into the next calendar year), high collection costs (tax returns being verified by the administration).

2) **Property taxes**, which are levied on property owned or on specific assets, additions thereto or sales thereof, vary greatly across countries as to their form and structure. As a rule, they are levied on the value of property or specific portion thereof (e.g. real estate), additions to assets (e.g. gift, inheritance), sales of assets (e.g. transfer of rights to the property against payment).
3) **Consumption taxes** including current expenses charged on the taxpayer's income at the time of expenditure (e.g. VAT, excise tax). They are included in the price of goods or services. The payer is the legal entity conducting business activity, but the economic burden of taxation is borne by consumers who buy the goods or services. The tax is collected at respective stages of economic circulation (e.g. VAT) or only at one stage thereof (e.g. retail taxes or excise tax, which is a selective consumption tax, (Annacondia, 2018). Such taxes are relatively efficient (proceeds from these flow swiftly into the budget), which causes them to be seen as flexible taxes that are strongly linked to economic activity; hidden in the price of goods or services purchased, they are less appreciable to taxpayers compared to income tax, giving them the advantage of low social sensitivity, higher budgetary efficiency and resilience to inflation. What can be seen as their disadvantage is no concern for the ability to pay tax, making them more onerous to the less well-to-do households, which spend most of their income on consumption.

Literature on the subject acknowledges the supremacy of the fiscal (income-related, financial) goal, which supplies most of the public income, without calling into question the economic and social goals pursued with its help, subject to the condition of not interfering with the market mechanism (Devereux, 2007). The efficiency of an economic system is of fundamental significance for establishing the limits of taxation. This efficiency is quite volatile, susceptible to business cycles, unemployment, investments and consumption levels, and the scale of international economic exchange. The attempts at a concurrent implementation of fiscal and non-fiscal functions of taxation provide inputs for the discussion of goal prioritisation. According to the classical liberal theory, the only purpose of tax as the state's fiscal instrument is to cover public charges, so it should cause neither economic nor social interference (Gaudemet and Molinier, 2000). Meanwhile, the contemporary practice of state non-fiscal interference indicates that the effect of taxes on the economic sphere can be generalised, e.g. have the

form of strong state interference with taxes to combat excessive inflation (e.g. the crisis of the 1930s in the USA), higher government spending to reduce the unemployment rate, fight against tax avoidance and tax evasion (e.g. *Base Erosion and Profit Shifting* – BEPS); or selective, e.g. when the state wants to encourage the development of a certain branch of economy by means of a tax relief system (e.g. *patent box* for innovative sectors in the United Kingdom, Poland, Ireland, France, the Netherlands). Non-fiscal functions of the tax system used for social purposes may help bridge the social gap, but the financial goal that guarantees the funds necessary for an effective implementation of the state's economic and social policy remains a top priority. If we were to assume that economic and social goals are of primary importance, there is a risk that the tax system structure will be temporarily destabilised depending on the current demands of the country's economic or social policy, and that the functional risk will materialise.

1.5. Tax system models

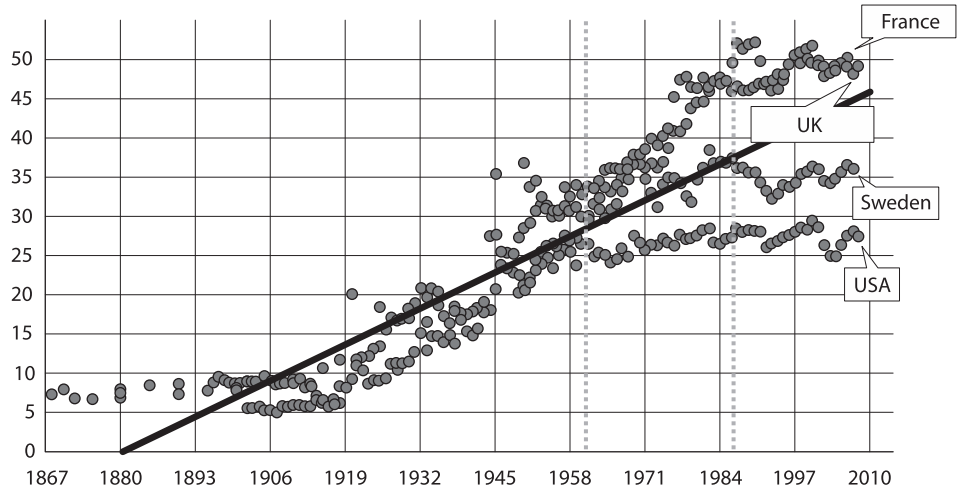
The contemporary state becomes an increasingly important commercial market participant which makes use of market instruments and resources. The scale of the public sector's presence in the financial system following the last financial crisis has been unprecedented. Financial security is becoming its domain, and the state's return to predominance over market forces goes hand in hand with a growing politicisation of its involvement, shifting onto the state a huge responsibility and reputational risk, which it will have to confront. The social and economic raison d'état entails economic pragmatism. What matters is a vision of the state and the ability to engage in an international competition where the winner is the state's economic interest rather than empty protectionist agreements which block the economic development of some countries to open the same areas of economy to others. There are calls for the state to play a new role, and, more specifically, for the state to increase its presence in the financial system. This is a global phenomenon that can be observed in all major economies. Applying a macroeconomic perspective to the supervisory approach changes the agenda of the discourse on tax system in the context of financial crisis and public finance deficit. What takes the centre stage is the adaptation of the tax system model to the current economic envi-

ronment, which requires thinking out of the box when it comes to deciding which tax system characteristics are desirable in terms of the links between taxation efficiency and tax fairness (*Addressing*…, 2014; Stiglitz and Rosengard, 2015). This places greater importance on the consequences of tax avoidance and tax harmful competition in the increasingly digital economy. The tax system's fiscal efficiency should maximise the attainable social prosperity of this and the next generations in each of the respective business cycle stages. This means, on the one hand, aiming for a neutral and fair taxation, and, on the other, eliminating the tax gap and protecting market competitiveness (Raczkowski, 2016). The discourse on efficiency increasingly focuses on limiting the negative impact on market processes (Nhekairo, 2014) with respect to the supply of labour and capital, and on supporting their efficient use (Gomułka et al.,2017) to prevent dislocations in the global economic system, which may, at the same time, trigger negative economic consequences in many countries.

A comparative study of countries with similar macroeconomic indicators, and legal, economic and social norms points to a diversity of systems, which can be linked to the economic history, different underlying assumptions of tax policy and to particular political decisions. Various systems have evolved in a different economic, social and political environment, which has left its imprint on the institution of taxation to which taxpayers adapted over time (Durusu-Ciftci et al., 2018; Delgado, 2017; Hettich and Winer, 1984). Tax regime most commonly develops as a result of a long and complicated process of creating a logical system structure. The outcomes are types and forms of taxation that are adapted to the social and economic situation, along with the transformation or abandonment of inefficient solutions. This requires taking account of many direct and indirect factors affecting taxation, including the social and political system, the country's level of economic development, the social and economic development programme, administration and international legislation. This long-term process of gradual designing, systematisation and harmonisation of respective taxes in a specific political, economic and social context is aimed to identify the existing imperfections which should be corrected after some time. Correction is important, and a major role is played in this respect by the society's familiarity with the taxes in place and aversion to radical reforms. The design of the contemporary tax system model is based on the interaction between two types of entities—active and passive ones. An active entity is a public law regulator competent to impose laws and shape taxes.

Passive entities are social partners and stakeholders (e.g. individuals, business), for which a liability to pay tax has arisen—most of them will bear the economic burden of tax (actual taxpayer), and some will be liable to pay tax (formal taxpayer). The taxable object is established by the regulator based on the practice adopted in a given society's economic activity. The basis of taxation is the monetary measure of the taxable object, and a tax rate should be treated as the state's share of each social and economic event. Looking at the increase in taxation in France, Sweden, the United States and the United Kingdom (Fig. 1.4), until 1914 (the outbreak of World War I) governments had collected less than 10% of the national income in the form of tax, earmarking it to finance basic functions relating to government maintenance and current needs of the state. From 1920 until the 21st century a cyclical increase has been observable in the share of taxation in the economy, which is also connected with higher public expenditure on services such as education and healthcare. Rapid growth is especially notable in the period right after the end of World War II, a reconstruction cycle of respective economies. Since the end of 1960s a slowdown in economic growth can be seen in the United States, and in Sweden in the late 1980s and early 1990s.

FIGURE 1.4. Taxes as a share of GDP between 1860 and 2010 as illustrated by the examples of France, Sweden, the United States, the United Kingdom (in %)



Legend: dots—evolution of tax as a share of GDP; France, the United Kingdom, Sweden, the United States; black continuous line—trend line; grey dotted vertical lines—trends in changes in tax as a share of GDP after World War II

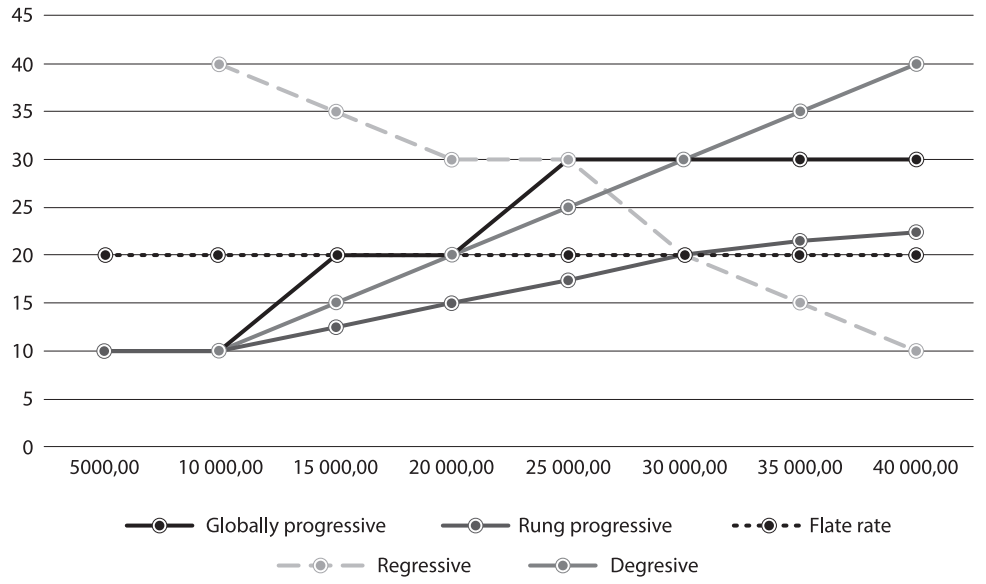
Source: own elaboration based on data retrieved from ourworldindata.com/taxes.

Douglass C. North (2006) regards the tax system as an important element of the whole historically shaped economic ecosystem reflecting a given country's timeless ideals and current needs. Expansion of the state and of the tasks imposed on it entailed the need to finance them. With growing needs of the state and its administration, it became useful to develop, impose and collect general taxation. In 1798, the first income tax was introduced in England (the need to finance preparations for the war against France); in Italy it was introduced in 1864, and in Germany in 1891. The increasing economic growth contributes to applying taxation also to processes driven by economic changes: in 1920, corporate income tax was introduced in the United States and in Germany; after World War II, France put in place personal and corporate income tax, and in 1954, a value-added tax (VAT). Throughout the 20th century, virtually every year more and more legal and factual circumstances would become subject to taxation.

The state's share of each activity, depending on the social contract (Fig. 1.5) will be proportional to all citizens or variable. A proportional share will be where a flat tax rate is applied; in this case it will be always the same, irrespective of the amount of tax base. The state's variable share allows for a broader spectrum of possibilities, this share either progressively growing pro rata to a higher tax base (e.g. globally progressive, bracket progressive, regressive) or decreasing pro rata to the tax base increase (regressive rate); a certain tax free amount is a commonly used solution where the state's share is variable, especially in revenue and income taxes (Fig. 1.5).

Tax system models in a free market economy apply derogations from the generally accepted tax standard. This helps them perform non-fiscal functions which result in alleviating the tax burden on taxpayers who benefit from specific preferences including tax credits, exemptions or lower tax rates. A taxpayer's eligibility for the preference is meant as a reward for a behaviour or attitude that complies with the state's expectations. The solutions in use favour certain social groups, e.g. large families, farmers, entrepreneurs; or certain sectors of the economy and economic behaviours (investment, innovation, savings). It is done using systemic tax credits applicable to taxpayers meeting specific conditions set out in relevant regulations, or individual tax credits applied on a case-by-case basis. Exemptions frees a certain group of tax beneficiaries of some tax obligation or refers to a certain type of income or transactions free from tax.

FIGURE 1.5. State's share of tax base (from USD 5k to 40k) depending on the tax rate preferred by the tax policy

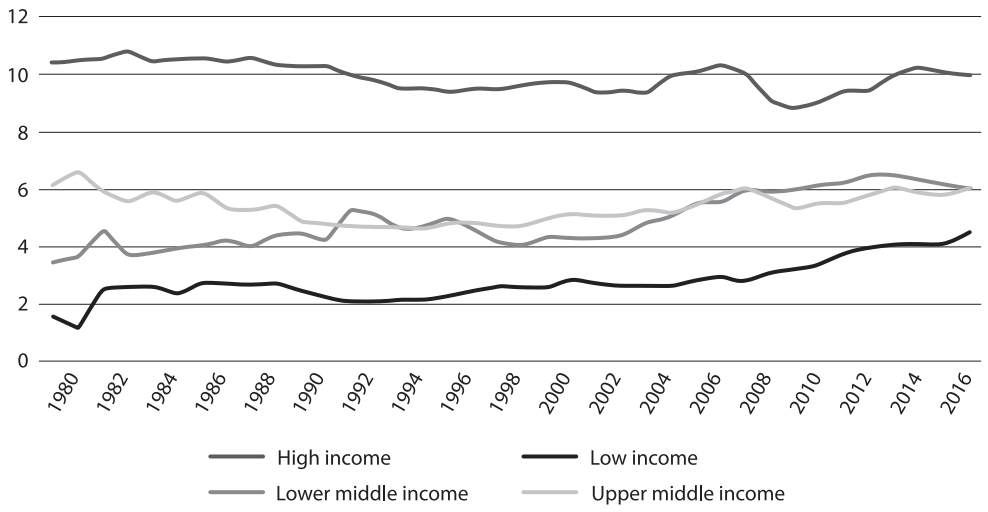


Source: own elaboration.

Tax system models used worldwide encompass a full spectrum of taxable persons and taxable subjects. A difference can be observed in weights allocated to respective types of public levies flowing into national budgets (Fig. 1.6), e.g. in the United States, Australia and Scandinavian countries direct taxes will have a relatively high share of tax revenues, while in other, middle- or low-income, countries the taxation on consumption (with a particularly fast VAT collection) represents a major counterbalance to income taxation. Looking at the changes in income taxes as a share of GDP, this share, over the last 30 years, has followed an upward trend more often in less well-to-do economies than in highest-income economies, where the effects of the crisis of 2008+ can be particularly observed.

Despite differences between national tax systems, one could point to areas which are subject to international, global convergence (Thuronyi et al., 2016), among others: the implementation of income taxes in all countries; reduction in PIT, CIT rate; social security contributions have become a widely used solution and their systemic coordination with the income taxation is growing; customs procedures have been significantly

FIGURE 1.6. The structure of direct taxes as a share of tax revenues in economies at different income levels between 1980 and 2016 (in %)



Source: own elaboration based on World Bank database.

harmonised, with customs duties greatly reduced; CFCs (Controlled Foreign Corporations) are widespread, especially in countries that are net capital exporters; a major consensus has been reached on many issues of cross-border taxation (e.g. transfer pricing), mainly as part of OECD cooperation; general and specific anti-avoidance rules have become a fixture as has the consensus on the need for legal and administrative measures to reduce tax base erosion; tax administrations have gained greater expertise in collecting and processing taxpayer information, and the taxpayer numerical identification has become a universal solution.

The gradual re-evaluation of views on the role of the state in the economy is usually driven by the evolution of the economic doctrine inspired by classical economic theories (Keynesianism, liberalism) and their contemporary varieties (such as neo-Keynesianism, neoliberalism). Shocks in the economy (e.g. increase in the unemployment rate, decline in output, financial crisis) are reflected by the tax policy in place (Delgado, 2017). Distinguishing between evolutionary and shock factors driving the tax system helps observe a certain constant process of tax policy adaptation, where corrections to tax policy shaped by evolutionary factors are verified by shock factors (Raczkowski and Węgrzyn, 2017). Theoretical aspects of taxation arising out of the wealth of existing economic theories,

from economic aspects through institutional and political ones, to the strictly financial dimension, enable an in-depth debate on which referential structure of tax system would best correspond to the prevailing economic environment, rather than just copying solutions used in the past. With tax theories embedded in today's tax systems, it is possible to develop a variety of tax models referring to the fiscal function in the free market economy, the social and economic goals of the state administration and tax system evolution following the development of the state and economy. The paradigm of tax system economics is still determined by two highly opposing theories representing different views on its role in the economy. The neoclassical tax analysis focuses on designing tax systems that help ensure the financing of public expenditure in a fair and efficient manner (Stern, 1987), with fiscal policy playing a minor role in the long-term development (Delgado, 2017). A comprehensive scope of the role of the tax system in the economy was introduced by interventionism, focusing on socialising the economic environment in the macroeconomic perspective of intervention to combat unemployment. John M. Keynes (2014) argued that the monetary policy is best positioned to support the free market economy, but if the market mechanism is destabilised by the growing unemployment rate, the market does not have self-stabilising mechanisms. Consequently, public intervention is necessary to stimulate market mechanisms with higher public expenditure (fiscal policy). Despite differences as to the role of the state and the scale of intervention related to social and economic goals, both doctrines point to the need for fiscal function as a condition for efficient and optimal use of the other functions (mutual effect). Without understanding the tax mechanism and the related economic circumstances conceptualised in the historical science of taxation, it is impossible to properly develop new concepts in terms of their long-term implications, which is of particular importance to the ongoing debate on the crisis of economic sciences (i.e. Colander et al., 2009; Bookstaber, 2017). The last financial crisis sparked off a discussion on whether the crisis is a sign of dysfunctionality of the economy alone of some economic schools, since they failed to predict it (models only predict a probability of crises) or suggest effective remedies. On the one hand, we have the criticism of monetarism, and on the other — the criticism of interventional fiscal incentives, with both schools aware of the real problem of having to garner the essential support for the necessary changes.

1.5.1. A neutral tax system model

The supporters of liberal theories advocate low taxes and a simple system that mainly serves the fiscal function, with other systemic functions limited. Liberal models are founded on the rationality and individualism of respective market participants in the economic decision-making process, and assume that a free market economy is the most efficient form, and the market mechanism should suffice to ensure economic growth. In accordance with the liberal economic thought (Table 1.2) the purpose of the tax system boils down to serving the fiscal function and collecting public revenue.

Based on the criteria listed in Table 1.2, a neutral tax system can be defined as one that meets the principal assumptions of the liberal role of the state in the economy, i.e. the least possible state involvement in managing the processes taking place in the real economy, complies with the principle of economic freedom and guarantees free competition. A neutral tax system does not distort the allocation of resources in the economy, which evolves in a competitive environment. A system of taxation or particular taxes can qualify as neutral when it does not impact an market participant's decision aimed to have a specific market effect (Schön, 2015).

Each interference with an individual's decision-making process may result in loss of prosperity, and thus instead of the universal neutrality of tax system (general perspective), we should talk of many neutralities related to individual economic activity. Hence the goal of full tax system neutrality is unattainable. Neutrality should be understood as no-interference with price relations based on which consumers and producers make their choices. Economic operators should base their activity on the principles of market mechanism, placing their resources on the market rather than being guided by tax system solutions resulting from state intervention. A neutral tax should not contribute, through so called tax rationality, to a change in the circumstances and in the operation of economic operators subject to market mechanisms. Functions of tax systems are limited to the fiscal and redistributive functions (and only to their basic extent). The model's main assumption is the equality before the law, there is no room for broad tax preferences, especially those targeting only a specific group of beneficiaries. Budget income should ensure financing of the essential expenditure only, defined by the state's involvement in the economy (e.g. external defence, protection of property, the judiciary).

TABLE 1.2. Tax system in classical theories of tax neutrality

Tax system in classical theories of tax neutrality

Selected authors	Economic dimension of taxation	Long-term effects
A. Smith (2007) D. Ricardo (2006) J.S. Mill (2006)	• Tax system's neutral effect on the economy • Taxes do not limit the economic development but enable the accumulation of savings • In a system based on indirect taxes, the burden of taxation is borne by all	• Neutrality of the tax policy strengthens social and economic inequalities • Individual need to get rich marginalises the regulatory role of the tax system • The impact of the actual increase in income and of the neutrality of the tax system on economic crises is not taken into account
A. Marshall (1997) F.P. Ramsey (1927) A.C. Pigou (2013) F.A. Hayek (1990) E.D. Domar (1944) R. Barro (1995) N. Kaldor (1964) J. Slemrod (2014)	• Progressive taxation system • Income from taxable sources should fully finance all cyclical (annual) ordinary budgetary expenditure • Higher taxes will be a negative stimulus to look for more efficient production methods • Tax cuts stimulate short-term investment, with no impact on growth in the long term	• A state's fiscal policy becomes less predictable due to the dynamics of changes in the economy and the attempts to restrict the growing inflation and periods of economic downturn with the use of taxes
J. Muth (1961) R. Lucas (1987) T. Sargent (1975) J. Buchanan (2014)	• Minimum level of taxation so that taxpayers will not look for solutions to reduce it • Taxes should contribute to achieving the best possible economic results at a given time	• High inflation rate has a negative impact on taxpayers' economic behaviours • Taxpayers learn from their experience and adapt their reactions and behaviour accordingly, which may lead to ineffectiveness of the state's economic policy • Limit on terms in office determines focus on short-term tax goals
M. Friedman (1962, 1967) G. Stigler (1971) J. Williamson (2004)	• Low taxes become an impulse activating taxpayers to engage in economic activity • The concept of lowering the highest tax rates and multiple preferences	• Striving for the maximum restriction of the tax policy's role • Failure to perceive taxes as effective stabilisers of the economic and social policy • Increase in the unemployment rate and budget deficits • Economic slowdown/ recession

Source: (Raczkowski and Węgrzyn, 2017).

1.5.2. A stimulating tax system model

If equalising the opportunities of social groups having different economic preferences by resorting to tax policy becomes one of the tenets of a state doctrine, this is a departure from the liberal and neutral doctrine that holds that tax policy should remain neutral or even indifferent to economic

processes. The supporters of Keynesian theories and of the concept of interventionism (Table 1.3) emphasise market failure in the event of economic shocks, calling for the interventionist role of the state in the economy.

In the stimulating model, the tax system plays a significant role in the process of state intervention at the time of business cycle fluctuations. The model relies on the principle that state interference with economic processes and therefore limiting the regulation by market mechanisms alleviates the disruptions occurring in the real economy. The state is assigned the role of stimulator of economic phenomena (Keynes, 2014), and the tax

TABLE 1.3. Tax system in classical theories of tax interventionism

Selected authors	Economic dimension of taxation	Long-term effects
K. Marks (2014) F. Engels (2014)	• Taxes are a tool of class struggle and an instrument of fiscalism • Excessive fiscal burden of high tax progression is meant to eradicate class differences and usher in the rule of the proletariat	• Taxes become one of the major elements of the state's administrative impact in the economic and social aspect • High tax rates limit taxpayers' economic development and ownership rights • Taxes become a tool for solidifying the poorest taxpayers' acceptance of the socialist system
A.Wagner (1877) A. Schäffle (2007)	• The tax burden is justified by fulfilling the society's needs (the concept of welfare state) • Universality of taxation and fair progressive tax eliminate excessive wealth differences • The concept of neutrality of tax policy called into question	• Taxpayers' resistance to high taxes was not predicted • A major impact on tax systems of the states which finance their interventionist policy assumptions from tax revenue
J.M. Keynes (2014) R. Hicks (1937) P.A. Samuelson (1954) F. Modigliani (1963) J. Tobin (1970) A.H. Hansen (1949) J. Stiglitz (2004, 2015) A. Atkinson (1976) A. Lerner (1944)	• Taxes are the state's major tool for intervention in an economic crisis • Macroeconomic stabilisers of the economic situation	• The tax system limits the market mechanism and facilitates greater state interference with economic processes, which may result in high inflation and unemployment rates • Opposite effect on income—taxpayers' decreased professional activity • Inflation rate weakens tax incentives to save and invest • No effective tools have been developed to actively counteract a high inflation rate • An excessive fiscalism and bureaucracy, the costs of which are among the reasons for higher tax burden

Source: (Raczkowski and Węgrzyn, 2017).

system serves the fiscal function, in addition to which it also serves the redistributive function as part of the social policy and the stimulating and allocative function as part of the economic policy. Tax system is characterised by strong fiscalism due to high tax charges, alleviated with various types of tax credits. Preferences generally target economic operators meeting specific conditions laid down by the legislator.

In this model, taxes become an instrument that actively influences the market mechanism. The economic crisis of 2008+ led to a re-evaluation of views on the stabilisation policy, especially when it comes to fiscal policy, where Keynesian instruments were also applied—by using a large-scale government intervention (this can be said in particular of developed OECD countries), and increasing the state's expenditure and budget deficits.

1.5.3. A theoretical tax system model addressing the challenges of the contemporary economy

With behavioural economics challenging models involving cognitive rationality, a question arises as to how to treat rational tax systems, which represent certain theoretical models for a system that should be the legislator's ultimate goal (postulates of the doctrine), and whether they can be indeed implemented. Tax reform concepts are usually developed by confronting a historic system with a system deemed rational, and aim to make the former come as close as possible to, to the extent feasible in a given economic and social context, to the rational benchmark, though some compromise will be necessary (Bitner et al., 2017). Richard Blundell and James Poterba (2010:3) mention a vision of an ideal system with perfectly fitting elements, from which unnecessary distortions need to be eliminated. Rational systems are comprehensively designed, composed of several logically interrelated types of taxes which interfere with one another, resulting in their mutual strengthening; they are neutral to one another. Where taxes weaken or even eliminate one another, a systemic correction becomes indispensable (Kaplow, 2010).

An analysis of respective issues should inform the search for and design of the proposed rational tax system (**tax system rationalisation**). The rationality of the tax sector is inherently linked to a vision of the state which should be characterised by a cohesive and consistent model implementation in the social and economic sphere, as required by science, and in line with practical conclusions. The rationality of the tax system

functioning should be intended to limit the risk of the excessively strong negative impact of taxation on the economy and society. Thus, when focusing the discussion on the essential dilemma of the impact of tax economics on the economic system (we are dealing with a limitation of the resources held), one should bear in mind that tax system will always have an effect on income, also through its substitutive function.

A rational tax system model based on the principles of fairness and effectiveness is being attempted, for example, by the European Union. Four economic priorities of its tax system are: boosting investment, supporting employment, reducing inequalities and ensuring tax compliance (*Tax Policies*…, 2018). The power of taxation remains the competence of respective member states, where major model differences exist. Member states, especially EU15, are traditionally characterised by high social transfers translating into relatively high tax charges. This is why predictors such as GDP per capita, the condition of industrial sectors and civil liberties have a positive effect on the tax income (Castro and Camarillo, 2014). Much lower public spending and tax charges are reported by relatively new member states (CEE and Southern European countries), mainly as a result of liberal economic reforms as part of the democratic transition. EU's tax policy is aimed to ensure a smooth functioning of the single market. Hence the indirect tax harmonisation was conducted before the direct tax harmonisation. Post-crisis, tackling the harmful tax avoidance and tax evasion effectively became a priority policy area.

A state's doctrine may provide the foundation for economic assessment criteria, for example in terms of its efficiency and fairness (Musgrave and Musgrave, 1984), which translates into tax systems being differently structured in democratic, liberal, conservative and social democratic states (Morrissey et al., 2016). The superiority of a tax system's fiscal function requires setting the criteria for establishing a rational level of public revenue (performance of state functions). If the social pressure or economic expectations require considering changes to tax system, these changes are also influenced by a given state's political structure. In notional multi-party parliamentary systems (according to Maurice Duverger's typology) with multi-party legislative and executive bodies, characterised by a significant political fragmentation, systemic reforms are more likely to be delayed or even blocked than in countries with a two-party system, where it is easier to introduce changes (Tsebelis, 2002). The nature of a political regime may impact tax system by the tax policy formulated, legislation adopted and

the way the tax system is managed (von Haldenwang and Ivanyna, 2010). For example, Pablo Beramendi and David Rueda (2007) noted that it is impossible to understand the links between redistribution, social democracy and the so called economic corporatism without a more detailed analysis of indirect taxes, when social democratic governments are in a paradoxical situation, supporting the welfare state and using an essentially regressive policy instrument that is indirect taxes.

When talking of taxation, we most often refer to a situation where tax jurisdiction applies to or is limited to individuals and activities in a given geographic area. In this sense, most of the existing tax systems are territorial in nature (Schön, 2015).

The current tax system came into being more than 100 years ago when engaging in economic activities involved a physical presence, while currently assets increasingly come from the digital economy. It is no longer enough to harmonise rules alone to remove the obstacles; respective states' tax revenues and particular interests always remain an important issue. To date, no supranational initiative has been successful in building a cross-border tax system with national tax systems based on an identical tax regime where the same economic activities get the same treatment in terms of tax base and tax rate, and the same rules govern limited and unlimited tax liability. International labour and capital mobility has created new opportunities, along with options to "escape" national tax charges by resorting to arbitrage or evasion of national regulations, and transnational trade and investment still raise the questions of double taxation, when both the exit state and the host state want to claim the taxing right.

The current tax systems are designed by the legal consensus reached in the 1920s and the solutions in place are incompatible with the realities of the contemporary digital and information economy. Tax system is an element of the continuous process of building a taxation structure, which flexibly adapts to the state's social and economic situation and international circumstances. An attempt to reflect this is presented in the following tax system model taking account of the subjectivity of the procedural fairness assessment, and of the budgetary implications of the systemic impact of respective taxes and of the stakeholders' behaviours (Table 1.4).

The progress of the efforts undertaken to modernise the international tax governance has been relatively slow due to the multi-faceted nature of the problem, the multiple stakeholder groups involved and the high complexity of the economic reality. The need to allow for the specificity of new

TABLE 1.4. Tax system in the institutional dimension

Institutional nature of tax system			
ASSUMPTION: **All taxes make a coherent and logical whole in organisational, legal, economic and social terms**			
SOCIAL INSTITUTION	**LEGAL INSTITUTION**	**ECONOMIC INSTITUTION**	
Social requirements	**Legal requirements**	**Economic requirements**	**Rationality of a tax system**
• Guarantee a sense of justice and social prosperity that limits social exclusion • Ensure progressive income taxation • Shape social norms, trust in the authorities, and tax morale, which are of special importance in the individualised realities of digital economy	• Ensure understandable and simple legal regulations • Ensure a logical structure • Adapt legal solutions to the economy based on prior economic analysis of the law	• Choose adequate taxable sources • Choose an economic process subject to taxation • Define the taxable object • Determine the limits of taxation in the digital economy • Avoid double taxation of the same income • Ensure adaptability to technological solutions	• Limit the budget deficit • Ensure efficient distribution of the national income • Ensure business cycle efficiency • Ensure tax neutrality • Ensure low-cost assessment and collection of tax levies • Protect taxable sources • Alleviate the tax burden

Source: own elaboration.

digital business models, their operating principles and the way economic value is created today is a major challenge, both at the level of individual states and that of international cooperation. Considering the high interdependence and multi-level links between economies, the need to find a common solution that is satisfactory to all stakeholders is important but seems unattainable in institutional terms (Table 1.4). Firstly, what matters in the tax system is that each type of tax, irrespective of its individual impact on the economy, should be treated in a systemic way both on the state's revenue and expenditure side. It should be constantly borne in mind that they all form a defined whole which needs to be analysed in terms of (Kaplow, 2011): (1) whether and to what extent respective taxes interfere with one another; (2) how the system achieves the state policy goals in ensuring the collectability of taxes is high enough to guarantee effective state governance and the fulfilment of indirect goals of the economic and social policy. Another important element is the tax incidence showing how the tax burden is actually distributed among respective taxes. The effective tax burden may greatly differ from the nominal taxation. One can observe here the ability to shift tax backward (increased taxation on salaries decreasing

the salary received) or forward (an increase in prices affecting the consumption). Secondly, orienting the tax system model towards any decrease in taxation (support for the digital economy and automation, increasing the employment rate, decreasing social inequality) is socially significant and one should consider whether and to what extent to support such measures, and to what degree they can entail a risk of negative changes for the society.

The economic rationality of a tax system should also correspond to the available fiscal (spending) space, which is why it is worth further considering the economic viability of a given tax reform. It is important to specify whether a given reform and preferences are introduced with no compensation for the state budget, in which case it is necessary to define the source of financing and avoid excessive deficit (Feldstein, 2017). Thirdly, the contemporary canon of tax fairness is based on two main pillars: economic security of the state and of taxpayers, and striving for equal distribution of tax burden among taxpayers, which justifies an economic analysis of the tax system's functioning and its long-term social and economic consequences to limit the functional risk of the current and future generations. Fourthly, since the last global financial crisis (2008+) states have been faced with the tax governance challenge of rebuilding public finance while eliminating any factors that restrict economic development. Economic research undertaken in this area fits squarely into the recent decades' debate (Di Sanzo et al., 2017), in which taxes as the main source of the national budget's revenues play a major role. Thus it is necessary to take measures based on tax system structures designed to minimise the negative impact on the state's long-term development. Fifthly, the changing model of the digital economy and sharing economy will generate a new virtual taxpayer model, so now is the time to reflect on how to profile social norms that strengthen tax morale and trust in the authorities, taking account of the fact that each tax system has an individual effect on taxable persons and their economic behaviours, also influencing their propensity for risk-taking.

1.6. National tax policy in the global economy

Tax policy is, in essence, the art of non-objective accommodation of conflicting interests, where the effective distribution of tax burdens and government spending must be adapted to current voter preferences and budget

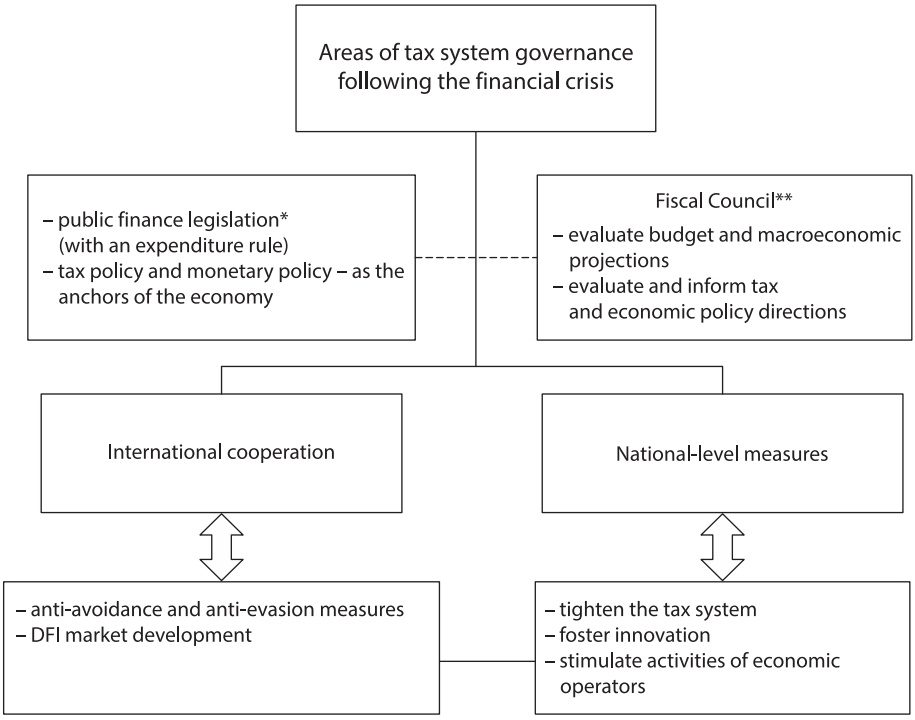
deficit limits. In the global economy, voter preferences are assigned to specific countries, which means that they are often in conflict with investors' expectations or with the organisational and legal governance of integration groupings.

The financial crisis of 2008+ contributed to a reconsideration of the widely accepted paradigms of global economic governance with respect to financial instability, inequality and excessive accumulation while redefining the idea of interventionism in tax policy (Acharya, 2018; Christensen and Hearson, 2019). The nature of the current economic debate on the crisis does not indicate any economic paradigm shift as defined by Thomas Kuhn, since the fundamental ideas and principles have essentially remained unchanged, with the debates focusing on the economic practice instead (Spiegler and Milberg, 2011). However, as rightly pointed out by Ronen Palan (2003), the fast developing economy has contributed to the commercialisation of state sovereignty and a crisis of the nation state. Governments have discovered that the sovereign right to create tax policy may be used as an international commercial asset, a tool to drive economic competitiveness and to apply protectionist measures. Ever since the global crisis, governments have been more inclined to take coordinated steps to tackle tax avoidance and tax evasion, cooperating on the global arena and undertaking a sovereign action. However, this has been happening under pressure from multinational corporations supported by governments of their own countries of incorporation. In the context of the noticeable post-2009 worldwide economic slowdown and decline in investment, which badly affected the economic growth and competitiveness, tax policy in high-income economies has played a major role in stabilising the economic growth and maintaining economic development. It is worth noting that this has coincided with a high decline in global unemployment rate (down to 5% in 2018), with as many as 3.3 billion new jobs created that did not offer a decent living wage (in 2018). By way of example, the global and intermarket scale of the crisis was reflected in the Investment Plan for Europe (so called Juncker Plan), intended to work out a comprehensive policy to prevent poor economic growth, high unemployment rate, uncertain prospects for long-term economic growth and competitiveness. The goals were to reverse the downward trend in investment, create jobs and bring economic recovery without decreasing the public debt or straining national budgets (EU COM, 2014 903). Consequently, tax reforms shifted towards fostering economic growth and ensuring adequate tax inflows to

national budgets. In the earliest post-crisis period they focused mainly on budget consolidation, whereas after 2009 the key objective of tax reforms shifted to restarting the economy. We can talk of two obvious areas of tax governance that were shared by many countries (Fig. 1.7):

- **National budget consolidation**—the increase in public debt contributed to the realisation that states could no longer afford to tolerate inefficient collection of budget revenues as a result of international tax fraud and tax avoidance; e.g. legislative (political) initiatives stimulated by Starbucks, Apple and LuxLeaks scandals, among others (Dietsch and Rixen, 2016).
- **Fostering the economic growth** (Arnold et al., 2011; Brys et al., 2016).

FIGURE 1.7. Areas of tax system governance following the financial crisis of 2008



* In many countries there is no clear expenditure rule imposing rigid spending ceilings.

** An independent body of economists such as Fiscal Council may be, together with the Monetary Council, a key instrument for shaping economic processes.

Source: own elaboration.

What became the key element of the main areas of tax system governance following the financial crisis of 2008 was the pragmatic use of tax policy throughout the macroeconomic policy. Essentially this amounted to recognising that the monetary policy which prevailed for years, referred to as the Ricardian regime, is not always capable of being the anchor of the economy and some other mechanisms are needed to stimulate and stabilise it.

This can be achieved even in the case of an arbitrary tax policy or a controlled deviation (though without breaching the legal framework) from the budgetary discipline (Blanchard et al., 2010). However, such an approach would only be possible where these are planned one-off events having positive effect on the countercyclical fiscal policy. Meanwhile, there should be no consent to such pseudo-controlled deviation from budgetary discipline which only serves the ongoing political needs, addressing short-term electoral expectations of a specific social group if the relevant measure is not secured with an economy stimulus package and efficient tax receipts in short- and medium-term.

One should note here that no country's government or national parliament boasts enough economists (and other relevant professionals) among their number. As a rule, this means a certain, not to say utter, incomprehension of the essence of economic affairs and of the mechanisms that drive the economy and public finance, distorting the decisions taken. It is a good thing then that, following the example of monetary policy models, many countries decided to appoint a Fiscal Council as a consultative and advisory authority on tax and economic matters. The main catalyst for such decisions, however, was the financial crisis of 2008+ and its aftermath, which especially involved a systematic increase in the public debt and a post-crisis condition of public finance in many states. By 2019 there have been 39 independent fiscal councils (especially in the EU), and this number will surely grow in the coming years. Moreover, a study by the International Monetary Fund reveals that independent fiscal councils positively contribute to compliance with expenditure rules and to a less moderate (rather than optimistic) evaluation of budgetary projections (Beetsma et al., 2018). An effective operation of such authorities is contingent upon political independence, adequate remit of decision-making which should be binding on the authorities in some areas, a relatively longer term in office and adequate funding, e.g.: between 5 to 10 times the average salary in a given country per each member monthly.

In addition to pro-innovation tax reforms, positively influencing the activities of economic operators by providing a "tax offering" that helps develop tax competitive solutions that are more attractive to local and foreign economic operators, after 2009, reforms were implemented to limit the effects of taxpayers' aggressive anti-avoidance and anti-evasion tax planning which had negative effect on the national budget and country's competitiveness (Table 1.5).

TABLE 1.5. Legislative measures to prevent tax avoidance and base erosion, implemented between 2009 and 2018, as exemplified by selected countries

Legislative measures	Examples of countries that implemented such measures:
Transfer pricing legislation based on OECD guidelines	Denmark, Finland, the Netherlands, Germany, Singapore, the United States, Sweden, Great Britain, Brazil, Russia; China; South Africa, Hungary, Poland
Thin capitalization legislation	Denmark, Germany, the United States, Switzerland, Great Britain, Brazil, Russia, China; South Africa, Hungary, Poland
CFC legislation	Denmark, Finland, Germany, the United States, Sweden, United Kingdom, Brazil, Russia; China, South Africa, Hungary, Poland
General anti-avoidance rule, (GAAR)	Finland, Netherlands, Germany, Singapore, Switzerland, Sweden, UK, Brazil, China, Poland, South Africa, India —introduced in 2012, deferred until 2017 due to strong opposition from foreign institutional investors

Source: own elaboration.

Reforms to guarantee the amount of tax receipts by tightening and enforcing the inflow of public levies into budgets (e.g. by limiting tax evasion or the possibility to transfer profits to tax havens jurisdictions) have shaped the tax regime that lays the grounds for international cooperation on tax matters and the exchange of information (Hakelberg, 2016). This is related to the implementation of international tax principles (solutions) and mechanisms.

Most of the legislative activity between 2009 and 2018 involved the regulation of transfer pricing and shareholding relations as tools enabling economic operators to transfer profits for the purpose of tax optimisation. The second most significant element was the introduction of the general anti-avoidance rule—GAAR, aimed to establish the limits of legitimate tax optimisation and the preventive action. It is worth emphasising here that in spite of introducing the anti-erosion regulations, which also indirectly contribute to tax stimulation of economic operators' investment activities, tax solutions are, most of all, characterised by easy adaptation to a given

jurisdiction's individual innovation needs and preferences. An entrepreneur's tax risk is influenced by the economic risk and the complexity of tax laws. A widely used practice described in the literature on tax risk is to examine one of the two aspects but separately (Neuman et al., 2015). Research focuses mainly on analysing the results of tax avoidance or aggressive tax policy: book-tax differences (BTD), effective tax rates (ETR) or uncertain tax benefits (UTB). Tax avoidance and aggressive tax policy practices are a difficult element of empirical research due to the unofficial (informal) nature of taxpayers' actions. Nevertheless, a certain scale of the phenomenon has been exposed by the International Consortium of Investigative Journalists in cases such as Panama Papers (registering offshore companies in tax havens), Swiss Leaks (Swiss branch of HSBC withholding significant information from the tax administration) or Luxembourg Leaks (using unfair tax competition between countries) (Alstadsæter et al., 2017). In November 2014, ICIJ revealed that for many years more than 350 corporations paid very low taxes thanks to agreements concluded with the Luxembourgish authorities. According to the Luxembourgish legislation, tax optimisation was legal, but other countries where these international enterprises generated major profits would lose significant budgetary receipts on account of unpaid taxes. In 2016, ICIJ pointed to the widespread phenomenon of the concealment of income and assets of wealthy natural persons. In the United States alone revenue losses from tax evasion by natural persons are estimated at between USD 40 and 70 billion a year, and those related to the multinationals' profit shifting into tax havens—at up to USD 100 billion (Gravelle, 2015).

1.6.1. Macroeconomic governance of a tax system

The contemporary tax policy fulfils a variety of political, social and economic goals such as redistribution of income within a given national economy, economic stabilisation, allocation of resources, boosting or fostering economic growth. This results in taking measures to limit the undesirable distortion and reduce the cost of tax collection in the most efficient way. The research limitations imposed on economics in the early 1960s as part of Keynesian neoclassical synthesis led to the separation of research into financial stability from macroeconomic research. It was only the financial crisis of 2008 that drove home the fallacy of this assumption and the importance of a macroeconomic approach to examining macroeconomic stability in an economic system (Akerlof, 2019).

One should bear in mind that the structure of a tax system may indirectly contribute to specific behaviours, giving rise to various types of social and economic imbalance. A good example would be tax credits and tax exemptions for buying residential properties, which—by reducing the cost of purchase—led to an excessive increase in demand and created a housing bubble. In turn, the income tax progression coupled with alternative forms of remuneration would be conducive to complicated payroll systems at enterprises and to an excessive business risk due to short-term business valuations affecting the salaries of the executive staff. In addition, the preferential tax treatment of debt over equity with respect to financing had a negative impact on companies' liquidity (*Debt*..., 2009).

Establishing the optimum tax burden in relation to GDP is not the only troublesome issue from the macroeconomic perspective; another is choosing forms of taxation and attributing a fiscal burden that is appropriate for relevant economic growth. The belief that in countries with a more advanced economy tax receipts come predominantly from direct taxes while in countries at a lower level of development from indirect taxes is no longer self-evident due to a variety of non-economic circumstances that determine respective tax systems. Gareth D. Myles (2009), having analysed the research to date, recommends shifting the burden of taxation from direct to indirect ones (consumption-related). Furthermore, after the last financial crisis a general trend can be observed in EU countries to shift the tax burden from direct taxes to indirect ones, especially from taxes on labour and capital to consumption taxes (*Tax Reforms*..., 2015). Richard Kneller, Michael Bleaney and Norman Gemmell (1999), examining 22 OECD countries between 1970 and 1995, identified a negative effect of the so called distortionary taxes, as they called income and property tax. Later research (Gemmell et al., 2006) provided new evidence of a long-term distortionary impact of inappropriate fiscal policy on economic growth. Young Lee and Roger H. Gordon (2005) applied regressions between countries and found a significant negative correlation between the statutory CIT rates and growth in 70 countries between 1970 and 1997. Margareta Dackehagand and Åsa Hansson (2017) obtained similar results with respect to tax rates and their impact on economic growth. An empirical analysis by Jens Arnold and Cyrille Schwellnus (2008) and Laura Vartia (2008), based on industry analysis in OECD countries, revealed a negative impact of CIT on productivity and investment. Contrary to those findings, Luigi Bernardi (2013) conducted an aggregate analysis of tax trends in euro area member states (EA17) broken down into respective coun-

tries for the period from 2000 to 2014. The study found that gains from the tax shift (from direct to indirect taxes) do not seem as self-evident as claimed by previous research. Quite the opposite, one can anticipate that the tax shift may be aggravated by the economic crisis in the European Union, especially further to the adoption of a restrictive fiscal policy by nearly all countries.

As rightly noted by Leonardo E. Stanley, "governments need to simultaneously work on the financial, fiscal and monetary sides, if they are attempting to construct a solid and stable macroeconomic regime" (2018:14). The current tax legislation fulfils a number of economic functions, while also leveraging the stimulating nature of tax structure itself. Individual tax system models rely to that end on many economic and parametric norms as well as on tax credits, rebates and exemptions that enable taxpayers to benefit from more lenient taxation. The stimulating nature is often intended to inspire taxpayers to follow specific lines of development in their activities. However, the knowledge of the national budget and the practical implications of ineffective policies resulting in economic, political and social repercussions point to the fact that tax preferences relatively increase the demand for respective goods, however the ensuing inefficiency reduces the aggregate demand (Ilzetzki, 2018).

1.6.2. Global tax governance

The economic development in the era of globalisation is being increasingly determined by international economic competitiveness, also as regards the costs of capital raised by companies, wages and tax charges (Raczkowski and Wojciechowska-Filipek, 2016). Tax systems are among the fundamental instruments of direct and indirect governance of the national economy, and tax concepts are largely determined by respective countries' practice.

Global tax governance encompasses institutions and tools governing tax issues (cross-border transactions or other international economic implications), which may entail moving, fully or partially, the right to create tax policy for one's citizens to the international level (Dietsch and Rixen, 2016). These measures limit and shape a nation state's sovereign power of taxation, governing the institutional interactions between national tax systems. The response to an economic crisis is state interventionism in many policy areas, one of its most important elements being international taxation, which has always stood at the crossroads between globalisation and national sovereignty (Palan, 2003).

After the economic crisis of 2008+, one can identify the following changes in the global political economy (Table 1.6): return to the concept of state interventionism, the shift of power in the global economy from the traditionally dominant OECD or former G7 countries to emerging economies, including BRICS (Brauner and Pistone, 2015), populism gaining importance.

TABLE 1.6. Changes in the global tax governance after the economic crisis of 2008+

Change in the political economy	Change in the global tax governance
Return of the state interventionism	Greater tendency for unilateral measures than before the financial crisis.
Change in the legitimacy of international structures, with decision-making supremacy transferred from G7/G8 to G20	Greater importance of non-OECD countries; the limitation of the liberal international order and the scope of international cooperation are increasingly dependent on the foreign policy of China and other developing empires; OECD is opening to developing countries.
Populism	Political engagement in international tax regulations has decreased the autonomy of the tax policy expert community.
Digital economy	Tax regimes and the traditional economic principles are not flexible enough to be adapted to new digital business models, leading to an open distributional conflict (especially between the EU and the USA).

Source: (Christensen and Hearson, 2019).

The crisis resulted in institutional changes relating to a wider cooperation of developed market economies with emerging market economies, e.g. cooperation of OECD with G20 (Christians, 2010; Eccleston, 2013; Grinberg, 2017). This, however, does not stand in the way of sovereign actions, for example, those taken by individual countries to prevent double taxation in the digital economy. The engagement of emerging economies in the existing structures which create international tax standards (e.g. OECD) is usually selective and balanced against their own political plans (Ban and Blyth, 2013; Hearson and Prichard, 2018; Lesage et al., 2019). Tensions over the role and legitimacy of OECD, perceived as an advocate of a system favouring rich developed countries, are the backdrop of international tax debates (Eccleston and Smith, 2016). Fiscal policy referred to as austerity policy (Blyth, 2013) brings to the forefront the political, social and economic inequalities caused by globalisation, and populism restricts experts' involvement in global economic governance. In the context of populism, tolerance for rich economic operators abusing tax havens jurisdictions to escape taxes is becoming increasingly unviable for political actors (Mor-

gan, 2017). The growing digitalisation of the economy enhances the value distribution in global production chains and creates an unprecedented capital consolidation (Christensen and Hearson, 2019). Digital economy trends are inextricably linked to financial system trends, as evidenced by the dot.com bubble in the late 1990s and by the switch to business models relying on data-driven advertising, once the bubble burst (Srnicek, 2016).

Multinational corporations are a major driver of the global economy due to their high revenues, efficiency, vertically integrated production, know-how and competitive advantage. States try to create attractive investment environment for corporations, using tax policy tools such as low CIT rates, tax incentives, and lenient and investor-friendly regulations, because this translates into new jobs, higher tax receipts, higher wages and the transfer of new technologies (Markusen, 2002). Practices used by transnational economic operators, which strive to avoid various tax liabilities, are increasingly encouraging governments to switch to a territorial tax system (Shin, 2019). Due to the growing transnational economic integration, in the 20th century the tax policy of nation states became dependent on the common tax base generated by a mobile transnational capital, while also being affected by political decisions of respective competing countries. The rivalry between countries had negative internal consequences such as mutual tax base erosion and increased tax regression (Avi-Yonah, 2000). Sovereign jurisdictions faced the prisoner's dilemma, fearing that mobile capital and labour may respond negatively to a tax rate increase (Christensen and Hearson, 2019). In this respect, smaller jurisdictions with a small own capital and very limited economic potential reaped much greater benefits from attracting foreign capital than larger jurisdictions striving to strike a balance between the international competitiveness and the integrity of their national tax systems (Rixen, 2010). A greater capital mobility and new business models further aggravated tax competition in the late 20th century as income became physically separate from the basis of the activities that generated it. The result was a constant pressure to lower CIT rates worldwide (Genschel and Schwarz, 2011). Tax havens jurisdictions leveraged their flexibility by offering benefits of tax residence without having to physically move individuals or economic substance carve-out and real economic activities. These benefits included low tax rates, guaranteed secrecy to hide assets from other tax authorities, and rules regarding the allocation of taxing rights, which enabled the international mobile capital to exploit the discrepancies with other tax systems. This created a new

offshore space making it possible to avoid paying taxes in due amount, and the estimated costs of international corporate income tax amount to ca. USD 200 billion a year (Crivelli et al., 2015). The post-crisis interventionism is in stark contrast to the pre-crisis period where tax competition had been internalised (Latulippe, 2016). This is the consequence of inefficient capital allocation in respective countries, resulting in changes in the pattern of capital returns and wages, loss of income in high-tax jurisdictions compared to low-tax jurisdictions or concerns over the insufficient supply of public goods.

Irrespective of sovereign action taken as part of national tax systems, in June 2017, 68 jurisdictions signed a legally binding multilateral MLI convention (*Multilateral Instrument to Modify Bilateral Tax Treaties*), which became effective on 1 July 2018. In March 2019 there were already 87 jurisdictions finalising the ratification processes (*MLI*..., 2019) for tax system harmonisation and introducing anti-avoidance regulations at the international level. Before that, multilateral cooperation had the status of soft law only, while hard law was the domain of bilateral treaties. MLI immediately superseded over 1000 bilateral treaties to close loopholes and strengthen countries' ability to tax international economic activity. Importantly, it binds its signatories to certain minimum standards beyond administration and tax policy, which represents a clear pooling of legislative sovereignty. However, as indicated by some reservations voiced about MLI by individual tax jurisdictions, the future of tax competition and coordination largely depends on working out a compromise among globally heterogeneous policies of respective tax jurisdictions. Everybody needs to consent to a global agreement, and diverging interests of countries are posing a problem. However, as evidenced by practice, notwithstanding the commitment to a global agreement, some countries create legal loopholes in anti-avoidance regulations to net gains from increased foreign direct investments against the costs of international companies' excessive profit-shifting (Haufler at al., 2018). A good example of how selective advantages can be built for multinational companies would be the tax exemption for funding the activities of controlled foreign companies, introduced by the United Kingdom and in effect between 2012 and 2018 (HMRC). According to the European Commission (*Decision*..., 2019) a multinational company benefiting from that exemption was able to provide funding to a foreign group company through an offshore subsidiary and pay only a small tax on profit from these transactions or even pay none at all.

In which direction should tax systems move, global or national? Leaving the initiative on how to handle the developing digital economy with national governments may result in market overregulation, when subsequent governments, fulfilling their electoral promises, may tend to increase fiscal revenues through higher taxes.

The digital revolution, both at the technological and economic level, brings forth significant shifts in digital models of economic activities. The understanding of the concept of value chain in the modern business model becomes the point of reference. In traditional models of economic processes, the value used to be created mostly by producers of goods and service providers. By using their work results, consumers gained utility upon purchasing goods or using a certain service. In current business models functioning in the digital economy, the value of a business is often strictly correlated with the number of people using its services, e.g. websites and apps. Digital companies, whose major part of revenues are generated online, need no physical representative (permanent establishment) or their presence can be limited to the necessary minimum in the territory of the country where consumers of its goods and services are located. Consequently, economic value creation and the physical presence required in traditional models (permanent establishment) can be easily separated in the digital reality. Hence a fiscal presence of such economic operators, which translates into a given country's budget receipts from taxes on economic activity, does not, in such cases, match their actual presence. The currently applicable regulations still imply that enterprises, as a rule, are taxed in the jurisdictions where they have a physical presence, which has positive effects for economies where digital companies have a physical presence, and negative effects (no tax receipts) for economies where the presence of those companies is purely or to a great extent virtual in nature. This begs the question about the fairness of the current state of affairs, i.e. the legitimacy of the logic whereby a company's fiscal presence can be separated from the location where economic value is created.

The situation discussed here results, among other things, from the effects of globalisation, the fast growth of digital technologies, the growing accessibility of those technologies and from the development of companies that follow digital business models. The definition of a digital company adopted in EU directives identifies it as a company that provides digital services (i.e. services delivered over the internet or an electronic network

and the nature of which renders their supply essentially automated and involving minimal human intervention, and impossible to ensure in the absence of information technology (*Proposal*..., 2018).

Conclusions

It must be concluded that the existing differences in the contemporary tax systems are the result of different tax policies functioning in respective countries. Social and economic policies vary, so does the economic power of respective countries, and, consequently, the ability to compete in attracting and taxing investment. Meanwhile, the tax system should be intrinsically characterised by coherent and fair legal and economic principles corresponding to economic realities. The diversity of economic views referring to specific theories of taxation provides a wide basis of scientific interpretation of the essence of the real economy and the changes it undergoes. Tax system is an important economic category, it exerts influence on specific variables in the economy and is itself under the substantial influence of social and economic variables.

The historical and economic tax thought, despite its significant and long-standing achievements, still has information and analytical gaps, comparing ex post analyses of one economy to economies of other countries which are at a different level of development. It is striking that the current tax regulations originated as a political consensus in the 1920s and are incompatible with the realities of the contemporary digital and information economy. Comprehensive theories, such as classical liberal economics or Keynesianism, set a specific course for how a state should use the economics of taxation to fulfil classical economic goals, which needs to be updated to match the post-crisis political and economic situation and the industrial revolution 4.0. Due to the current financial needs of the national budget, in many cases, despite the declared economic principles and models, one can observe a discrepancy between practical solutions and theory. Such dichotomy undermines in practice the significance of economic concepts, making it difficult to properly evaluate and verify the proposed theories of taxation. The tax system is a set of actions undertaken in the constant process of building a taxation model structure that flexibly adapts to the social and economic situation of the state and to international

circumstances. There is no single ideal model of the tax system, and each one should be characterised by an eclectic choice of its composing ideas and theoretical views, to ensure a buffer to mitigate the risk of populism, and an applicative value. Tax theories, as a rule, bestow on the state the right to burden citizens with non-refundable levies, while they differ as to the form of state interference in the economy and the form of taxation. One should be aware that the choice of fiscal tools and the way they are used exerts a real influence on economic processes depending on the political, social and economic circumstances. This is what makes contemporary tax systems so diverse.

Even though the tax system related issues have been the object of many varied interpretations, the important aspect of tax system economics still has not been contemplated in sufficient detail. If so much attention is given to the highly evolving discipline of tax law, it is self-evident that changes to tax system should be analysed from the economic perspective. The social and economic reality is permanently changing, and the economic thought with respect to taxation is one step behind it. The present supplants the previous status and the best practical solutions are the right blend of tax policies and scientific expertise. Contemporary tax systems and tax solutions are based on the achievements of many scientific disciplines. We believe that the future of tax systems lies in looking at the past and present and in asking which circumstances (including historical ones) have made possible what is functioning now in tax system and in which direction these changes will go. The present of tax system economics is more than just learning and drawing conclusions from errors of the past as if the presence was merely a continuation of what was before. It also involves extrapolating various practices and opening new opportunities beyond those offered by the present taxation models. The technological revolution is changing how information is consumed, how goods and services are purchased and how people communicate. The unfolding economic and social changes have a real impact on what taxes will look like in the nearest and slightly more remote future.

Tax systems, their origin, evolution and current changes should be interpreted as a reflection of the ongoing changes to the economic, social and political life of respective countries. They improve as the world's social and economic progress continues. The point of departure for structuring a tax system should always be economic matters and the effective economic

potential of taxable sources, obviously taking account of the political possibilities for change and its social approval. Meanwhile, the law is the consequence of the economic and social needs, and a practical reflection of these needs in legal instruments. The state's demand for public income does not justify taxation that is at odds with the principles of economics. After all, the tax system is linked to the economic process of income generation and use, representing the fundamental element of the economic policy and risk mitigation.

Chapter II
Tax system in the economy

Introduction

The impact of taxation on the economic growth is the object of many debates both in academic circles and on the political arena. Grzegorz W. Kołodko (2010:10), when writing about the role of economists in the contemporary world, observed: "The world (…) can be grasped intellectually. Never completely and fully, but to a great extent. This grasp will be the greater, the broader and deeper look we have at this reality. Broader and deeper must mean interdisciplinary and unorthodox, critical and progressive, brave and unconventional. If this rational grasp of the surrounding reality is successful, one can try and change this reality for the better, in line with the eternal human desire, which is the source of all progress". However, the problem is that in the political circles worldwide there is ever less of this intellectual grasp, and all too often the theory of political populism is the determinant of social and economic policies pursued, irrespective of whether the economy is experiencing an economic growth or a crisis. The macroeconomic policy developed this way disregards or deliberately ignores the negative consequences of the fiscal expansion, only expecting that the anticipated demand stimulus will increase the short-term economic growth, balancing out the changes introduced. The growing overall prosperity should justify the creation of winners and losers in the tax and economic policies being implemented (EEAG, 2017). Meanwhile, this cannot be short-sighted prosperity resulting in an increase in public debt, and pursued without the due social protection of the excluded groups.

The advocates of a reduction of fiscal burden see it as a way to improve the economic growth rate, and increase the incentive to work, save and invest. However, higher taxes do not necessarily limit the economic growth. Neither do lower taxes necessarily stimulate economic growth and

create new jobs (Mazerov, 2013). The problem faced by countries of today is how to design tax structures on a systemic basis to ensure that relevant solutions are as non-repressive as possible for taxpayers, foster economic growth and ensure financial security and tax receipts without an excessive economic burden to the society. Everything revolves around redistribution of the domestic product from the private to the public sector (taxes paid), which is next transferred back from the public to the private sector (social transfers). What should be clearly emphasised is that this is a transfer to other, less developed segments of the economy or social groups (at least theoretically and only when the actual beneficiaries are not privileged sectors, groups or specific companies).

If we include the applicative function in tax system economics, the goal is naturally to make value judgments about economic systems and based thereon to suggest solutions that change the reality around us for the better. Meanwhile there is no more complex matter for international comparative study than the tax system. The theoretical division into taxes charged on the income generated, property and sales is complicated by the variety of respective countries' definitions of what is taxable. National systems of tax credits, exemptions and exclusions makes these comparisons even more difficult. The processes of globalisation and regional integration contribute to changes in the functioning of markets, tax systems, and, above all, entities that engage in economic activities and entities that consume goods and services. These changes are the upshot of the globally growing scale of production determined by the rapid scientific and technological progress, and of the high concentration of capital, as the absorptive power of developed countries' local markets is limited and the barriers to the development of the international trade are continuously decreasing. Tax policy follows certain priorities in building a strong economy, which include boosting investment (**economic growth and development**), increasing the employment (Bredgaard and Madsen, 2018) (**limiting structural unemployment**), combating social inequalities (**social prosperity**) (Saunders et al., 2017), as well as ensuring compliance with tax law (**tightening of revenue collection**). At the same time tax system is expected to be among the effective tools directly useful in solving economic and social problems, which also include such key issues as (Strine, 2019): climate change (working out environmentally-friendly methods of production and management), energy efficiency (energy security), health issues and demographic change (ageing society). This requires assuming that a growth and development

oriented tax system manifests itself in pursuing a fiscal goal and exerting an overall influence on the economic and social sphere: by driving the purchasing power (e.g. increasing it by reducing some taxes), stabilising and inducing a change in the economic activity (mild tax policy during economic slowdown; more restrictive during the economic upturn) or exerting a selective influence on specific branches of the economy to speed up their development (e.g. tax credits; tax exemptions dedicated to specific economic sectors; also additional tax burdens to help curb or slow down the negative budgetary losses). In the social sphere, general measures will alleviate inequalities, e.g. through progressive income taxation, low tax on essential items, reducing the consumption of products detrimental to health (e.g. alcohol, tobacco products). Selective influence will be related to preferential treatment of specific social groups, e.g. people with high professional qualifications necessary for the R&D sector. The tax system's influence on the economy also involves the issue of its stability. Frequently changing regulations, even those governing investment tax credits, have a negative impact on long-term investment planning and implementation by taxpayers. On the other hand, too numerous tax preferences may make the incentive system unclear to taxpayers or mean that the tax law requirements make it difficult to apply a relevant tool.

2.1. A tax system that fosters economic growth and development

The theory of economics often uses two similar terms that explain changes taking place in the economy: economic growth and economic development. The concept of economic development is a broader term, which, in addition to quantitative changes such as, for instance, changes in the output, consumption and employment levels, also encompasses qualitative changes in the social and economic structure (for example changes in the social organisation, technological improvements, better management). The concept of economic growth is a more narrow term, a measurable category that serves to describe quantitative changes to the value of annual output of goods and services in a given country, assuming that the basic macroeconomic quantities are characterised by a long-term trend. It is assumed that in a short term the economic growth depends mostly on the domestic and foreign demand for consumer and investment goods and services. In a long

term, economic growth is determined by a sufficient supply and efficiency of factors of production: (a) from the neoclassical perspective: land, labour, physical capital; (b) from a broader perspective: human capital, intellectual capital, social capital, technical progress, technological progress, technological diffusion, and political and legal systems (Malaga, 2009).

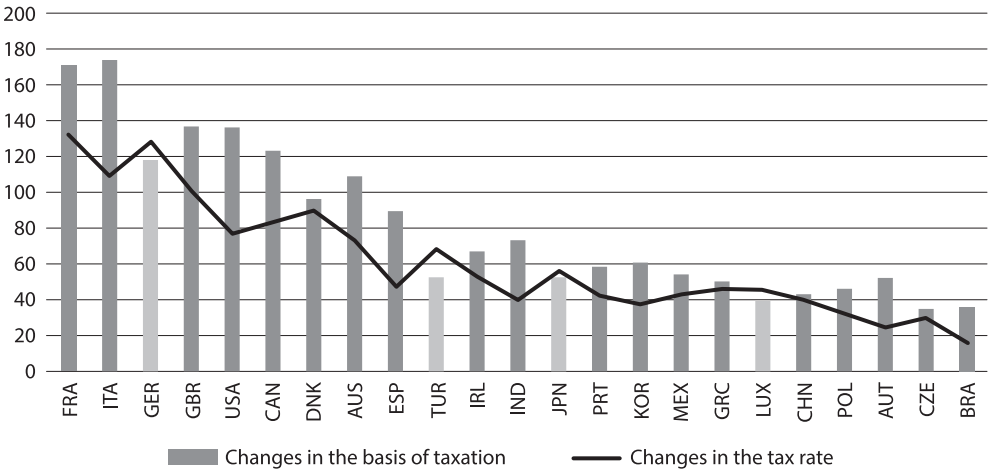
Empirical studies regarding the correlation between taxation and economic growth focus on the impact of the tax level or tax structure on the economic growth (Agell at al., 2006; Barro, 1990; 1991; Easterly and Rebelo, 1993; Folster and Henrekson, 2001; Koester and Kormendi, 1989; Levine and Renelt, 1992; Paparas and Richter, 2015). They use regression models involving different periods and economy samples, without a clear scientific consensus on the nature and significance of the existing relations (Barro, 1990). Research into economies having similar economic, social and political foundations has revealed that the same form of taxation can stimulate development in one tax regime while when used in another, it can limit development in the long run (Durusu-Ciftci et al., 2018). Such insight calls for a certain flexibility in the decision-making process in the tax policy area, at least at the national level. In this context, when analysing the impact of the tax system flexibility on the prevention of economic and financial crises (correlations between taxation and economic development), it is worth noting that in recession periods, an excessive fiscal pressure from the state related to the need to boost the economy with public investment translates into lower real tax receipts, higher tax arrears, and often results in the flight into the shadow economy (Brondolo, 2009). This partly stems from what our definition of tax system economics encompasses. As a matter of fact, two dimensions of the fiscal policy are simultaneously governed in the public finance sector. If tax burdens are increased, there is a potential risk that the economic development will slow down while, on the other hand, an increased transfer of funds (obtained from a tax revenue increase) earmarked to properly identified social goals may potentially speed up this economic growth (Kneller et al, 1999).

As economic knowledge and taxation analysis evolve, scientific observations need to be verified. Frida Widmalm (2001), when analysing the relationship between tax structure and economic growth in OECD countries, established that the overall tax burden is negatively correlated with the economic growth, with personal income tax having a particularly negative impact, and consumption taxes, on the contrary, favouring economic growth. Similarly oriented research by Gareth Myles (2009) confirmed that

the tax policy shift from taxing income to taxing consumption speeds up the economic growth. However, Norman Gemmell, Richard Kneller and Ismael Sanz (2011) demonstrated that the analyses of the long-term impact of taxes on the economic growth are not without imperfections. Firstly, the assumptions adopted in the models often overlook the international environment and the phenomenon of tax competition. Meanwhile, Laura Kanawo and Joel Slemrod (2015) rightly noted that if macroeconomic models revealed a stronger regression in revenues from corporate income tax, one can surmise that they ignore significant changes to companies' tax bases, which are systematically modified in parallel with tax rates. Thus they pointed to the problem of analysing quantitative data on tax rates, where lack of reference to the basis of taxation may undermine the significance of the results obtained. Secondly, researchers are also concerned about the quality of tax data, especially for developing and poorly developed countries, which should be deemed incomplete and ambiguous (inter alia Prichard, 2016; Jerven, 2013a, 2013b). The ever more extensive online sources of tax data such as OECD Tax Database, International Monetary Fund's database and Tax Policy Reform Database—TPRD (made available to the public in 2018) may represent a positive change in this respect. The latter contains information on changes in rates and tax bases alike for only 23 countries for now. A review of TPRD reveals that since the 1970s the aforementioned countries have introduced, on average, ca. 140 changes over the last 6 decades, with the highest legislative activity exhibited by France and Italy and the lowest number of changes introduced by Brazil and Czech Republic. The law reforms introduced (Fig. 2.1) were intended, most of all, to extend and update the tax bases in line with the current economic developments. In fewer cases these related to a change in the state's share of tax revenue due to a change in tax rates. Only in Germany, Luxembourg, Turkey and Japan were they updated more often than the tax bases itself.

The greater interest of national economic policies in bases of taxation can be attributed to the fact that income is both correlated with the development of the whole economy and with the tendency of the continually evolving forms of economic activity to generate value-added. Hence, in the case of personal income tax we also have an adjustment of tax brackets. The dynamics of changes in the field of respective types of taxation (Table 2.1) indicates that personal income tax (a total of 1189 changes, of which 816 relating to the tax base) and corporate income tax (a total of 1004 changes,

FIGURE 2.1. Changes in bases of taxation and tax rates between 1970 and 2015



Source: Own elaboration based on Tax Policy Reform Database—International Monetary Fund.

TABLE 2.1. Changes in bases of taxation and tax rates by types of tax between 1970 and 2015

	Number of changes by type of tax					
Countries	**PIT**	**CIT**	**VAT**	**Excise tax**	**Property tax**	**SSC**
FRA	58	79	32	17	27	90
ITA	94	74	26	26	16	47
GER	82	67	18	34	12	33
GBR	87	81	24	28	9	9
USA	91	72	0	14	9	27
CAN	89	59	22	19	2	15
DNK	64	50	14	37	7	14
AUS	79	56	16	14	1	16
ESP	83	34	18	0	0	1
TUR	30	23	24	28	5	11
IRL	66	35	12	3	1	3
IND	36	51	17	8	1	0
JPN	42	39	7	5	10	6
PRT	47	34	16	1	1	1
KOR	31	29	11	5	16	6
MEX	37	30	7	9	4	10
GRC	48	33	13	1	0	1
LUX	32	22	16	2	3	9

TABLE 2.1. cont.

Number of changes by type of tax						
Countries	**PIT**	**CIT**	**VAT**	**Excise tax**	**Property tax**	**SSC**
CHN	5	45	24	4	5	0
POL	25	27	24	0	0	2
AUT	34	31	8	1	2	0
CZE	20	18	10	6	1	10
BRA	9	15	11	2	0	15
TOTAL:	**1189**	**1004**	**370**	**264**	**132**	**326**
	Number of changes by type of tax base					
Countries	**PIT**	**CIT**	**VAT**	**Excise tax**	**Property tax**	**SSC**
FRA	44	50	7	4	19	47
ITA	67	58	8	4	12	25
GER	52	43	5	7	6	5
GBR	68	47	10	1	9	2
USA	62	53	0	3	7	11
CAN	64	36	12	5	2	4
DNK	41	32	8	4	5	6
AUS	47	45	8	3	1	5
ESP	61	25	2	0	0	1
TUR	23	14	4	2	3	7
IRL	47	17	1	0	1	1
IND	26	32	14	0	1	0
JPN	19	23	2	1	7	1
PRT	34	20	3	1	0	0
KOR	22	21	8	1	9	0
MEX	24	21	1	3	3	2
GRC	29	17	4	0	0	0
LUX	18	11	3	1	2	4
CHN	2	24	14	1	2	0
POL	17	18	11	0	0	0
AUT	27	20	3	0	2	0
CZE	15	13	2	0	0	5
BRA	7	12	8	1	0	8
TOTAL:	**816**	**652**	**138**	**42**	**91**	**134**
	Number of changes by type of tax rate					
Countries	**PIT**	**CIT**	**VAT**	**Excise tax**	**Property tax**	**SSC**
FRA	14	29	25	13	8	43
ITA	27	16	18	22	4	22
GER	30	24	13	27	6	28

TABLE 2.1. cont.

Countries	Number of changes by type of tax rate					
	PIT	CIT	VAT	Excise tax	Property tax	SSC
GBR	19	34	14	27	0	7
USA	29	19	0	11	2	16
CAN	25	23	10	14	0	11
DNK	23	18	6	33	2	8
AUS	32	11	8	11	0	11
ESP	22	9	16	0	0	0
TUR	7	9	20	26	2	4
IRL	19	18	11	3	0	2
IND	10	19	3	8	0	0
JPN	23	16	5	4	3	5
PRT	13	14	13	0	1	1
KOR	9	8	3	4	7	6
MEX	13	9	6	6	1	8
GRC	19	16	9	1	0	1
LUX	14	11	13	1	1	5
CHN	3	21	10	3	3	0
POL	8	9	13	0	0	2
AUT	7	11	5	1	0	0
CZE	5	5	8	6	1	5
BRA	2	3	3	1	0	7
TOTAL:	**373**	**352**	**232**	**222**	**41**	192

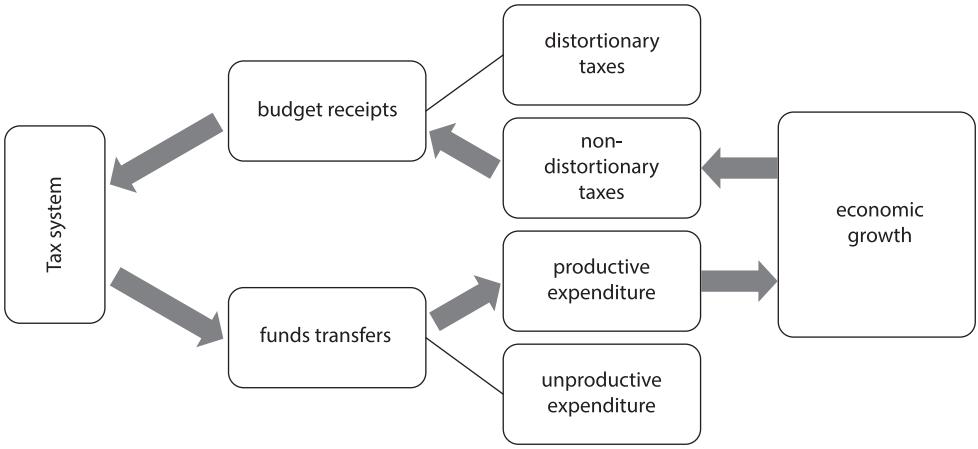
Source: own elaboration based on TPRD data.

of which 652 relating to the tax base) was the area of greatest interest to tax policy. In much fewer cases did the changes relate to other types of taxation, of which property tax was reformed the least often (132 times). Meanwhile, as regards value added tax (VAT), most reforms consisted in changes to the applicable tax rates.

Governance of the tax system architecture is an ambitious and necessary task in every country. The special role of the tax system in the state's financial security requires constant identification and verification of mechanisms that build the fiscal space for creating social and economic processes as part of the state's or integration groupings' macroeconomic policy. This is true both of short-term growth and long-term development. Richard Kneller, Michael Bleaney and Norman Gemmell (1999) classified the elements of tax structure into four categories: at the revenue side:

(a) distortionary taxes (income and property taxes); (b) non-distortionary taxes (consumption taxes). Meanwhile, at the redistribution side: (a) productive expenditure and (b) unproductive expenditure. They came to the conclusion that increasing productive expenditure or decreasing distortionary taxes by 1% of GDP may slightly increase the growth rate (by 0.1-0.2% per year). It is pointed out that the negative correlation between public expenditure and the economic growth may result from the distortionary impact of high-income direct taxes (Nantob, 2014). This is an empirical confirmation of there being two systemic dimensions of the fiscal policy: fiscal and redistributive. The synergy between those dimensions makes it possible to limit the risk of slowing down the economic growth rate (e.g. increasing taxes) and increase the transfer of funds (tax redistribution) for public purposes, which may speed up economic development (Fig. 2.2).

FIGURE 2.2. Division of tax system into productive and unproductive fiscal and redistributive functions of tax transfers



Source: own elaboration.

Despite the current problems with proper modelling of the impact of taxation on the real economy, the goal of a correctly designed tax system should be to secure adequate tax receipts as efficiently as possible. This means the need to take account of the current condition of the national economy, while taking care to limit the undesirable distortion or minimise the cost of tax collection. Practice shows that tax policy is not always based on objective basis, which is due to many reasons (Hettich and Winer, 1984).

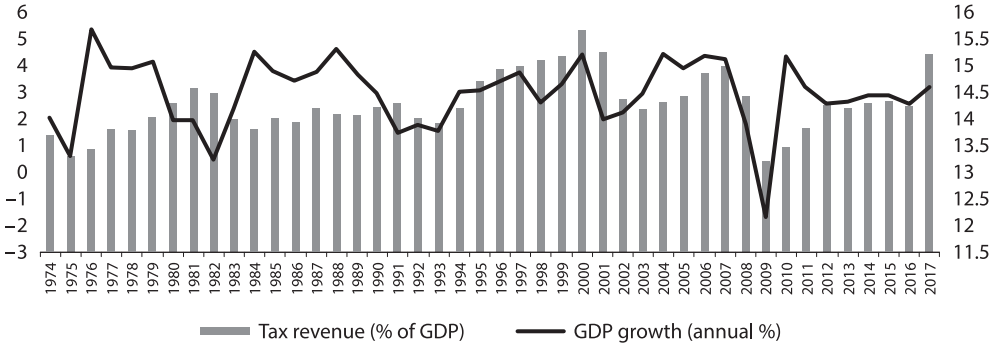
As a result of the global transfer of capital of cross-border entities, countries are beginning to compete for tax revenue, which, in practice, basically results in inefficiently low CIT rates[1]. Hence, to ensure the fiscal space for implementing state policy, it becomes necessary to compensate by putting the tax burden on consumption or labour (Adkisson and Mohammed; 2014). Countries struggling with the economic slowdown should not apply short-term solutions such as, for instance, lowering the corporate income tax to promote economic recovery, which may not guarantee the expected long-term impact on the economic condition. Integrating many incongruous social and economic policies in the taxation structure results in some political measures having a negative impact on the economic growth and others generating more beneficial outcomes (Denes et al., 2012). Peter H. Lindert (2004) naively compared the welfare state to a free lunch having no negative impact on economic growth, which he illustrated with the example of fiscal solutions used in Sweden. His choice of variables, taking no account of the extensive income tax reforms of the 1980s led to the finding that there is no conflict between high taxation and quality of life. Isn't it though an overgeneralisation of the concept of welfare state, one devoid of academic rationalism, which has lost its validity in the current times? In reality, Sweden's fiscal model is based on a redistribution of large-scale social assistance and high taxation of low-income taxpayers, which is not without an impact on the quality of life. Adding to this is the scale of migration, unprecedented in the country, and the imprudent asylum policy, which, if continued, will certainly have an adverse effect on social transfers, introducing new tax burdens on people in work.

When examining the global dynamic of tax revenue in relation to the economic growth between the 1970s and 2017 (Fig. 2.3), one can observe that the oil crisis spurred by the spike in oil prices in 1973 marked the departure from the concept of interventionism and the return to the liberal concept of the free market until 2008, followed by another wave of interventionism post-2008+ crisis. The economic liberalisation resulted in cyclical crises, a decline in GDP, investment and real income, as well as

[1] A typical analysis deals with a neoclassically defined economic operator, which is perfectly competitive on the market of goods and has access to markets; the model treats tax variables as not being subject to change over time (traditional model) or takes account of changes in tax systems; analyses include specific taxes, they can also take account of certain tax incentives, credits and holidays, as well as accelerated depreciation (Mintz, 2007; Devereux et al., 2008; Leibrecht and Hochgatterer, 2012; Swank, 2016; Shin, 2019).

long-term unemployment (among others, in Latin America between 1981 and 1982, in Japan in 1990, a speculative attack on countries belonging to the European Monetary System between 1992 and 1993, the crisis in South East Asia and Russia between 1997 and 1998). The financial sector deregulation introducing a number of innovative financial instruments, the state opting out of its supervision over financial and banking institutions, as well as the growing globalisation with the so called corporate libertarianism (Korten, 2015)—all this contributed to the crisis of the doctrine of market liberalism, especially strongly reflected in the financial crisis of 2008+. The range of differences in income, and wealth, and its concentration in the hands of a narrow social group is seen as the cause of instability and crises on the financial markets, which will intensify in the future due to the growing use of speculative capital instead of an adequate growth in productive capital (Stiglitz, 2015). Post-2008+ crisis, an increase in tax collectability was recorded, which is strictly associated with both the international consensus on limiting tax base erosion and tax avoidance, and a moderate economic growth (Fig. 2.3).

FIGURE 2.3. Global dynamic of GDP growth and tax receipts between 1974 and 2017



Source: own elaboration based on World Bank data.

At the time of economic upturn, an increase in taxes in line with their counter-cyclical effect, should be used to reduce public debts. A rapid growth in public sector debt (% of GDP) as a consequence of the 2008+ crisis still translates into its high level, for example for OECD countries in 2018 it stood at ca. 109% compared to 73% in 2007 (*Tax Policy Reforms*, 2019). At the same time, the public sector's financial liabilities ranged from

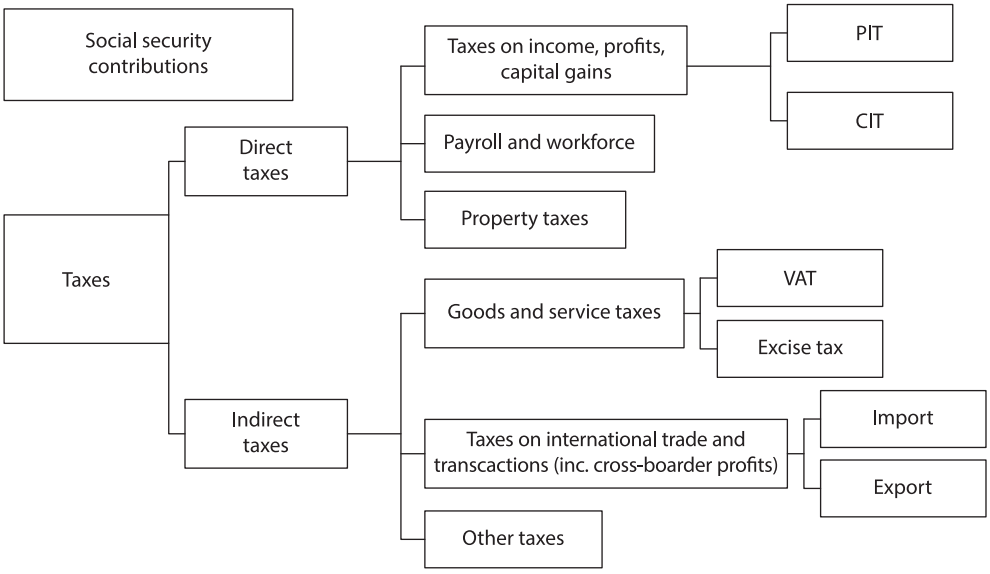
13% of GDP in Estonia to 224% of GDP in Japan. In practice, however, the increase in tax receipts makes it easier to quickly improve public finance without the need for socially unpopular spending cuts and unfavourable tax reforms.

The country-specific nature of changes introduced and announced by respective countries makes it difficult to indicate one direction shared by them all. In the currently predominant progressive models of direct taxation there is no single trend when it comes to the structure of rates, income thresholds, tax allowances, tax credits. PIT and CIT tax rates rather tend to decrease. For consumption taxes, especially VAT, rates have stabilised having first gone up as described below. New consumption green taxes related to the energy use, environmental protection or supposed health protection, are beginning to play a greater role. The consequences of the financial crisis of 2008+ have also drawn the attention of respective countries' governments to personal income tax, which is easiest to use to compensate for income differences and increase budgetary receipts. In addition, between 2008 and 2010, there was a wave of VAT rises, which helped fill in the gaps in respective countries' budgets in a relatively quick and effective way (*Tax Policy Reform and Economic*…, 2010). This path is still being followed by countries that continue to experience a budget crisis or are on the brink of one. In South Africa, the standard VAT rate rose in April 2018 from 14 to 15%. In Japan, the basic consumption tax rate went from 8 to 10% in 2020[2]. In Italy, where the expected VAT rise did not come to pass in 2018, its standard rate may go up—if spending cuts are not successfully introduced—from 22 to 25.2% in 2020 and to 26.5% in 2021. An economic recovery and an increase in consumption in the countries that have already overcome the crisis have ensured a marked increase in VAT receipts, which governments are not too willing to give up on. Tax rates, once raised, are hard to lower due to public expenditure. As regards VAT, it is more common to find reduced rates for certain goods and services, which reflect the state's tax intervention in favour of selected social groups or interest groups. Another widespread phenomenon are legislators' consistent efforts to tax ever more innovative types of products and services, thus increasing the tax base.

[2] Japan's Ministry of Finance website (retrieved: 28.01.2020) https://www.mof.go.jp/english/tax_policy/tax_system/consumption/index.html#a02.

From the economic perspective, the tax burdens imposed should not lead to a distortion in price relations or exert a negative effect on the economic growth or development. This allows the classification of standard tax system elements as presented in the division below (Fig. 2.4).

FIGURE 2.4. Division of tax solutions in tax systems of developed economies



Source: Prichard W, Cobham A., Goodall A. (2014). ICTD Government Revenue Dataset ICTD working paper 19. Institute of Development Studies, Brighton.

Direct taxation involves taxes the burden of which is borne by taxpayers themselves in connection with their wealth and income situation. Meanwhile, indirect taxes are taxes paid by taxpayers although their burden is entirely or partly borne by the end consumer. This category encompasses, most of all, consumption taxes which include value-added tax, excise tax, customs duty, import and export.

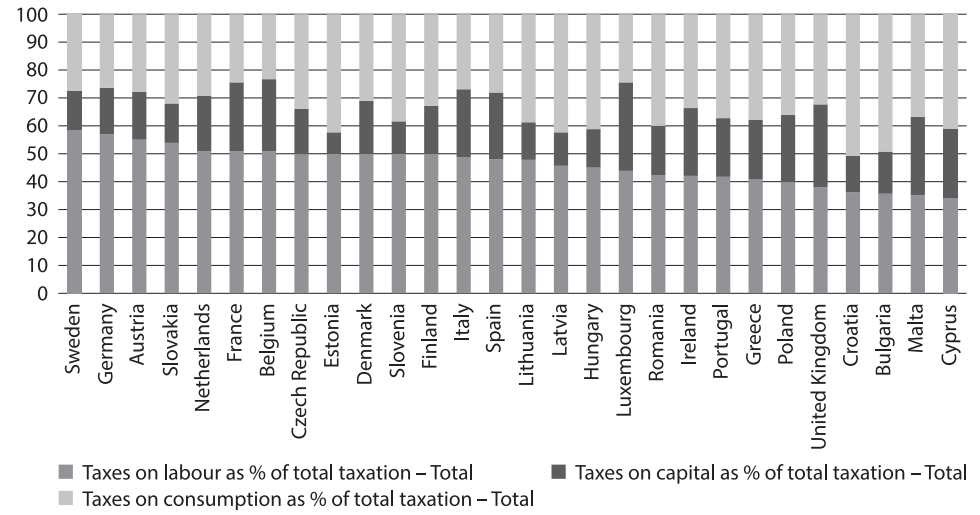
Hence, direct taxes are personalised, adapted to the state's social policy by taking account of tax fairness (progressive taxation) with tax credits and exemptions (taxpayer's ability to pay), whereas indirect taxes, in this respect, act as a counterbalance.

The results of research by William Easterly and Sergio Rebelo (1993) revealed an interrelation between the tax system structure and a given country's level of economic development. Low GDP per capita countries

derive their budget revenue mostly from receipts from indirect taxes, while direct taxes, mostly income taxes related to the society getting richer, are of great importance to the budget of developed countries with a high GDP per capita. The Global Competitiveness Index (GCI), which assesses respective countries' capacity for long-term economic growth, assumes that the GDP per capita of the countries whose economic development is innovation-driven is above USD 17 thousand (*Methodology*, 2017). Economies at this level are characterised by an increase in wages that helps maintain a high standard of living, which translates into a higher share of direct taxes compared to indirect levies. This is due to the fact that these economies are at a level of development where the tax system participates in the increase in the society's prosperity (wealth) without prejudice to taxpayers' economic interest (at least in theory). A greater share of direct taxes in budget revenue determines the creation of a tax system model not significantly susceptible to economic fluctuations, and guided by the need to ensure a stable economy. This may also imply that indirect taxes are more correlated with current cyclical conditions than direct taxes. Therefore, if the principal goal of tax system is, first and foremost, to guarantee that current public expenditure is met, then the main emphasis will be on the collection of consumption taxes, even though, at the time of economic downturn, it can be more susceptible to a loss of revenue than a system based on the collection of direct levies. It can be therefore hypothesised that with the economic development translating into a society's greater wealth (e.g. in the EU countries: Sweden, Germany, the Netherlands, France, Denmark), the share of direct taxation in the structure of tax receipts increases more than in countries at a lower level of economic development (Fig. 2.5).

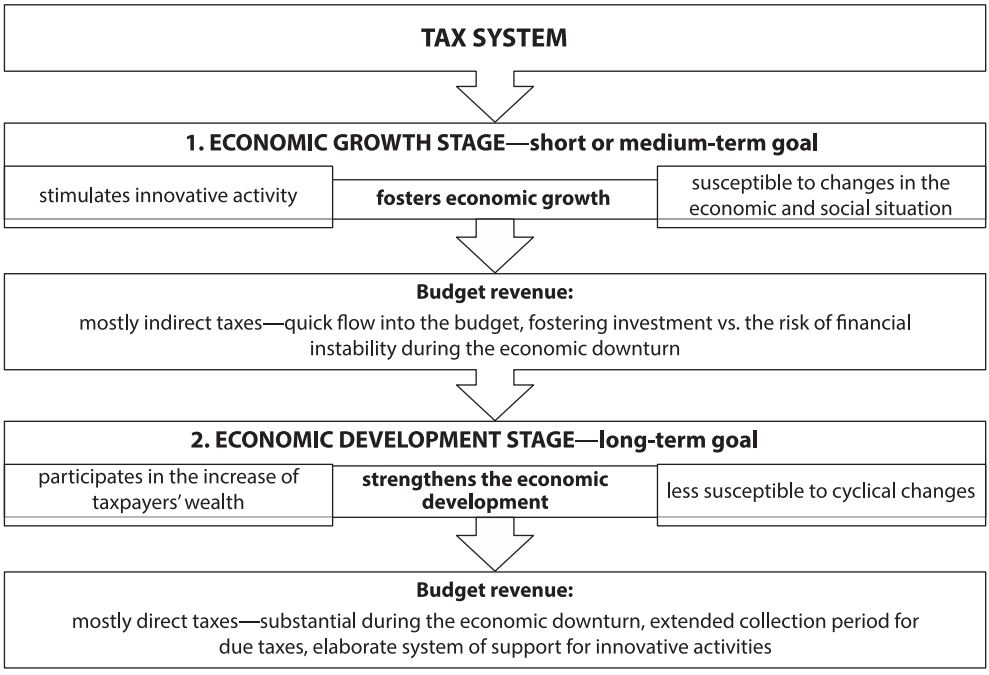
Taxation measures enable us to observe systemic solutions applied to taxation during the stages of economic growth and development (Fig. 2.6). During the economic growth stage, tax policy is oriented to ensuring a relatively quick flow into the budget, to fostering consumption and investment, and to increasing the employment rate (Lee and Gordon, 2005). There is a risk of financial instability occurring during the economic downturn as well as that of dependence on international trade. During the economic development stage, tax policy is based on the society's prosperity, fosters innovation, creates the environment for hiring highly skilled employees; it is less susceptible to economic fluctuations, and the long-term goal is implemented by means of investment (including direct investment) and savings (Bujang et al., 2013).

FIGURE 2.5. Tax system structure in EU countries indicating economic functions of the basis of taxation in 2017



Source: own elaboration based on Eurostat data: https://ec.europa.eu/taxation_customs/business/economic-analysis-taxation/data-taxation_en

FIGURE 2.6. Systemic solutions used during the economic growth and development stages



Source: own elaboration.

From the perspective of the national budget revenue, indirect taxes are characterised by greater regularity of receipts and by responsibility being shifted to the payers. Charged mostly on consumption, they are paid on an ongoing basis and have a less complex structure than direct taxes. As regards direct taxes, their settlement is much more complicated. It is necessary to analyse the forms of tax credits and the tax system model as a stimulus to increase taxpayers' engagement in their economic/professional activity. As a matter of fact, the ultimate aim of systemic reliefs and support (tax credits, stability and transparency of the tax system) is to constantly nudge taxpayers' activity in a specific direction. The economic solutions for tax credits are not the only systemic barrier; others are the imprecise tax law regulations and unclear interpretation by tax authorities.

2.2. Fostering prosperity and limiting social exclusion

The global percentage of the so called poor people in employment has been declining over the last decades, but still 8% of all the employees qualify as extremely poor, and further 13% are in the group referred to as medium-poor (*Spotlight…, 2*019). Respective governments' obligation should be to further foster prosperity-building and to eliminate social exclusion (*Global Sustainable*…, 2019). However, this is a process that requires not only time but mostly an integral approach to political, economic, social, cultural and environmental issues (Mankiw and Taylor, 2015). The key to fixing the errors in the international tax system that deprive both developing and developed countries of the tax revenues critical for their economies is to build a more equitable, transparent system (Pogge and Mehta, 2016) which limits illicit financial flows.

An important element of this process is innovation, which determines social prosperity, increases productivity and economic growth, with its attendant structural changes which create new opportunities for engaging in economic activities (Stilgoe et al., 2013). At times of dynamic technological and social transformation, the economy's innovation and society's prosperity depend, to a greater extent than ever, on the capacity of mostly private economic operators for developing and effectively offering innovative solutions[3].

[3] The degree of innovation of the economy is often measured with respect to innovation activity of the business sector, e.g. Summary Innovation Index (SII).

However, the ever more advanced technology and the increasing robotisation have sparked a debate on machine work displacing people (Neufeind et al., 2019). John M. Keynes was among the first to point out the risk of future imbalance between labour market automation and demand for staff, "due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses for labour" (Keynes, 1933:3). The advent of new technologies, the progress in the use of digital technology and deep learning, increasingly applied in the artificial intelligence and mobile robotics research, are greatly extending the scope of automation (accounting, logistics, financial analytics, medical diagnostics, transport) (Frey and Osborne, 2017). While the number of jobs requiring high skills is on the rise, in many countries there is a downward trend in employment in medium- and low-skilled professions that can be easily replaced by automation (Sachs and Kotlikoff, 2012). It seems that the labour market and insurance system reforms are not keeping up with those changes, which may result in an increase in the structural unemployment, especially among low-skilled workers (Leduc and Liu, 2019), as well as in opting out of the institutional solutions combining flexible employment, active labour market policy and extended welfare state system (the flexicurity model) (Bredgaard and Madsen, 2018). At the same time, the automation process has a potential to generate additional GDP, which, if used well, may contribute to relieving the society of the potentially least satisfactory type of work. When looking into the digital future, the idea of taxing robots is becoming closer to reality (van Parijs, 1992). It could be the source of finance for programmes based on the concept of universal basic income (UBI) (European Parliament, 2017). Kai Fu Lee (2017) suggests a slightly different solution for those affected by unemployment—conditional universal basic income, funded from taxing the largest online consumer market players, such as the Chinese-based Baidu, Alibaba, Tencent or the US-based Google, Facebook, Microsoft, Amazon. A basic income experiment was also carried out by Finland. 2000 randomly selected unemployed people aged from 25 to 58 took part in a pilot scheme held between January 2017 and December 2018. For two years they received a monthly payment of EUR 560 (tax free). The object of the scheme was to encourage participants to be more active in the job market and to engage in additional earning opportunities, without fear of losing their job or eligibility for welfare allowances. The analysis of initial data reveals that the employment did not increase in the

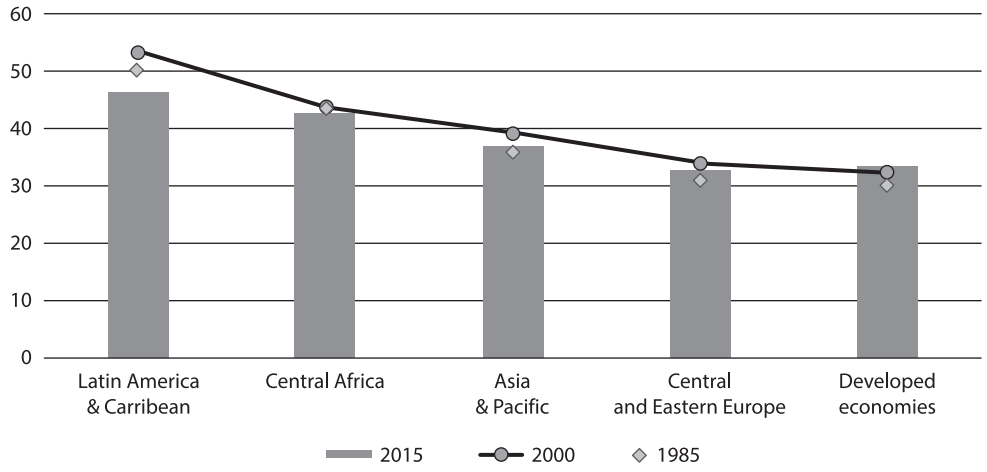
first year[4]. Meanwhile Evelyn L. Forget (2011) described the Canadian MINCOME experiment conducted between 1974 and 1979 in the town of Dauphin in the Canadian province of Manitoba, where a minimum guaranteed income and a less strict unconditional basic income was introduced. The authorities wished to examine whether providing the less well-to-do citizens with monthly funds for nothing will have a negative impact on work motivation. Each household which had no other income would receive a specific amount and for households with other income, the amount was reduced by 50% per each dollar earned. This is why the most affluent residents received no support. It turned out that, despite the negative scenarios, only two groups—young mothers (by extending their maternity leaves) and teenagers (higher school attendance rate)—limited their professional activity.

Unfortunately, social inequalities cannot be reduced in the short time, and the proposal of a guaranteed minimum income awarded to working age people capable of working, without their professional and social activation, seems socially and economically destructive. As rightly observed by Thomas Piketty (2015), wealth differences result from the stagnation of employment income and from the increase in capital income. The richest ones gain investment income, and, through inheritance, they achieve faster capital growth than do employees on their remuneration for work. The scale of income differences can be illustrated, among others, by the Gini coefficient expressed on a scale from 0 to 100, where 0 stands for perfect income equality, and 100—for perfect income inequality (Gastwirth, 2017). Between 1985 and 2015 r (Fig. 2.7) one can observe that in developed countries or in CEE economies the scale of income differences is usually lower than in other parts of the world (at 30–34%), however, the recent upward trend in the Gini coefficient for developed economies sends a worrying signal.

Since the 2008+ crisis, the use of tax policy's capacity for addressing the growing market inequalities has been limited due to the need to restore public finance stability. The consequence of that has been the state's lesser capacity for income redistribution and tax incentives for those working in lowest-paying jobs. Latin America and Africa show the highest income

[4] https://www.kela.fi/web/en/news-archive/-/asset_publisher/lN08GY2nIrZo/content/preliminary-results-of-the-basic-income-experiment-self-perceived-wellbeing-improved-during-thefirst-year-no-effects-on-employment.

FIGURE 2.7. Average income inequality in respective world regions in 1985, 2000 and 2015



Source: own elaboration based on the International Monetary Fund's data.

disparities, with the Gini coefficient in Latin America standing at ca. 46%. The decrease in the income disparity is most noticeable on this continent, compared to 2000 when this coefficient stood at ca. 54%, which is a natural consequence of the development of those groups of countries.

When looking for the answer to the question about the correlation (without prejudging its direction) between the principal monetary functions of a tax system (fiscal and redistributive functions) and factors contributing to the prosperity in economies at the highest level of social and economic development, a decision was made to apply the analysis to the economies with the highest Human Development Index (HDI) score. They are characterised by high results when it comes to the level of development (GDP per capita), the standard of living, level of education and longevity. These should be a set of countries whose economic circumstances are reproducible for all. Consequently, the most developed European countries were selected for the analysis: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Norway, Spain, Sweden, Switzerland, the United Kingdom, and from outside Europe: Australia, Canada, New Zealand, Japan, South Korea and the United States.

The role of tax policy in shaping social prosperity was determined using two fiscal indicators—tax burden (total tax revenue as a percentage of GDP) and the revenue transfer (government expenditure as a percentage

of GDP). On the prosperity side, the analysis includes indicators related to the level of employment, unemployment rate for working-age people with only primary education, the level of satisfaction with the social policy, the overall level of social satisfaction, and level of social and economic development (HDI). The direction of correlations obtained is presented in Table 2.2.

TABLE 2.2. Direction of correlations related to the fiscal and redistributive functions of the tax systems analysed

Detail	Employment rate	Unemployment rate for low-skilled workers	Satisfaction with the social policy	Level of social satisfaction	HDI
Fiscal function—tax burden	−0.474	0.439	−0.088	0.108	−0.231
Redistributive function —transfer of budget revenue	−0.491	0.529	−0.061	0.462	−0.180

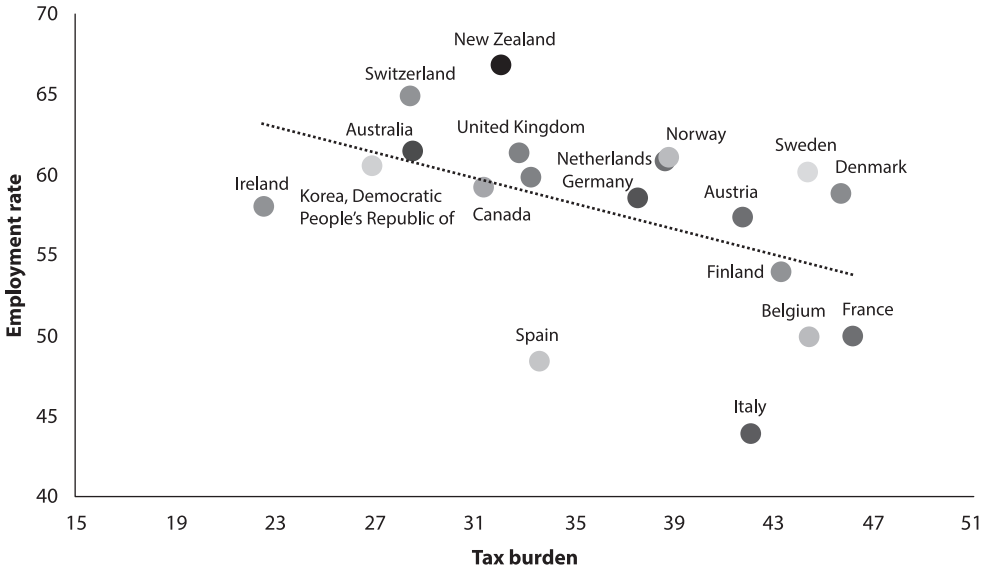
Source: own elaboration.

As regards the fiscal function, a moderate and negative correlation with the professional activity (Fig. 2.8), and a moderate and positive correlation with the unemployment rate for low-skilled workers (Fig. 2.9) were recorded. For the redistributive function related to the transfer of budget revenue back to the society, a moderate and negative correlation with the professional activity (Fig. 2.10), a high and positive correlation with the unemployment rate for low-skilled workers (Fig. 2.11), and a moderate and positive correlation with the level of social satisfaction (Fig. 2.12) were recorded.

The correlation between higher tax levies and social security contributions charged on remuneration translates into entrepreneurs' greater caution and lower demand for labour related to hiring further employees (Taxation and Employment, 2011) (Fig. 2.8). One of the consequences of the higher taxation of remuneration is lower net remuneration received by employees, which is a factor that makes working in the shadow economy more attractive (Medina and Schneider, 2017).

The noticeable positive correlation between the fiscal function and unemployment rate for low-skilled workers (Table 2.9) should give rise to doubts as to whether the tax tools meant as incentives to take a job or to the labour supply of low-skilled workers drops as tax burdens increase.

FIGURE 2.8. Correlation between the tax burden and the labour market trend in economies with the highest HDI score



Source: own elaboration based on OECD, World Bank data.

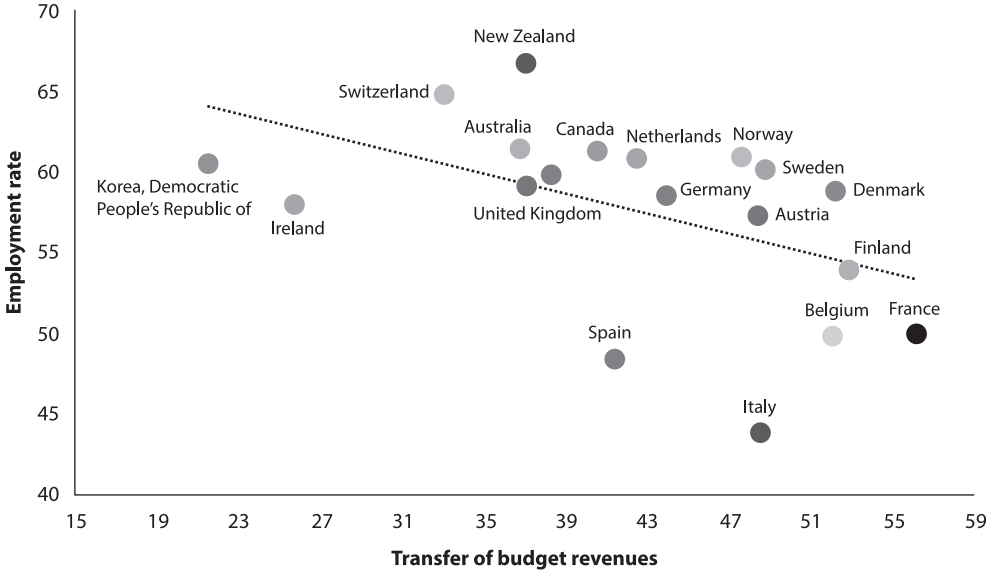
FIGURE 2.9. Correlations between the tax burden and unemployment rate for low-skilled workers in economies with the highest HDI score

Source: own elaboration based on OECD, World Bank data

retrain in line with labour market trends have been properly addressed. Taxes may be and are the cause of a reduced employment rate, while there are no data to enable us to clearly ascertain whether we are dealing in that case with an intentional or forced joblessness of low-skilled workers or people with dependent children (Mastrogiacomo et al., 2017).

The noticeable moderate positive correlation between the redistributive function (Fig. 2.10) and the employment level, as is the case of the previously discussed fiscal function (Fig. 2.8), indicates that, despite the evolution of the global economy, social and economic changes are still insufficient considering the growth in polarity and inequality in the social and economic development between respective regions (Piketty, 2014). Demographic circumstances are a major problem here. Highly developed countries are experiencing a declining population growth, with the attendant process of ageing society, while we can observe the opposite trend in developing countries. The rapid population growth in the poorest countries impedes their economic growth (Barro and Sala-i-Martin, 2004) and jeopardises the world's political stability, and with the growing polarity in the future, it can spur further waves of migration (Kołodko, 2013) into

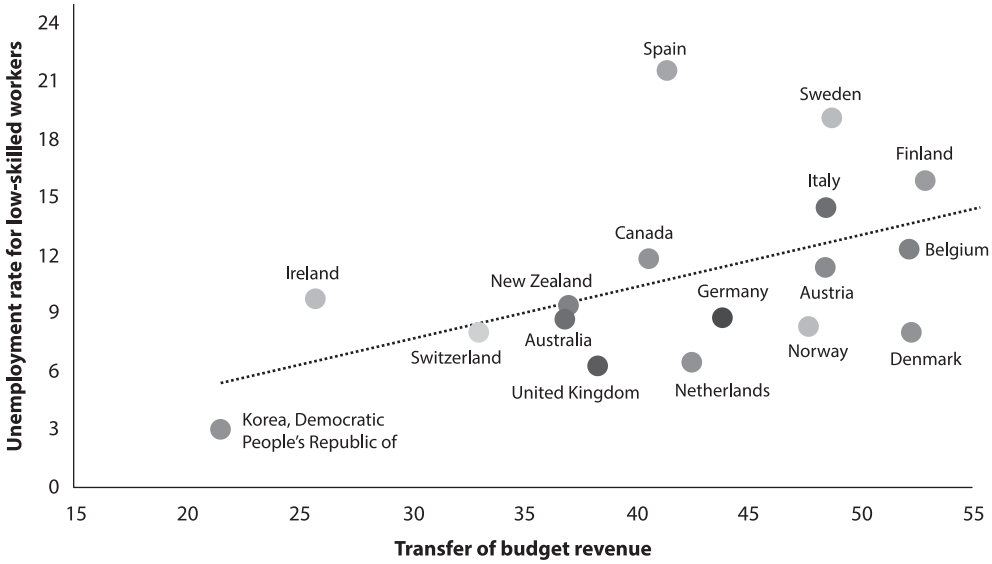
FIGURE 2.10. Correlations between the transfer of budget revenue and the employment rate in economies with the highest HDI score



Source: own elaboration based on OECD, World Bank data.

highly developed economies. Considering the major risk of reduced economic development, the problems of migration of low-skill workers who take the lowest-paying jobs, and the changes in labour markets (Fig. 2.11), what we should expect on the distributive function side is greater use of tax tools to encourage greater low-skilled workers' mobility towards retraining. With the ageing society and the growing automation of the developed economies, resulting in the increasing demand for highly skilled employees, the low mobility of low-skilled workers represents a major economic burden.

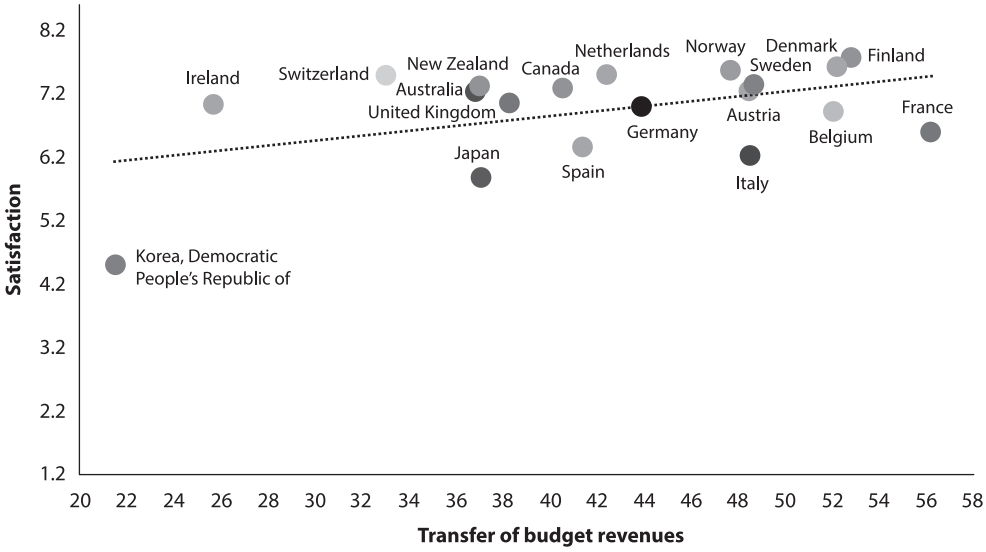
FIGURE 2.11. Correlations between the transfer of budget revenue and unemployment rate of low-skilled workers in economies with the highest HDI score



Source: own elaboration based on OECD, World Bank data.

Even though Scandinavian countries, where the high level of taxation translates into high-standard social transfers (Bredgaard and Madsen, 2018), are included in the sample analysed, it has been demonstrated that taxation does not have an impact on the level of satisfaction with social assistance, both at the fiscal and redistributive side of the tax system. The level of social satisfaction that is in positive correlation with the transfer of budget revenue (Fig. 2.12) should be identified not only directly with the tax policy but also with the level of wealth of the state that distributes its budget revenue back into the economy.

FIGURE 2.12. Correlations between the transfer of budget revenue and the level of social satisfaction in economies with the highest HDI score



Source: own elaboration based on OECD, World Bank data.

The search for correlations as regards the impact of taxation, whether on a global scale or with respect to a specific group of tax systems, helps pinpoint sensitive social and economic areas. The group of economies with the highest HDI score shows clear correlations between the labour market and tax policy activity (measured both with the tax burden index and the tranfers tax revenue level). This justifies incorporating the issues related to labour market automation and demographics in the tax system of developed economies. To ensure labour market security, work needs to begin on providing guaranteed minimum income to social groups with the lowest economic security, as well as opportunities to retrain in line with the labour market demand. The alternative to the guaranteed minimum income would be to extend the retirement age, which, in addition to facing social resistance, also requires adjusting the economic and social circumstances of older professional groups. A very weak but negative impact of the tax burden on the level of social and economic development presented by means of HDI indicates the need to extend the systemic economic analysis to include social and demographic variables with a view to fostering the efficiency and fairness of tax solutions.

An efficient tax system contributes to economic development, and ensures a stable funding of public expenditure. At the same time, it is expected to be fair. This begs the question of whether a fair tax system based on universality and equality can be implemented in practice. It certainly can, but such implementation, without favouring specific interest groups or social groups at the expense of other groups does not seem very realistic. In reference to economic growth and development, it has become important to guarantee a tax protection against taxpayers' income dropping below the social subsistence level, as well as to stimulate wage growth, which promotes greater work performance and efficiency.

The principle of tax fairness meant as a fair distribution of the tax burden gives rise to the greatest controversy. There are no universal methods that enable achieving it in practice. Tax fairness within the contemporary meaning of the principle of equity does not call into question the progressive taxation, tax credits and exemptions (it is admissible to treat taxable persons differently). It is assumed that a fair tax is diverse, and adapted to the taxpayer's individual economic situation. An analysis of the economic thought evolution shows that there is no single, standard, universal definition of a fair tax system for a prosperous economy. An ideal tax system model that was to be created by normative economics based on various empirical and theoretical research, as well as on generalised observations, has significantly evolved in parallel to the ongoing changes in and the development of the real economy. This variability and ambiguity of the category of fair taxation seems natural for at least two reasons. Firstly, the historical development of the science of economics has seen a clear evolution of the goals of economic activity, the fulfilment of which is seen by economics as the criterion by which to evaluate a tax system. Secondly, on a global scale, there has always been a great diversity of tax systems, resulting not only from their varied level of development but also from various social and political circumstances determining the operating principles of respective systems. Hence, a tax system's fairness as an economic category must be contextual in nature—being both time- and place-specific. In classical theories, fairness encompassed the principles of: equality of taxation, Edinburgh rule (Ricardo, 2006), the universality of taxation and tax progression (Wagner, 1967), equal sacrifice (Mill, 2006), marginal utility of income (Edgeworth, 1897). In turn, Adam Smith and John S. Mill based their principles on the concept of proportional taxation, deemed equal and fair by classical economics. The Edinburgh rule formulated

by David Ricardo held that a tax system should be evaluated in terms of its rationality, meaning that taxation should not affect the sources of taxpayer's income (Ricardo, 2006). Adolf Wagner, by suggesting the concept of universal taxation using progression (criticised by the liberal school) to eliminate the excessive wealth differences in respective social groups (fairness function), questioned the proposed neutrality of the tax policy. Taxes should apply to all those who have a taxable object, thus guaranteeing sufficient budget receipts, with fair, universal and equal treatment of all taxpayers by the law in force. The requirement of equality of taxation meant that tax liabilities should be imposed in proportion to the taxpayer's financial capacity. For John S. Mill, the criterion of fairness of tax system and its burdens was the principle of equal treatment of taxpayers, meaning the same financial sacrifice or the same disutility after tax. Following up on that idea, Francis Y. Edgeworth (1897) suggested taxes should be imposed in a way that ensures that income after tax is as equal as possible, assuming that marginal utility of income is identical to all taxpayers, regardless of their wealth.

Taxes, initially charged according to the proportionality principle, started to move toward progressive taxation. After World War II, tax systems functioning in developed countries were greatly influenced by the doctrine of John M. Keynes, departing from the idea of neutrality of taxes (horizontal fairness) in favour of non-fiscal functions and basing the income tax structure on the ability to pay (vertical fairness). The tax progression, and the tax allowance in personal income tax fits squarely into the principle of vertical fairness, which takes account of the taxpayer's personal situation and the social function to be fulfilled by the tax system, among other things. What became the necessary, though extremely ambitious, condition was a rational state that has an effective economic policy in place. After World War II, these views gained widespread approval and became a sort of canon of how the intervention role of taxation should be perceived, when the market fails, and state interference becomes necessary. In the contemporary neoclassic approach, when the state's economic policy is far from perfection, and the measures taken are often not characterised by economic rationality, tax system's fairness is determined by horizontal fairness aiming to place moderate, proportional burden on all taxpayers (the principle of tax system neutrality). The interpretation of the principle of horizontal fairness is a consequence of two major concepts: liberal and communitarian. The liberal concept provides for the equivalent nature of

tax benefits, where tax is a price paid for services provided by the state. The equivalent nature of taxation does not justify interference with income distribution. Meanwhile, the communitarian concept treats tax as an element of social solidarity. Its amount should not reflect the scale of taxpayer's use of public goods but the scale of his or her ability to participate in the costs of creating public goods (government running costs). The basis of tax assessment is the taxpayer's ability to pay. At the same time, the Keynesian school advocated diversifying tax burdens according to the ability to pay in line with the concept of vertical fairness. The same holds that taxpayers who are in a better financial situation should pay higher taxes, though the criterion of a better financial situation remains to be defined: whether it should be literally understood as higher income.

For welfare economics, the goal of an optimum tax system is a fair reconciliation of the state's and taxpayers' economic interests. It uses for that purpose efficiency as defined by Pareto, whereby the tax system is efficient when there is no alternative system that could improve an individual's situation without deteriorating that of others. An inherent part of social prosperity is the access of all citizens to a defined pool of goods provided directly by the state. The state's role is to implement a specific Keynesian economic policy based on the institutional system but also to efficiently provide and fairly distribute across the society the public goods that determine the level of social prosperity in the contemporary world.

Sustainable development economics goes further, calling for limiting the principle of horizontal fairness, neutrality and certainty, and so does the theory of optimal taxation, demanding an intragenerational fairness (also as defined by Pareto), which is easier achieved through progressive tax setting with multiple tax brackets and the highest taxes for the wealthiest. Contemporary economic systems have redefined the principle of fairness toward individualising—depending on taxpayers' economic status—the factors driving the amount of taxation. Tax fairness should be also examined from the perspective of behavioural economics. Here we are dealing with the framing effect (Tversky and Kahneman, 1981), a sense of tax system fairness depending on different rational frames of reference, such as the metric effect, risk aversion, Schelling effect. A tax policy that is not too invasive in terms of the tax burdens it imposes will enjoy a positive social perception. Conversely, a tax policy that takes away the sense of security or fails to seek social acceptance of high fiscalism will be seen as unfair. Where tax policy gives preferential treatment to only specific social groups

which will not or cannot economically accommodate the interests of other groups, an alternative policy demanding to extend the preference to a wider group within the society will be treated as fair depending on the frame used by the society and on how the same perceives fairness or unfairness of a given model.

It seems that a tax system will be deemed fair if it is generally perceived not to represent an excessive burden, i.e. its burden is not treated as invasive in the day-to-day economic reality of households and companies.

A globally noticeable increase in economic inequalities in respective countries may pose a threat to the core democratic principles of political representation in liberal democracies (Reich, 2012). For example when in 2016 the United Kingdom held the Brexit referendum, most Londoners opted for remaining in the EU, while residents of small towns voted to leave. Ross Douthat (2012) believes that this social division will keep widening because large cities attract educated young people, who are well-to-do and mostly liberal-minded. Talented graduates of good universities, brushing up their skills at international institutions, can afford to bear the high costs of living in the cities, where most people from lower-middle and middle-middle class find it hard to buy a house or pay the high rents.

2.3. Public tax administration

The tax system analysis is more and more often supplemented with institutional assessment. Intuitively, an attractive tax efficiency indicator would be the tax compliance gap, i.e. the difference between the amount of taxes legally due and the amount actually collected. The popularity of such analyses is on the rise, e.g. tax analyses conducted by the Internal Revenue Service (IRS) in the USA, and by Her Majesty's Revenue and Customs (HMRC) in the United Kingdom, or the analysis of VAT collection in EU Member States. A simple rule of tax administration flexibility holds that the flexibility of tax collection is equal to the compliance cost and administrative cost in relation to the tax revenues obtained (Keen and Slemrod, 2006). It must be noted that the measures used to reduce the tax compliance gap can also limit taxpayers' activity (e.g. they have a negative impact on the revenue amount), while the costs of administrative intervention may be a huge burden on the government and taxpayers alike (Slemrod, 2018). High compliance cost may discourage engagement

in economic activities (especially in the SME sector), contribute to the growth of the shadow economy, and harm the competitiveness of companies and whole countries.

State's activities relating to tax and public expenditure are carried out at different levels taking account of the system specificity, and of the characteristics of the country's taxes (including the federal ones), and they also involve public levies allocated to a jurisdiction's specific regions only or ones that are country-specific (e.g. environmental taxes, religious taxes). Within the framework of the theory of taxation, allocating taxes between the central and local administration is an open issue. However, there is a common view that a given public levy should be allocated to the lowest possible administration level that can implement it into the tax regime and for which it will be viable (subsidiarity in taxation) (Martinez-Vazquez at al., 2008). In a tax system, this division should at least take account of the level of administration on which the following are determined:

- bases of taxation,
- tax rates,
- tax revenue management.

In most developed tax systems public levies are collected not only by state (central) authorities as lower administrative levels of the public finance sector also have powers of taxation (Bowman, 2017). Practical solutions mostly stem from the specific administrative structure of respective countries and from the role played by local administration in their economies. A substantial tax autonomy at a local level gives local bodies the right to determine the economic dimension of respective forms of taxation. This is of particular significance in federal states. The rules governing the division of powers of taxation and of money transfers between various (central and lower) levels of administration may affect the efficiency of tax collection and the tax fairness (Brys et al., 2016). On the one hand, fiscal federalism helps increase the efficiency of the fiscal policy by matching it better to the preferences of specific local social groups (Voigt and Blume, 2009). On the other hand, however, it can give rise to a conflict of interest in the implementation of the national economic policy (Hong and Lee, 2018), making it difficult to run a reasonable policy of state interventionism and contributing to an excessive independence of regions. The resulting tax autonomy may, in some cases, lead to an excessive tax competition, potentially resulting in distorted tax structures, growing

differences in solutions applied across regions and an insufficient provision of public services (Agrawal, 2016). Lack of coordination between central and lower levels of administration may also limit the effectiveness of the reforms implemented.

In the Swiss model, the major role in shaping the tax policy is played by cantons, with the confederation as a whole having a limited right to impose tax burdens (*Federal…*, 2016). Such structure of the tax system introduces a substantial tax competition between cantons, which have a significant power to determine tax burdens[5].

There can be no talk of one universal tax division model for the same types of taxes because tax policy pursues different goals in respective countries or country groupings. However, a basic division can be suggested as follows:

- central taxes—they only flow into the central budget, and in many countries these will be, as a rule, consumption taxes (most of all VAT/GST);
- federal, state, regional, commune taxes etc.—as a rule, they flow into local administration budgets, and these are most often property taxes, mostly real estate taxes (e.g. in India they fall within the competence of communes), tax on economic activity (e.g. China), tax on inheritance and gifts, environmental taxes, religious taxes. These can also include sales taxes in order to increase budgetary receipts at the regional and local level (e.g. USA);
- shared taxes—they flow into the central budget and into local government budgets, most often these are personal and corporate income taxes, value-added taxes, e.g. China, India, Poland.

The criteria that may serve as the basis for the division of administration's responsibility for respective types of taxation help assess more effectively the efficiency of respective levels of administration (Agrawal, 2016). It is assumed that central administration will be better at assessing the taxation of a wide group of taxpayers (e.g. domestic and foreign economic operators that pay CIT), while local administration will be better at defining the rates and the economic value of the assets subject to property tax. Based on such a criterion, it is also assumed that CIT should be the

[5] https://www.efd.admin.ch/efd/en/home/themen/steuern/steuernnational/theswisstaxsystem/fbschweizersteuersystem.html (retrieved: 21.05.2018).

competence of central authorities while property tax—the competence of local authorities (Shah, 1984). The division of tasks between respective levels, as suggested by Richard A. and Peggy B. Musgrave (1984), revised due to the economic development, is presented in Table 2.3.

TABLE 2.3. Types of taxes allocated to respective levels of tax administration

Central level	Local government administration	
	Federal, state level	Local level
⇒ **Progressive income taxes** ⇒ **Taxes on inheritance** ⇒ **Taxation of natural resources** ⇒ **Value-added tax*** ⇒ **Digital economy taxation**** ⇒ **Sectoral taxes (banking tax, carbohydrate tax)**** ⇒ **Customs duty and excise tax****	⇒ Part of the income tax collected from residents of a given administrative region ⇒ Tax on the income generated outside the local government's jurisdiction by economic operators registered on its territory ⇒ Consumption tax on retail sales	⇒ Real estate taxes; other property taxes ⇒ Environmental**, pro-health taxes** ⇒ Taxes deducted from wages and salaries

* The suggested division related to the tax system of the United States, where VAT is not applicable, however, it is a significant tax for many countries so it needs to be included in the summary.
** Taxes updated to include current tax solutions.

Source: (Musgrave and Musgrave, 1984).

Multi-level administrative governance of the tax system structure requires laying down the rules of how tax levies should be collected. According to M.F. Ambrosiano and M. Bordignon (2006) the following rules should be applied:

⇒ the following taxes should be centralised: progressive taxes; taxes acting as economic stabilisers; taxes with bases of taxation differing across tax jurisdictions; taxes on mobile factors of production; taxes on the dynamically developing digital economy;
⇒ at lower levels of tax administration, taxes should be cyclically stable;
⇒ taxes based on permanent residence or establishment (e.g. excise tax) should be imposed by local administration (states, lands, cantons);
⇒ taxes on immobile factors of production should be imposed by communes;
⇒ tax preferences and credits should be determined at each level of administration.

It should be, however, borne in mind that the above presented structural description of tax system governance is just an example and allows for greater strength of local structures and weaker federal fiscalism of the state.

From the point of view of a well-organised policy of state interventionism, a centralised tax system which allows for less regional autonomy in shaping local tax processes is certainly a more efficient model.

Such a model significantly shortens decision-making processes, and helps plan budget revenue and expenditure horizontally, that is in macroeconomic terms. It is essentially less susceptible to economic shocks or to local prejudice against central authorities, which, in some circumstances, stand in the way of cooperation or reduce the tax receipts that could be otherwise collected.

2.4. Significance of taxes in the economy

The competition between countries, and respective economies' investment climate represent the basic determinants of the efficient use of tax policy instruments to foster the economic development (James, 2013). Various taxes generate economically different results in the tax system (Johansson et al., 2008). This requires specific modelling with a fiscal function to ensure that income tax instruments, deemed more harmful to the economic growth (*Taxing Wages…*, 2008) than consumption, environmental and property taxes, make it possible to adapt tax incentives to the expected entrepreneurs' investment activity and to the labour market development. What becomes another purpose of personal income taxes, in addition to the minimum wage protection, is the relative income growth due to the growth in labour efficiency and productivity (Strine, 2019). A properly structured corporate income tax should act as a development stimulator, ensuring the fulfilment of economic goals through an appropriate system of tax stimuli (taxes on profit), which support a country's economic growth and development while not limiting innovative companies' capacity, and have a positive impact on the labour market (Mazzucato and Perez, 2015). The goal of consumption taxes should be to guarantee regular inflows into the national budget and to shape an efficient and economically neutral state-taxpayer relationship.

It is absolutely justified to orient the tax system towards diminishing the taxation (to foster the economy, increase the employment rate, decrease social inequality) if this stems from the economics of taxation.

What some theories of taxation often lack is the acknowledgment of the need for the so called fiscal space. It is important to specify whether a given reform is being implemented without any compensation for the national budget; whether one needs to reflect on how to finance this type of activity and avoid deficit growth (Feldstein, 2017). For example, the CIT rate reduction in the USA from 35% to 21%, in addition to the assumed economic benefits, involves budgetary costs (budget deficit growing from 4.25% in 2017 to 6.5% in 2018), which cannot be entirely compensated for by the increase in real wages or economic growth (*Tax Policy Reforms*, 2019) (negative impact on the budget balance). One of the options is to shift the burden of taxation to other bases of taxation depending on the existing tax structure.

As part of the state policy, the tax system also ensures tax tools to support economic operators' market decisions, which help, among other things, stimulate international cooperation on innovation, develop networks between economic operators, and reduce the unemployment rate. The significant impact of the tax system on the economic policy is exemplified by direct and indirect tax tools (Westrome, 2013), among which:

1) R&D tax credits and incentives for companies,
2) direct governmental co-funding (e.g. subsidies, loans, guarantees) for R&D,
3) public spending on R&D, education, creation of new jobs,
4) legal framework for areas related to scientific research and innovation, including trade policy, company bankruptcy, protection of competition, labour law.

Using the motivational function of taxation by way of reducing tax rates and creating tax preferences helps stimulate overall demand both in the economy as a whole and in respective lines of business. This is possible by incorporating tax preferences in the legal structure of tax. From the microeconomic perspective, the use of market tax tools helps generate profit or savings at the level of respective economic operators[6].

Empirical research shows that at the macroeconomic level taxes have an impact on investment decisions or savings but not as strong as at the company level. Michael P. Devereux, Michael Keen and Fabio Schiantarelli (1994) demonstrated that the existence of lower tax revenues in the United

[6] The value of tax credits decreases in parallel to the decrease in tax rates, the net effect for investment incentives, may be insignificant (Devereux, 2007).

Kingdom had no impact on the forecasted effect of taxes on investment. They explained it with the fact that central administration as a rule responds to changes in the economy, e.g. by granting subsidies or creating tax tools to limit the impact of the recession. Hence, to better understand the correlations between investment and taxes, one should take account of these measures.

Tax credits and incentives are market instruments where the state leaves it up to the entrepreneurs to take action or not. This ensures their more extensive impact when compared with the selective nature of direct funding (for example subsidies, preferential loans). Their basic drawback is that they cause a certain interference with the rules of market competition, when the state, in performance of its social and economic policy, co-funds specific sectors of the economy. However, it is difficult to reject such measures if they have been carried out lawfully, with full respect for long-term economic calculation and without destabilising national economic operators' manufacturing and service market. Tax incentives reduce the marginal cost of entrepreneurs' innovative activities, while giving them a leeway in choosing a project and retaining the status of a general (horizontal) instrument which is available to all economic operators meeting relevant legal conditions.

In tax models, two characteristic forms of the tax system's participation in taxpayers' economic activities can be indicated (Table 2.4):

1) **direct participation** through a system of tax credits and exemptions available to any economic operator meeting the conditions to benefit from them. Tax system promotes broadly defined economic activities that taxpayers are free to choose from and to define their final shape at their discretion;
2) **indirect participation** by guaranteeing to the state the funding for taxpayers' specifically defined innovative activities through a system of subsidies and public programmes that reduce social inequalities.

Therefore, the choice of the solution will be determined by specific social and economic need. For non-market instruments, there is a higher risk of state interference with market choices being discriminatory or not justified by the economic calculation of economic operators. Tax preferences are part of a state's overall tax system, and they have more extensive economic impact than state co-funding. The essence of tax stimuli is

TABLE 2.4. Market and non-market instruments of direct and indirect tax policy support

Nature of support:	Direct	Indirect
Fiscal tools:	• subsidies • co-funding	• tax credits • preferential rates
Nature of the instrument:	non-market—elaborate procedure	market—no elaborate procedure
Need:	political and social (dedicated activity)	economic
Risk:	• state interference with market choices may be unjustified by the economic calculation • state participation in the economic risk taken by private sector • alternative (often detrimental) actions by private entrepreneurs • funding public programmes that do not reduce social inequalities • excessive discrimination of social groups (change of actual beneficiaries)	state interference with the market choice may be discriminatory or unjustified by the economic calculation
Impact on tax system:	• fiscal function (it does not contribute to reduced budgetary receipts) • stimulating function (limited to specific economic operators and sectors)	• fiscal function (reduction in the amount of due tax) • stimulating function (tools are dedicated to all entrepreneurs meeting the conditions to benefit from tax preferences)

Source: own elaboration.

to provide a stable (though limited) support to a much greater number of economic operators. This makes them much more predictable instruments than subsidies, and enables them to shape the innovative growth and development of the national economy in a more extensive manner. It is worth noting that this is a continuous process due to different periods of impact of solutions used (Arnold et al., 2011).

Therefore the special focus is placed on proposing solutions such as tax credits, subjective and objective exemptions, deferred tax payments, tax reduction, various forms of reduction tax duties etc., which will encourage a certain social activity. The normative introduction of tax instruments does not in itself determine a stimulation of economic initiatives. The use of tax instruments which stimulate economic development shows a tendency for rational tax policy, which supports the SME sector and increases its share of GDP, as well as supports the overall economic development. This is manifested, among other things, by simplified tax regimes, and

preferences dedicated to the SME sector. The existing tax credits should be systemic in nature, without prejudice to the rules of competition, to make sure companies limit their risk, when they allocate their own capital. It is not easy to clearly demonstrate the effectiveness or decisive nature of fiscal tools (preferential rates and tax structures) in the process of economic decision-making (dedicated activity). Certainly, taxpayers' actions are guided by the amount of tax burden, taking account of nominal rates, while the effectiveness of specific tax instruments will be assessed in terms of the overall structure of a given tax, and interactions between respective taxes in the tax system in question in a broad macroeconomic dimension (Devereux et al., 2008; Leibrecht and Hochgatterer, 2012; Swank, 2016; Shin, 2019).

Tax incentive solutions most often used by states include[7]:

- tax credit (to be deducted from the tax amount);
- tax allowance (to be deducted from the basis of taxation);
- accelerated depreciation of company's respective assets, used in innovative work or in the SME sector, or immediate write-off;
- an exemption from or a reduction in taxation on wages, social security contribution rates for employees of key R&D departments to be paid by the employer;
- patent box—type of tax incentives for innovative companies, offering preferential taxation of revenues from the commercial use of R&D, if protected by intellectual property rights;
- simplified tax regimes for micro- and small entrepreneurs.

The attractiveness of a tax credit for entrepreneurs is determined by a number of factors, among which (Bauger, 2014):

- list of eligible tax-deductible expenses, taking special account of wages of the employees directly involved in innovative activities;
- basis for deductions on account of being engaged in economic activity;
- length of the period of allowable deductions;
- nature of the refund: the limits involved; whether it is also a cash refund;
- ability to offset a tax loss;
- tax credits for the SME sector due to a greater difficulty in raising capital for high-risk innovative projects.

[7] *Science, technology and industry scoreboard 2011. Innovation and growth in knowledge economies*, OECD (2011) Publishing, Paris.

Irrespective of the adopted criteria for systemic analysis or of respective tax solutions, each tax system should be evaluated in terms of its impact on the economy, public finance stability, stimulation of the economic growth, stability of employment and of the wage system as well as on the competitiveness of the economy and a potential for development (*Tax reforms in EU…*, 2015). Based on the analysis of regulations undertaken by OECD members[8], the following directions of tax policy can be indicated, including tax reforms, having a positive impact on the economic growth:

1) Limiting the tax wedge related to taxation on wages as well as measures oriented to reducing tax barriers, especially for low-income taxpayers and households with children. This involves lowering income tax rates and increasing both the tax base thresholds from which tax liability is charged and the amounts of tax credits; and increasing the income tax progression while maintaining high social security contribution rates in countries at a higher level of economic development, e.g. Denmark, the Netherlands, the United Kingdom, the United States. The amount of tax on wages and of the social security contribution determine decisions of employees (supply of labour) and employers (demand for work), the supply of labour among low-skilled employees and people with no work experience being especially sensitive in this respect (Meghir and Phillips, 2011). A reduction of taxes on wages may be a tax tool that promotes an increase in employment rate, but it is of importance whether a given country has the fiscal space that allows reducing taxes on wages without compensating the loss of revenue to the budget.
2) Increasing tax dividends and other personal capital gains.
3) Introducing solutions that protect CIT receipts by limiting tax avoidance (e.g. transfer pricing between related parties) by multinational companies as part of BEPS; reducing tax rates.
4) A growing tax competition with new tax credits introduced or the existing ones extended, especially with respect to R&D and IP (intellectual property).

[8] A questionnaire developed by OECD identified the following criteria of whether a tax reform is substantial: (1) a significant change in a tax rate; (2) a change in the tax base that is expected to change revenue from that base by more than 5% or 0.1% of GDP; (3) a politically important systemic change. (*Tax Policy Reforms…*, 2016; 2017).

5) Putting an end to the process of increasing standard VAT rates, which was deemed a systemic best practice only for crisis times, and reducing standard VAT rates.
6) Minor changes in real estate taxes.
7) Tax increases as an example of triggering changes in consumer habits, e.g. increasing excise tax for tobacco products, proposals of taxing sodas as a way to combat obesity and the society's bad nutrition habits.
8) Environmental taxes that reduce economic activities having a detrimental impact on climate, environment and health (however, taking account of the capacity of respective economies, companies or households for compliance with low-emission requirements).

Tax system reforms were linked to efforts to ensure that tax receipts are commensurate with the economy's condition (Mutti and Grubert, 2007; Hardeck and Wittenstein, 2018) (tightening of the system). They took account of economic operators' investment activities and R&D tax credits, and made the tax system inclusive (limiting the tax wedge and reducing tax barriers—progressive taxation being a key element). This way a large number of OECD economies implemented tax regulations that enable economic operators to reduce the overall tax burden. For example, higher investment by innovative companies helped reduce the basis of taxation by a higher amount of eligible R&D expenses.

2.4.1. Personal income tax

In tax policy, personal income tax with attendant social security contributions should be seen as one at the greatest risk of unobjective effect of conflicting concepts: reducing social exclusion and increasing prosperity. It is an individual tax theoretically adapted to the taxpayer's ability to pay, charged on specific sources of income, with a catalogue of deductible tax credits. When analysing the structure of this tax, one can observe the following common characteristics of tax models:

- the tax takes account of the taxpayer's entire income rather than its respective parts;
- it is often progressive in nature, but there are differences in the number of tax brackets and caps; a tax allowance is applicable or a zero rate up to a statutory limit of income generated by a taxpayer for a given tax year, which takes account of taxpayer's subsistence level;

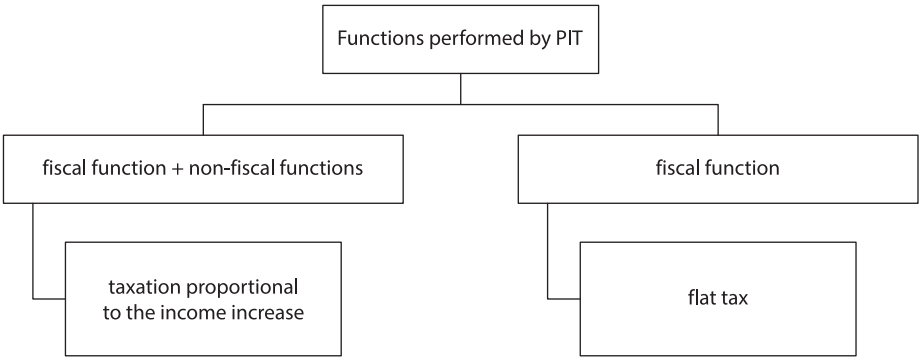
- tax burdens take account of the taxpayer's ability to pay, with a system of tax credits and exemptions;
- tax systems shape preferences as to the income generation method by defining income deductible cost and how it can be expended (e.g. investment premiums);
- taxation is applicable to:
  a) income from employment (paid employment),
  b) income from pensions,
  c) income from business and professional services (self-employment),
  d) income from property, rent and lease,
  e) investment income;
- when determining the amount of due tax, the following may be of importance, depending on the specificity of a given tax system model: number of children, taxpayer's age, innovative job (being linked to the system of tax credits and deductions, these characteristics have an impact on the size of the tax wedge).

A high income tax rate and high social security contributions of low-income employees may lead to a lower employment rate, lack of incentive to engage in a professional activity and an increase in attitudes condoning the abuse of welfare benefits instead of working (Bewer at al., 2010). It cannot be clearly concluded which form of taxation is more socially transparent: flat taxation (the same tax rate being applicable irrespective of the income generated) or progressive taxation (the higher the income, the higher the tax rate). However, it seems logical to maintain two types of direct taxation, both flat and progressive, if it does not distort tax receipts and decreases the shadow economy. A particular duality of forms of taxation should be used and maintained in countries which lack sufficient capital accumulation and where income from employment, and social transfers represent the main and, in a great majority of cases, the only disposable income in households.

Regardless of the adopted model of personal income taxation, the taxable object and the source of tax, from the economic perspective, is the income generated. Contemporarily, systemic income tax solutions relate to two structures (Fig. 2.13):

1) flat tax,
2) a tax with tax rates proportional to the increase in income (in theory, proportional tax can be progressive or degressive; in practice, in direct taxes we are dealing mostly with progressive rates).

FIGURE 2.13. PIT - function depending on the type of taxation



Source: own elaboration.

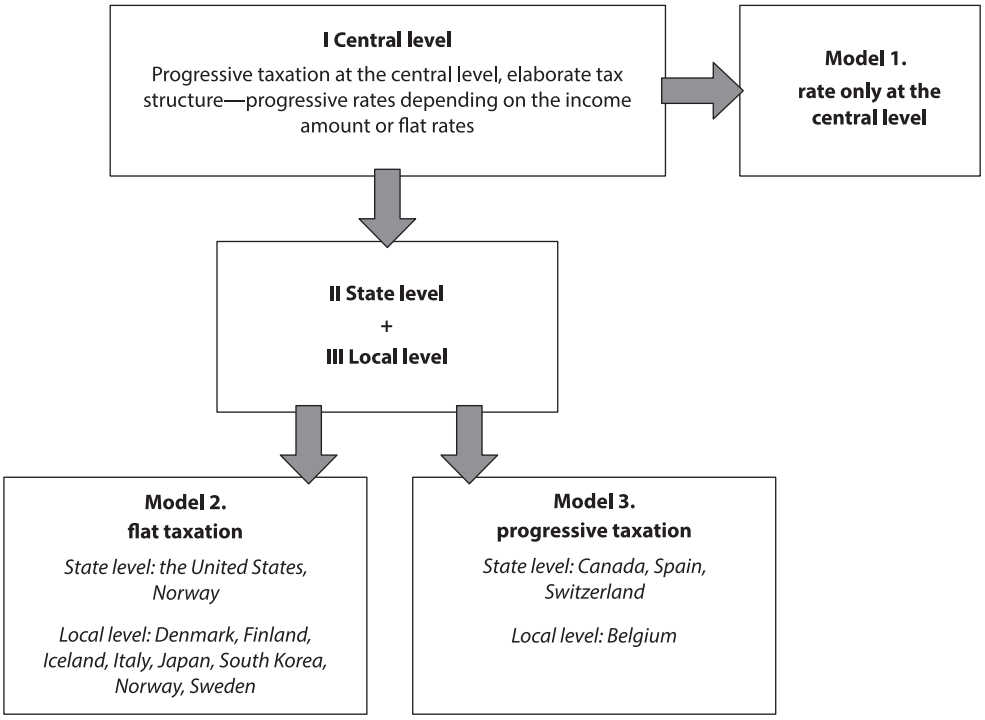
The function of flat tax, characterised by having, most often, only one tax rate, is to fulfil a given state's purely financial needs, fitting squarely into the principle of tax neutrality. The advantages are transparency and simplicity of tax principles, and the disadvantage, lack of consideration for taxpayers' ability to pay. Flat tax can be found in most CEE countries, for example in Bulgaria, Estonia, Lithuania, Romania, Ukraine and Hungary. In Poland, flat tax is applied only by a specific group of self-employed entrepreneurs, and by partners in partnerships who are liable to PIT. Until 2018, flat rate was also in use in Latvia, which then decided to introduce a progressive tax rate (Barrios et al., 2019).

Elaborate tax structures (progression, degression) require setting income brackets and a system of incentives to engage in activities that are desirable due to the social and economic purposes they serve. The drawback of this solution is a complex system of tax credits and exemptions applicable for determining the basis of taxation and calculating the tax payable.

In some systems, personal income tax consists of the following: progressive central tax (which goes to the national budget) and a flat or progressive tax which goes to the state, county, commune budget. Based on the systemic solutions applied by a given jurisdiction, the three most commonly used solutions can be distinguished (progressive and flat) which govern the division of power of taxation among respective administrative structures (Fig. 2.14).

The least complicated solution is **model 1**, where personal income tax is charged only based on a progressive or flat rate set at the central level,

FIGURE 2.14. Schemes of taxation of personal income due to tax ruling



Source: own elaboration.

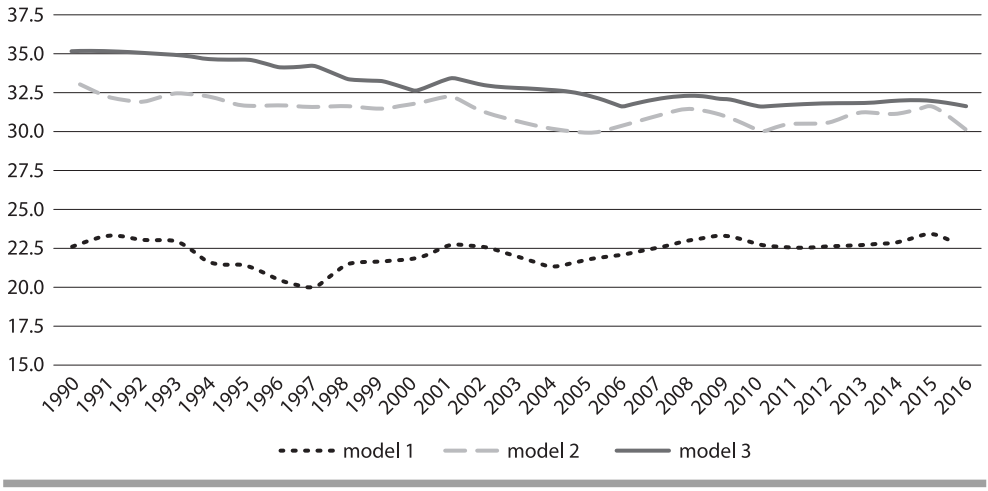
used in many countries such as Austria, Czech Republic, Germany, the Netherlands, Singapore, the United Kingdom or the aforementioned CEE countries. In **model 2** (progressive-flat), a decentralisation of public finance can be observed when it comes to personal income taxation. The role of tax policy is to coordinate activities performed by respective local administrations, and tax imposition is among shared competencies of the federation, states or local administrative bodies. PIT consists of two parts: progressive central tax (which goes to the national budget) and flat local tax (commune, state budget), e.g. in the USA, Denmark, Finland, Iceland, Italy, Japan, South Korea, Norway, Sweden. The consequence of such a solution is the ability to deduct the tax allowance from the progressive part of the tax.

In **model 3** (progressive-progressive), the flat part of tax (which can be found in model 2) is replaced, at the state or local level, with progressive taxation. Such a solution is used, for example, by Canada, Belgium, Spain

and Switzerland. In the Swiss model, the progressivity of taxation exists on three levels: federal (central) and two local ones (cantonal and communal). At the federal and cantonal level, taxpayers declare their taxable income upon deducting, at each level, the statutory income deductible cost. Tax burdens applied to taxpayers' income depend on a canton-specific progressive tax rate, and on the federal direct tax which is applicable to all taxpayers irrespective of the canton (*Federal, Cantonal…*, 2016).

Based on the analysis of the share of personal income tax in the tax structure of the aforementioned countries in the period between 1990 and 2016 (Fig. 2.15), model 1 generates a lower share of PIT in the structure of tax receipts compared to model 2 and 3; the two models are more complex when it comes to creating the tax base basis and tax rate alike, and their share of taxes in the total tax structure is much higher.

FIGURE 2.15. Average share of PIT in the structure of tax receipts in the models used: 1, 2, 3 (in %)



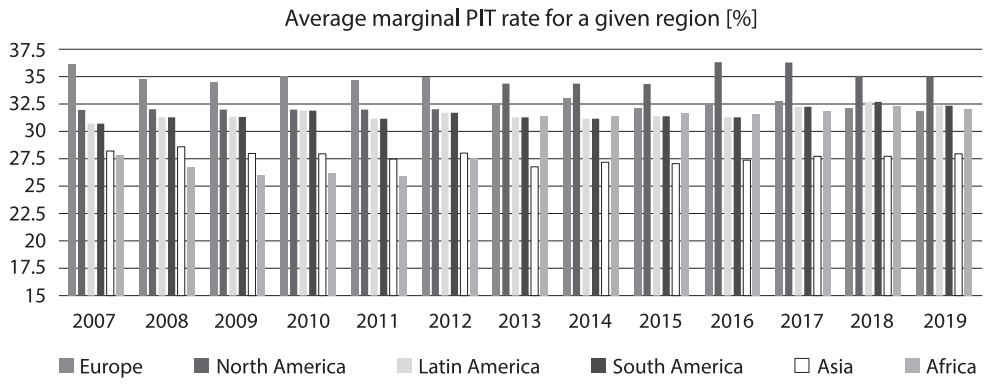
Source: own calculation based on OECD, International Monetary Fund data.

Governments' attention focuses on the personal income tax, because, together with social security contributions, it is one of the basic sources of tax revenue for developed economies. Post-crisis 2008+, PIT reforms can be systematised as follows:

1) Adjustments of income brackets assigned to respective tax rates (e.g. the Netherlands, Germany, the United Kingdom, Denmark, Finland, Sweden, the United States, Switzerland and many other countries).

2) Increasing the progressivity of taxation; however, where social security contributions are included, the capacity for progression is much lower than for PIT alone. Though tax systems are often characterised by progressive rate structures, social security contributions have quite a flat structure in many countries—without cash allowance or with a very low tax credit, and often with an income cap, above which SSC are not applicable or a decreased rate applies (Gerber et al., 2018).
3) Change in the percentage of respective income brackets. Not all systems opted for lowering PIT rates as a solution to limit the consequences of the crisis of 2008+, and after 2010 the trend towards reducing the rates visibly decreased, and even partly reversed (Fig. 2.16).

FIGURE 2.16. Changes in the marginal PIT rate between 2007 and 2019



Source: own calculation.

Depending on its place in the state's social and economic policy, the functions assigned to it and the instruments used to influence behaviour, tax policy may both promote reduction of social inequalities and support the institution of marriage treated as one economic body. This translates into the right of spouses to have their respective incomes from previous tax years jointly taxed and to pay the public levy due on their joint income (Table 2.5).

When comparing the level of PIT burden, one can observe that a major role is played by the taxpayer's ability to pay, a monetary equivalent of the

TABLE 2.5. Solutions related to subsistence level and treating married couples as one economic body in 2018–2019

Tax solutions to support family and social equity			
Limiting social inequalities		Family-friendly tax settlement	
0% rate	Tax allowance	Joint taxation of spouses	Children—deductions, benefits
Examples of countries:			
Finland, France, Switzerland, Singapore, Sweden, the Dominican Republic	Denmark, the United States, the United Kingdom, Egypt, Germany	France, Germany, Singapore, the United States, Italy, Switzerland, the Philippines, Puerto Rico	Argentina, Chile, Germany, China, Poland, France

Source: own elaboration.

so called minimum subsistence basket. Consumption below that level leads to a threat to life, indicating the extreme poverty line. In tax models, two most common solutions are used interchangeably:

1) option to deduct a specific amount as a tax allowance in a given year or to use a tax credit that directly decreases the basis of taxation, or
2) a specific annual income bracket subject to zero rate.

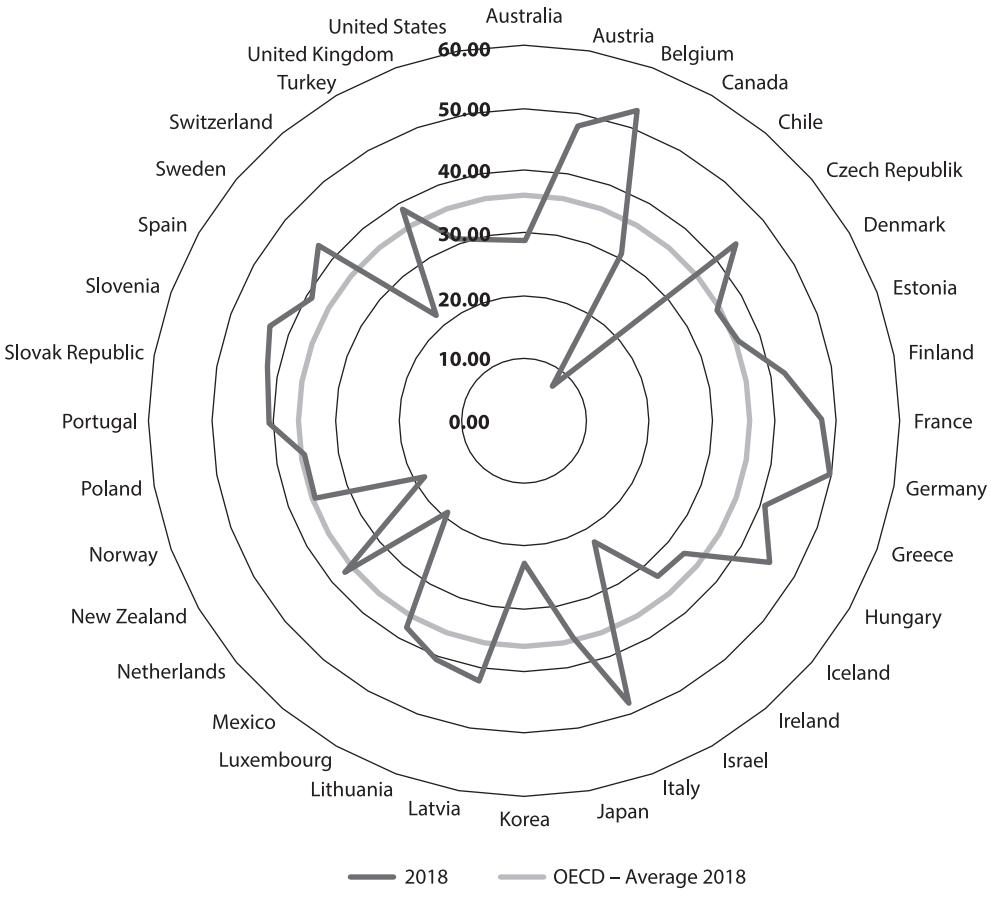
In progressive tax models PIT payers are eligible to deduct from their income some expenses specifically listed in relevant regulations, in their actual amount or at a flat rate[9]. Meanwhile, from their tax they can deduct tax credits divided into two basic categories:

a) non-refundable—deductible only up to the amount of income tax due;
b) refundable—if the amount exceeds the value of the income tax due, the taxpayer will receive a refund of the remaining part of the cost sustained.

As a result of those deductions, the real amount of tax paid is lower than it would be according to nominal rates, but, nevertheless, the tax wedge remains quite high, e.g. in Belgium or Germany: for a single taxpayer with no dependent children it stands at ca. 50% (Fig. 2.17). The scale of difference between the amount of gross income and net disposable income is visible on an annual basis, when taxpayers declare how much they earned in the previous tax year (what the basis of taxation is), how much tax has already been deducted and how much remains to be paid.

[9] These include some health care expenses, donations to specific charity organisations, state and local income and property taxes paid.

FIGURE 2.17. Tax wedge in 2018 for an individually filing person without children earning the national average (OECD countries)



Source: own elaboration based on Taxing Wages OECD database.

2.4.2. Corporate income taxes

Corporate income taxation is deemed to be the most potentially harmful to economic growth and development, because improperly structured tax instruments may discourage capital investment and limit foreign investment (Hajkova et al., 2006) and productivity, and even encourage respective countries to create solutions consisting in unfair tax competition.

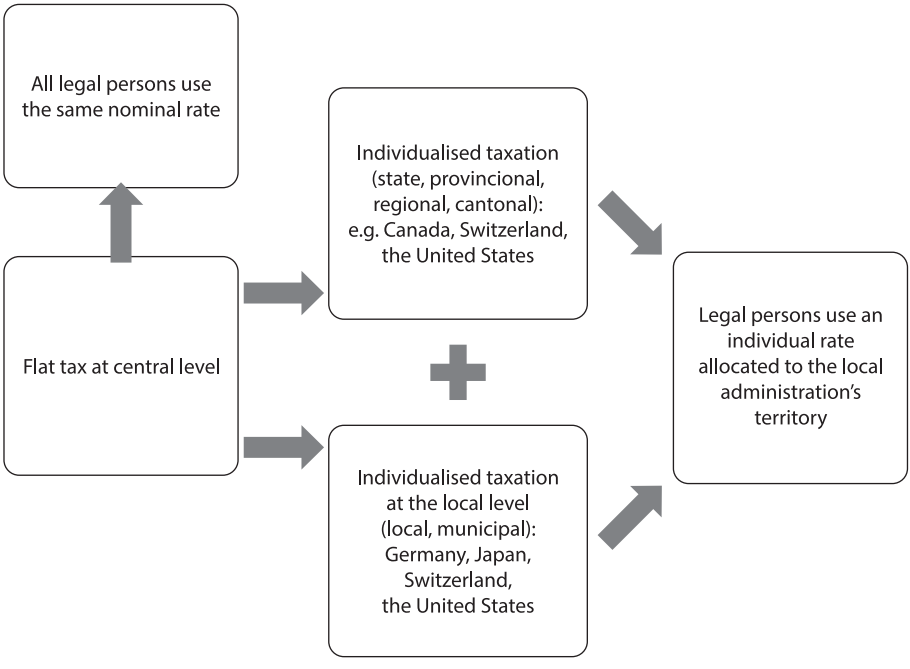
In terms of types of public entities to which incorporated entities are liable to pay tax, the basic division is into systems where:

⇒ CIT is collected at the national level (e.g. Denmark, Finland, the Netherlands, Singapore, Sweden),

⇒ in addition to the national (central) level, CIT is collected at the local level (e.g. Germany, the United States, Switzerland, Canada, Japan). By way of example, the characteristically elaborate Swiss tax structure is much individualised, with tax rates varying greatly across local administrations; the total effective tax burden, consisting of federal, cantonal and communal taxation, stands at ca. 12 to 24%, depending on the canton and commune where the taxable person is registered. In Canada, federal taxation is reduced by the part of taxable income generated in the province; both federal government and province authorities may apply lower rates for SMEs.

Where the tax competence lies as regards setting CIT rates (Fig. 2.18) can be a factor driving respective systems' preference either for the flat rate (national tax) or, if the tax rate is co-created by local administration, for a structure combining flat taxation (central level) with an individualised rate (local level). Such an approach results in taxation differences across local administrative entities (e.g. Switzerland, the United States).

FIGURE 2.18. CIT rate structure in market economies

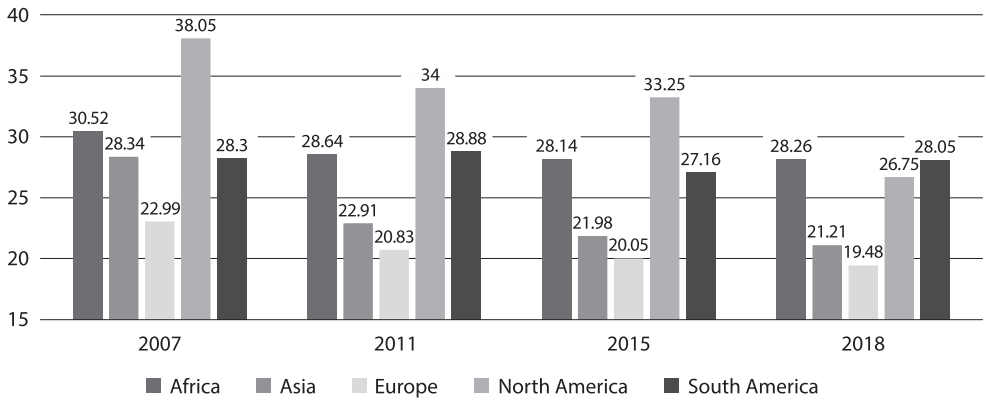


Source: own elaboration.

The amount of CIT receipts depends on several factors, two of them being tax rate and scope of taxation. The common feature of all systemic solutions used is a tax structure that defines income as sources of revenue less: (a) costs incurred, as a rule, to generate income from economic activity, and (b) allowed tax deductions; a major role is played, for example by the structure of revenues and the attendant flexible catalogue of deductible costs, the amount of depreciation write-offs and the possibility to offset losses carried forward.

Due to the growing international competition intended, among other things, to attract foreign investment, to increase the activity of domestic economic operators, and to remedy the crisis of 2008+, in many countries, especially in Europe and North America, characterised by high level of economic development, a decision was made to lower the nominal CIT rates (Fig. 2.19).

FIGURE 2.19. Global changes in nominal CIT rates between 2007 and 2018



Source: own elaboration based on IMF data.

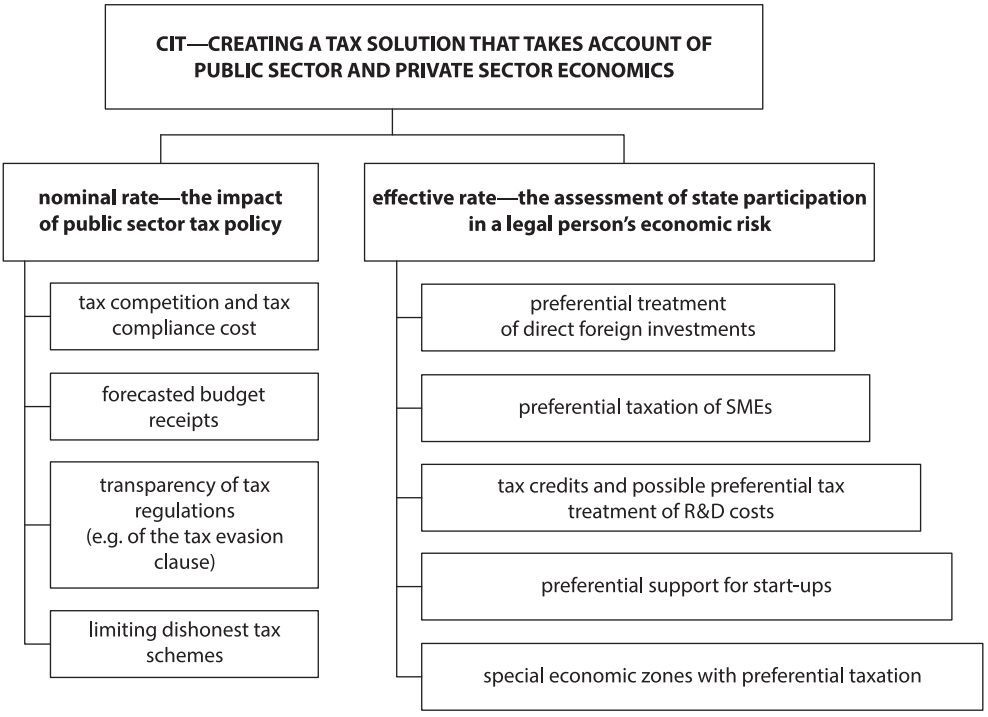
The decisions taken with respect to tax rates should be considered taking account of the dichotomy between public sector economics and private sector economics. The tax rate amount is the key tool for the public sector fiscal policy, which, in addition to the achievement of specific social and economic goals, also factors in the response to tax competition between respective tax regimes. This is due to the global liberalisation of capital flows and to the reduction of transaction costs, as well as to efforts to combat profit shifting to the so called tax havens. Various types

of preferences, tax credits measured as a difference between the nominal and effective rate on the side of the public sector economics represent the way the sector participates in minimising the economic risks of private economic operators to an acceptable level that does not jeopardise the security of public finance. On the private sector side, the options to reduce prime costs, taking account of profit margin, are limited. In addition to the competition on local markets, companies must face a strong expansion as well as financial and technological capabilities of international competitors. Hence, a company's ultimate success does not only depend on the price elasticity of demand and supply but also on the entry-level tax rate (Krugman and Wells, 2013). A low level of price elasticity of demand and supply, coupled with high taxes, limits the sales of goods and services, thus invalidating the state's tax policy concept, including lower tax receipts. This is a negative incentive for entrepreneurs, which encourages them to look for another tax regime with a better investment climate (Evers et al., 2015). A low taxation level helps entrepreneurs generate higher profits but strips the state of a major budget inflow (other significant variables in this respect are the number of registered taxpayers and their earning capacity). Therefore, to evaluate the solutions offered by the tax regime it becomes necessary to distinguish between a nominal (statutory) tax rate and an effective tax rate, i.e. the rate at which the tax was actually paid[10]. Differences between those two aspects (Fig. 2.20) mainly result from taxpayers' ability to apply the tax credits and deductions offered, the scale of unfair tax schemes and the efficiency of the instruments implemented to limit unfair practices.

Some countries apply preferential CIT rates to SMEs (e.g. China, the United States, Canada, the Netherlands, Poland, Australia, Belgium) or preferential rates, incentives and tax holidays for new companies (e.g. China, Singapore, Australia, Belgium, Canada, Hungary, India, Ireland and other countries); others diversify CIT rates according to geography (usually they are lowest in the least developed areas—special economic zones, e.g. China, South Africa, Poland) or sector (e.g. higher rates for the financial sector, e.g. Norway, or for mining, e.g. Guinea, Australia, or deduction for using renewable energy sources, e.g. South Africa, Sri Lanka). Another important trend in many tax systems is to support R&D or foreign direct investment

[10] To evaluate the investment attractiveness of a tax system, a measure has been proposed, which is equal to the weighted average of the effective marginal tax rate and the adjusted statutory tax rate, with weights depending on the investment profitability, (Devereux and Griffith, 2003).

FIGURE 2.20. Dichotomy between public sector economics and private sector economics in the creation of a CIT solution



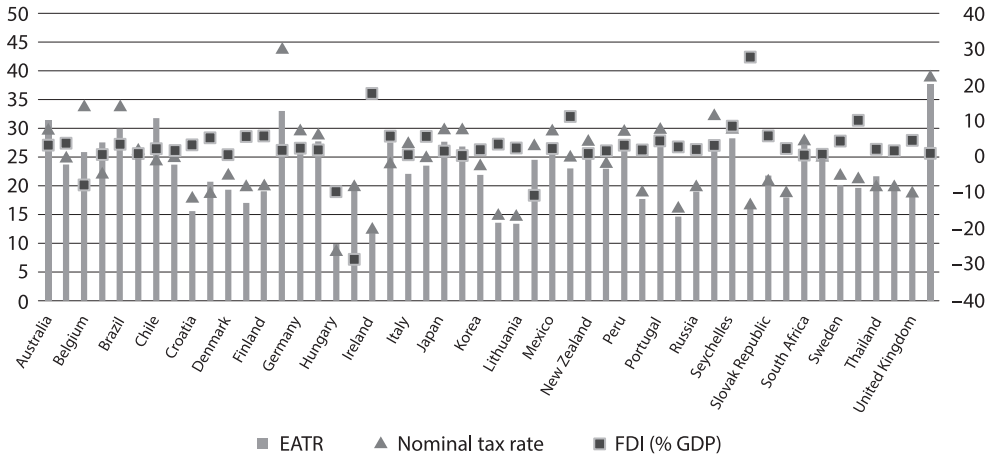
Source: own elaboration.

(FDI) considered among the most important tools for fostering the country's economic development, employment rate and transfer of new technologies (Fig. 2.21).

When comparing the level of investment by economic operators liable to CIT with the effective average tax rate (EATR), the best results among tax regimes presented in the above diagram were achieved by the Netherlands and Singapore, while France, Hungary and Iceland fared the worst. Peter Egger and Horst Raff (2015), when analysing tax rates and basis of taxation, observed that countries respond to tax reductions in the economies they compete with, reducing their statutory tax rates and increasing depreciation write-offs. This is how they shape the average effective tax rate[11] in a way to attract international capital with a low effective marginal tax rate.

[11] To evaluate the investment attractiveness of a tax system, a measure has been proposed, which is equal to the weighted average of the effective marginal tax rate and the adjusted statutory tax rate, with weights depending on the investment profitability (Devereux and Griffith, 2003).

FIGURE 2.21. Nominal and effective CIT rates and FDI level in 2017 in selected countries (in %)



Source: own elaboration based on OECD and World Bank database.

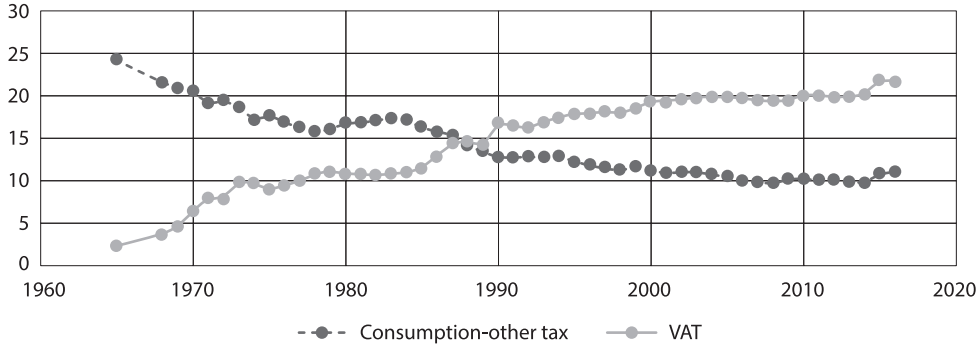
2.4.3. The role and importance of consumption taxes

The importance of consumption taxes in absolute terms relates to the amount of levies in a given tax year: this amount demonstrates their efficiency as a current source of budget revenue. Depending on the classification criterion adopted, they can be considered as: consumption taxes (criterion of object), national taxes (income divided between central and local administration) and indirect taxes. Aspects that are important from the economy's perspective include: a standard rate applied, as a rule, to the broadly-defined consumption of goods and services, with minimum reduced rates; ability to tax imports, tax exemption for exports; and no negative impact on domestic manufacturers of internationally traded goods (James, 2011; Arnold et al., 2011). What matters most as regards tax policy is fiscal performance of those taxes and their very fast collection: characteristics that account for their strong correlation with the business cycle. A tax included in the price of goods or services should not be noticeable to taxpayers, which is why an increase in tax rates for goods and services meets with resistance from the public at the time of their introduction, while higher prices gain social acceptance over time. Based on the OECD classification (*Consumption Tax*…, 2016), consumption taxes (on production, sale, leasing and delivery of goods, rendering of services) are divided into two categories: general consumption taxes (VAT, sales taxes) and taxes on the consumption of specific goods (excise taxes, customs duties). What is

important in both cases is their impact on the price, with the change of rate leading to changes in the market demand structure and in the social structure of taxpayer income. Consumption taxes are a very significant item of each country's budget revenue structure. A key difference between VAT and the excise tax lies in a different concept of tax burden. In principle, VAT is paid by consumers, and excise tax, by manufacturers. Value-added tax, or actually a tax on an increasingly long list of goods and services, is charged at each stage of production and distribution, along with the right to deduct it at subsequent stages until the sale to the final consumer (economic tax burden). Turnover taxes represent the state's specific share in the price of a good/service purchased. This is why excise tax is a tax imposed deliberately on specific, most frequently luxurious, products.

The dynamic of change in two categories of consumption taxes in OECD countries (Fig. 2.22) reveals an increasing importance of VAT compared to other forms of consumption taxation.

FIGURE 2.22. Share of consumption taxation in the tax revenue as per OECD categories between 1965 and 2016 (in %)



Source: own elaboration based on OECD data.

The literature emphasises the regressive nature of consumption taxes (Lockwood and Taubinsky, 2017) with reference to the global debate on the taxation of sodas and other unhealthy stimulants. The regressivity of consumption taxation which, unlike direct taxation, is not individualised in nature, puts a heavier burden on the poorest taxpayer groups, mostly large low-income families (Gaudemet and Molinier, 2000). The lack of reverse progressivity contributes to income stratification because poorer social groups are most affected by it: as they consume essential items, they

have no way of limiting their consumption when the price rises due to taxation. These groups usually demonstrate a low propensity to saving as they earmark a substantial part of their income to consumption. This is also partly due to the fact that tax neutrality of consumption taxes requires that taxpayers performing the same or similar economic activities should not be treated differently[12].

The neutrality of consumption taxes is not based on tax exemptions, which is the domain of direct taxes, but on granting taxpayers the right to deduct the input tax on the purchase of a given good/service that will be used to perform a taxable activity.

VAT will be, as a rule, charged and collected by the economic operator selling its goods/services (sales), and then paid to the national budget upon deducting the amount of tax paid (purchase) earlier to its providers. The introduction of VAT into current tax systems followed two basic directions. First, in 1960s and 70s the tax was introduced in Western European countries by adopting EEC directives[13]. Once EEC was transformed into the European Union, to limit the differences in VAT allocation across jurisdictions, and to ensure neutrality in trade between EU Member States (so called VAT harmonisation), the most important act was Directive 2006/112/EC (commonly referred to as the VAT Directive) passed in 2006 and enacted on 1 January 2007. The directive holds the following to be the fundamental principles of the common EU VAT system:

1) universality of taxation,
2) preserving the conditions of competition,
3) actual consumption taxation,
4) avoidance of double taxation,
5) VAT neutrality for taxpayers understood as applying the value-added tax at all stages of the supply chain, with the right to deduct tax charged at an earlier stage of supply chain.

[12] For example CJEU case law with respect to the principle of neutrality holds that similar supplies of services which can be deemed to be in competition with each other may not be treated differently for direct taxation purposes (e.g. VAT). Judgement of CJEU of 27 April 2006 in joint cases C443/04 and C444/04, H.A. Sollenveld and J.E. van den Hout van Eijnsbergen v Staatssecretaris van Financien, EU:C:2006:257.

[13] First Council Directive (67/227/EEC) and Second Council Directive (67/228/EEC) of April 11, 1967. The Sixth Council Directive was the main document on harmonisation: Directive 77/388/EEC of May 17, 1977 — the recast of this directive is the main operative directive on the EU VAT—VAT Directive 2006/112/EC of November 28, 2006.

The VAT directive introduced an obligation to apply at least a minimum standard VAT rate of 15%, initially until the end of December 2010, but this minimum rate was extended for subsequent years. In addition to a standard rate, the Directive also specified the reduced rate and its quantitative limit. The second direction involved introducing the tax to tax systems of countries that were not members of CEE/EU, for example in Australia, Canada, Japan, Switzerland (1980s). This started the expansion of this form of taxation in tax system models of developing and transition economies, also in Asia and Africa.

Taking account of both directions of incorporating the tax into tax systems, one could say that three major VAT models have evolved:

- EU model (tax rate plus reduced rates),
- New Zealand model (with only standard rate without reduced rates),
- Japanese model (where the tax introduced in 1989 originally stood at merely 3%, going up to 5% in 1997 due to public finance deficit; the standard tax was raised by 1 percentage point and so was the regional tax, and then raised to 8% (7% + 1%) in 2014, going up to 10% in late 2019).

However, out of the three, countries most commonly apply the EU model, where the taxable object, as a rule is: (1) the supply of goods for consideration, (2) the supply of services for consideration within the territory of a given country, (3) exportation of goods, (4) importation of goods into the country's territory, (5) intra-Community acquisition of goods for consideration (ICA) and (6) intra-Community supply of goods (ICS). The basis of taxation is the turnover (sales receivable less the amount of tax charged earlier). The tax is characterised by the principle of neutrality, i.e. the taxation is set in a way not to interfere with the market position of competing companies. In the international context, this principle means that the right to tax sales rests with the tax jurisdiction where the final consumption takes place (the principle of the country of destination). The value-added tax was popularised in tax system models by the idea of a common Europe and of measures aimed to establish and set in motion the EU internal market characterised by free movement of goods, services, persons and capital, and the need to harmonise legislations. It is a tax where a major difference exists between revenue from receivables and the amount of tax actually paid (the so called VAT gap). In the European Union, one of the political consequences of the introduction of the common tax policy

on consumption taxes is tax fraud involving so called "carousel" transactions. These combine criminal evasion of VAT and illegitimate claims for VAT refund, which can be high, with relatively small financial outlays. Most crimes are related to the principle of zero VAT taxation on intra-Community transactions, in effect since 1994, in accordance with the EU principle of free movement of goods and services. Budgets sustain the greatest losses as a result of VAT evasion in ICA and of goods being sold by vanishing taxpayers and a VAT refund being illegitimately claimed in connection with an ICS that never took place.

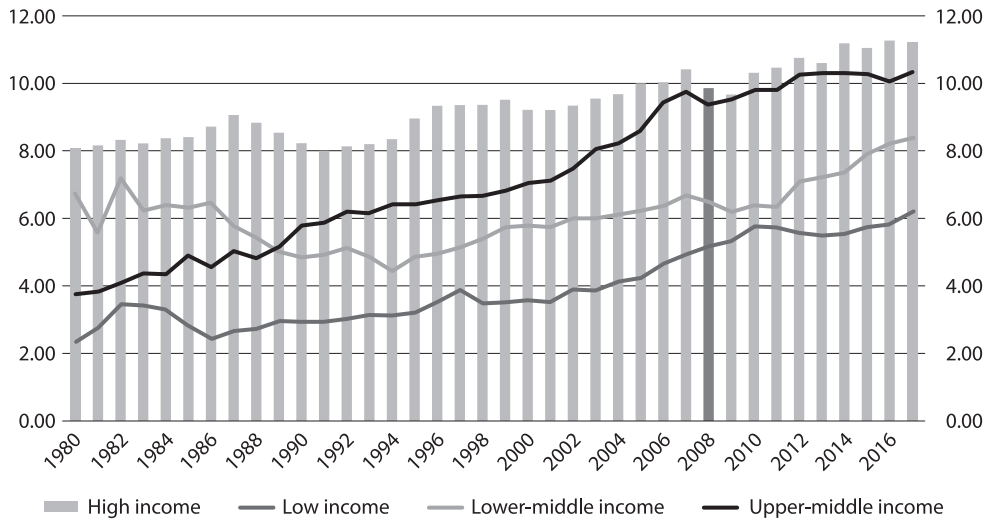
Excise tax is a selective tax on sales or on the use of specific goods and services (Hines, 2007), its specific purpose being to tax goods the consumption of which the state or the society wishes to limit. Excise tax is characterised by fiscal performance, ease of collection and it is included (hidden) in the increased price of goods. Like VAT, it is among taxes that are harmonised under the EU law, meaning that directives lay down a certain model that needs to be implemented in respective Member States' tax systems. In practice, the directive unifies the rules of collection with respect to three product groups (energy and electricity products, alcohol and alcoholic beverages, tobacco products), leaving Member States the option to impose excise tax on other products subject to their compliance with fundamental freedoms of the free market (especially free movement of goods) and to eliminating additional formalities connected with the crossing of Member State frontiers (Council Directive 2008/118/CE). For example, in Finland, excise tax was charged mostly to increase the national budget revenue and to deal with environmental and health issues[14], which is consistent with the commonly observed trend. Excise taxes can be used in the combat against climate change (carbon dioxide tax, tax on packaging which contributes to a greater interest in recycling, or tax on waste) (Wiliams, 2016). In Singapore, customs and excise duties were introduced for alcoholic products, tobacco products, fuel and motor vehicles. In Switzerland, various excise taxes are charged at the federal level: tax on crude oil, road tax, tax on alcohol and tobacco products. In the United States, there are two different types of consumption tax in use: sales tax and excise tax. Sales tax is a state or local indirect tax. The taxable object is retail sales of goods and services, with rates set individually by each state. Excise tax has a different scope and is imposed at all administrative levels. In addition

[14] Finland's Ministry of Finance website: http://vm.fi/en/valueaddedtax (retrieved: 2.05.2018).

to the excise tax applicable pursuant to federal laws, all states individually impose their own excise taxes, which flow into state budgets (hence the differences between the solutions used at the state level and the varying excise tax rates). A comparison between respective excise tax solutions across economies encounters major difficulties as tax systems use different measures to assess the basis of taxation, its final result being shaped by the interplay of the tax structure, rates and economic ties.

When looking at the dynamic of change in consumption taxes as a share of GDP (Fig. 2.23) between 1980 and 2016, one can notice a stable taxation growth in the highest-income economies, a strong increase in the importance of consumption in mid-income economies and also a substantial increase in the share of this taxation in low-income economies. Major changes are visible in the aftermath of the crisis of 2008+.

FIGURE 2.23. The dynamic of change in consumption taxes (VAT, sales taxes) in low-income economies compared to the most developed economies between 1980 and 2016 in relation to GDP



Source: own elaboration based on IMF data; https://ourworldindata.org/taxation.

2.4.4. The role of property taxes

Taxation on property is the most non-uniform and inconsistent part of tax system when it comes to the variety of structural forms. It involves a surprisingly complex interdependence between many types of taxable

objects, with equally numerous taxing entities operating within local and central administration structures. One can hardly talk of a conventionally preferred shape of uniform rate applicable to all taxable persons. Nevertheless, this is considered good taxation—one that is neutral to the economic development (Slack and Bird, 2014). However, there are calls for increasing its share of tax revenue (Arnold et al., 2011), taking account of lower ability to bear the costs of property taxes in retirement age. Practice shows that property tax reforms are difficult to carry out. The concept of its neutral impact on the economy remains to be verified, for example as regards the taxation on transactions related to the sale/ inheritance of real estates (Arnold et al., 2011). If we acknowledge that the last financial crisis was triggered by the crisis on the US mortgage market, then it would seem economically reasonable to introduce tax tools that will shift the demand from the residential building sector to investments with a higher rate of return. For example, real estate taxes (especially on residential real estates—recurrent taxes on immovable property), deemed positive for the economic development, are characterised by various tax preferences for owner-occupied apartments (e.g. ability to deduct the mortgage interest rate or exemption from capital gain tax). This results in capital allocation on the residential real estate market which has a lower rate of return than other investments. Increasing the share of this tax group in the budget revenue may foster demand for investments with a higher rate of return. N. Stähler (2019), using the Keynesian DSGE model to analyse the residential rental market, demonstrated a positive impact of higher real estate taxation on the reduction of the tax wedge and on the economic development. The reduction in the tax wedge generates beneficial macroeconomic effects and improves international competitiveness, irrespective of the financing instrument used.

The forms of property tax existing in the contemporary tax system models are characterised by such diversity that it is difficult to pinpoint supranational patterns that would help define their main structural principles (*Tax Policy Reforms*, 2017) and draw comparisons. In contemporary tax systems property taxes play an ancillary role to income tax (in addition to the fiscal role, they also play various stimulating functions), attracting criticism as repeated taxation of the same value (property is acquired, as a rule, from income that has already been taxed). Unlike income taxes, property taxes do not come in a single homogeneous form, as they are charged on:

1) owning property (e.g. real estate tax, tax on means of transports)—taking the form of a personal tax on the taxpayer's entire estate and of taxes charged on respective assets,
2) increase in property (tax on inheritance and gifts),
3) property transactions (tax on civil law transactions).

In practice, property tax models and structures vary, and one of the most compared solutions is real estate taxation applicable to land, buildings and other assets owned by taxpayers (whether natural or legal persons). In solutions used by the national economies analysed, some common features of real estate taxes can be distinguished such as:

1) being often local in nature, which makes them one of the main sources of income for local administration budgets;
2) being object-based—they are based on the assessment of value or on certain characteristics of the taxable object;
3) tax preferences (the catalogues of tax exemptions and credits are being gradually limited) applicable to the following areas:
   a) objective—specific type of ownership, e.g. state-owned, communal real estates,
   b) subjective—related to how the real estate is used.

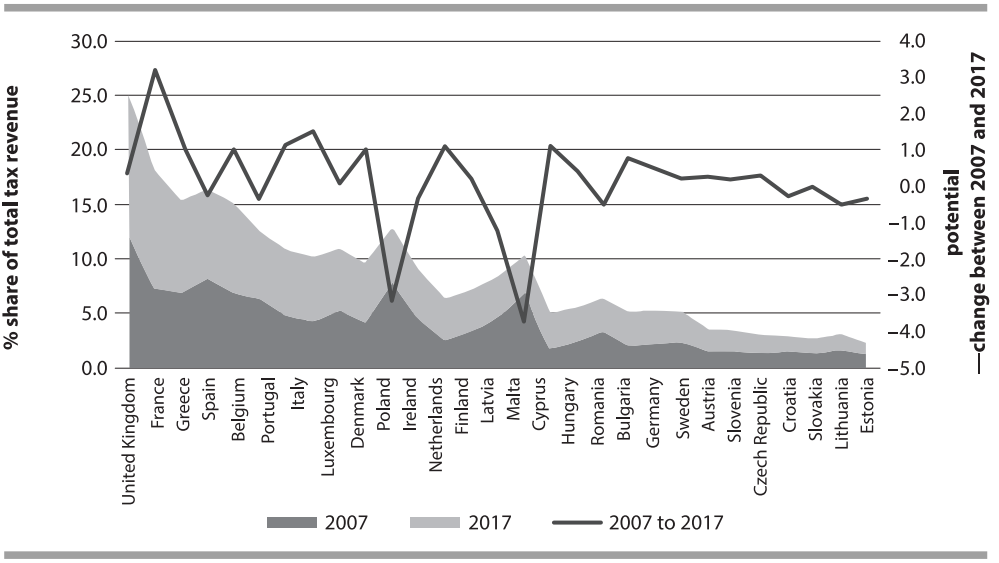
There are significant disparities as to the amount of tax levies, which render difficult the qualitative comparison of the solutions used, for example the cadastral system with ad valorem taxes or specific taxes (levied based on the area). Tax burdens in the economies where the tax is assessed ad valorem are definitely higher than in solutions with the taxation levied based on real estate area (Felis, 2012). Each country applies a specific form of real estate tax, which, in the great majority of cases, is managed by local governments or there are two types of real estate tax (e.g. communal and federal in Brazil).

Real estate taxes are usually levied in proportion (mostly at the rate of one percent or less) to the gross value of the real estate. Many countries, however, apply a number of exemptions or flat rates to specific characteristics of real properties or classify them to respective groups. They are an attractive source of income for local administration budgets. It is worth pointing out that local administrations have a specific remit of competence in the area of tax rate setting (the most common solution is the ability to set rates within the area which falls under the jurisdiction of a given local

administration). In practice tax rates are differentiated depending on the type, location and intended use of a given property, as well as according to local authorities' competence.

The fiscal significance of property taxes is reflected by the ratio of receipts from them to the overall tax receipts. Due to respective countries' local governments' substantial autonomy in setting tax levies, the importance of these taxes, apart from few exceptions, is minor so also the tax potential of local government is much lower than that of the central tax administration (Fig. 2.24). Only in a couple of countries has tax performance increased by ca. 1 p.p. A slight upward trend has been recorded in Belgium, Italy, Poland and Finland. Meanwhile, the highest positive trend is visible in France, where the basis of taxation is the cadastral income calculated by the administration for developed and undeveloped real estates and for occupants of residential premises. Except for Poland, these are countries that apply cadastral taxation, though there have been some anomalies observed also with respect to the assessment of the basis of taxation (in Cyprus, the basis of taxation was a real estate's market value calculated as of 1 January 1980). In area--based taxation system, tax performance does not exceed a 5 percent share of tax revenue.

FIGURE 2.24. Property taxes in 2007 and 2017 in the UE countries (in %)



Source: own elaboration based on Eurostat data.

When analysing the scale of respective countries' tax revenue adjustment for property tax after the crisis of 2008+, a substantial inequality can be observed. Real estate prices in Ireland fell by more than 50%, while there was only a minor adjustment in countries such as Belgium or Sweden. Meanwhile, the crisis of 2008+ upset the macroeconomic balance of many countries due to the unprecedentedly strong increase in demand for real estates, disproportionate price growth dynamic and the very liberal pre-crisis credit policy of the financial sector.

Conclusions

In an economic analysis of tax systems, it is important to notice that all the changes taking place point to a strong link between tax regulations and macroeconomic factors. Of priority importance for the economy's development is to stimulate investments (economic growth and development), increase the employment (reduce structural unemployment and aging society), combat inequalities (foster social prosperity) and to ensure compliance with tax law (tighten the revenue collection and perform the systemic functions). Tax revenue depends on changes in macroeconomic circumstances, and economic development is an important stimulus for introducing tax reforms. The advocates of reductions in fiscal charges should have at heart the economic growth rate improvement, and a higher incentive to work, save and invest, while practice shows that sometimes things are quite the opposite and short-sighted populism prevails over efficiency. Pro-growth changes to the tax system require using the state's economic and social policy for fiscal stimulation of natural and legal persons' activities. Hence, the important factors include the economy's structure, the level of social and economic development, the condition of the economy, innovation potential, scientific and technological knowledge resources as well as cultural and sociological factors. The problem faced by countries of today is how to systemically re-design the existing tax structures so that they, first and foremost, ensure the state's financial security and foster economic development.

This boils down to two fundamental issues which determine the international debate on tax system reforms post-2008+. The first one is a consistent and effective tax system understood as one where taxpayers pay their liabilities and the state guarantees transparent law and operating

environment. The second is securing funds for social policy and economic development. Both issues are linked to the redistribution of the domestic product from private to public sector (taxes paid), which is next transferred back from public to private sector (social transfers). What should be clearly pointed out is that this should be a transfer to other, less developed segments of the economy or social groups. The key role is played by the entire structure of the tax system, from progressive but sensible PIT structures, through CIT, property taxes to taxation on consumption. Orienting tax policy towards any decrease in tax burdens for the sake of building social prosperity and limiting social exclusion is undoubtedly a positive approach. Meanwhile, such an approach should not be founded on short-sighted political pragmatism dictated by the electoral calendar. Tolerating short-sightedness and irregularity of tax system usually spells trouble for the budget and difficulties servicing the public debt in the medium and long run. Consequently, the greatest beneficiaries of inefficient tax systems include representatives of speculative capital, individuals receiving social transfers, and party groupings that are wielding power at a given time. Those at the losing end are entrepreneurs, households of people in work and future generations of pensioners, who must then bear the extra costs of financing the state's borrowing needs.

Chapter III
Economic analysis of tax system

Introduction

Economic analysis of taxes and tax systems has been used in respective countries, to a lesser or greater degree, to take and keep power, fulfil electoral promises or to secure the expenditure side of the budget through adequate receipts. As shown by the history of global debt, such analysis has rarely been correlated with practical balancing of the expenditure side of the central or local government budgets, since as of the end of first quarter of 2019 the global public debt amounted to USD 246 trillion, with a strong upward trend in the global debt from Q4 2016 until the end of 2018 (Global…, 2019). Two macroeconomic aggregates of greatest significance in the approach to taxation taxonomy and economics are national income and prosperity. They reflect the social demand for public goods, fair and efficient taxation options and institutional needs (Genschel and Seelkopf, 2016). Meanwhile, economic changes introduced with a positive outcome and resulting in a higher standard of living enhance the ability to use a more redistributive tax policy from the social surplus obtained, which makes it possible to create diversified taxation structures (Hinrichs, 1966). A third element, which lays down the institutional and legal framework for economic behaviours and discourse is the government in power and its quality. In this context, inadequate tax revenues are the main constraint limiting the government in terms of fiscal transfers and fostering economic growth and development (Aizenman et al., 2019). The economic analysis of a tax system cannot involve only the analysis of tax-related legislative acts, tax frontiers and how they can be used as part of the financial law. Tax policy or, more broadly speaking, fiscal policy should, in addition to monetary policy, constitute the main instrument and centre of gravity of the state's economic policy and it should be analyse in such broad rather than narrow terms.

Indeed, as demonstrated by research by Marcelo Arbex (2013), improved efficiency of the enforcement of tax regulations and the implementation of fiscal incentives to work in the formal sector reduce the inflation rate and reduce optimum interest rate. In this context, economic analysis of tax system must take account of a given country's level of external debt as the costs of servicing a public debt (current and future alike) must be covered from future revenues which will mainly come from taxes and other countervailing charges (Kharusi and Ada, 2018). The point here is not just to cut spending and raise consumption taxes, as this would cause an increase in the unemployment rate and production losses (Gehrke, 2018) but instead to consolidate debt in a manner that fosters growth and is in line with the counter-cyclical policy. Such consolidation has to factor in a variety of costs (e.g. compliance, administrative costs, unauthorised disclosure of information, long waiting time for tax refunds and its impact on a company's short- and medium-term liquidity) or behavioural factors. Last but not least, it must reckon with, and estimate the level of profits that are variable in time (rather than constant) to correct production models by market behaviours and various variables (Slemrod and Gillitzer, 2014).

Having the above in mind, such consolidation must reflect the redistributive capacity and adequacy of social transfers within the framework of the assumed and planned social and economic equilibrium, without disregarding the revenue side of the budget. David A. Weisbach is right in saying that "virtually all tax systems have gaps or inconsistencies. The reason is that the tax base for most tax systems. Such as income, consumption, wages, property, is difficult to define or observe perfectly" (Weisbach, 2002: 88–115). This means that economic analyses of tax system must take account of the elasticity and variability of taxable income as well as the substitutability of goods and additional benefits used but not reported. However, they should not contain the variable in the form of a factor of self-sufficiency in balancing the activity conducted by a given tax administration, because the so-called fiscal equivalence cannot be taken into account in the economic discourse of the tax system (Haldenwang and Schwab, 2017). Finally, an economic approach to tax system should suggest and adjust a given tax policy which is a key distributive and allocative element in shaping economic inequalities (Haffert and Mertens, 2019). This means that conducting economic tax analyses requires, most of all, data and information that includes all types of exemptions and redistributive flows as part of various classes of flexible models. However, even contem-

porarily, it is still time-consuming to identify total tax burdens and the consumption of factors of production, and such estimation is subject to a certain margin of error (Mendoza et al., 1994).

3.1. Tax system in a theoretical macroeconomic analysis

Macroeconomic analyses examine the overall theory of equilibrium, so naturally they use aggregates, for example Gorman's or Negishi's aggregates, to build system-wide models and estimations. Historically, such an approach used to be criticised for insufficient acknowledgment of individual customer behaviours (so were, incidentally, purely microeconomic ones, for the opposite reason). However, as new groups of dynamic models of macroeconomic equilibriums were introduced, new opportunities emerged for implicative analysis, which are of special significance from the perspective of redistributive policy inherently connected with tax policy as part of state's economic policy (Kaplan and Violante, 2018). To conduct a system-wide comparative economic analysis of fiscal reforms, tax law and of the economic effects of preferences and distribution, microsimulation (MS) models are widely used as well as computable general equilibrium (CGE) models, increasingly used jointly as MS-CGE models. CGE models are based on aggregate macroeconomic data, but they originated in the microeconomic theory of general equilibrium and allow calculating endogenous variables to determine exogenous ones, i.e. those that influence relevant policymaking options. Modelling enables comparing present and future states, also in a dynamic version, i.e. a multi-factor analysis of variance. In turn, microsimulation (MS) models usually examine partial equilibrium of households or markets and are especially useful in analysing the process of using specific tax credits and preferences in tax system, enabling comparative analyses of the current tax system vs. one planned to be implemented throughout the whole economy (impact, influence, effects) (Peichl, 2009).

At the same time, macroeconomic research still applies a simplified version of the old Ramsey model, where modelling can be used to calculate changes in future revenues, conduct a comprehensive analysis of prosperity or examine the impact of legislation on the budget. However, in analysing tax changes but without sources of obvious financing, Ramsey model does not have reliable capacity to show the sources of capital (internal

or external). This is why this model should be applied as one of many rather than the only one. A much fuller estimation of tax system parameters in an economy is provided by Dynamic Stochastic General Equilibrium models (DSGE) (Barro and Furman, 2018). They are able to capture stochastic processes related to uncertainty. They help combine the microeconomic perspective of economic operators' optimum behaviours with the macroeconomic adjustment factors and random distortions. Last but not least, they make it possible to indicate financial flows and the exchange of goods between objects analysed and to carry out a comprehensive analysis of the economy analysed.

Comparative analyses of corporate taxation as part of many countries' varied tax regimes, and analyses to identify the impact of taxation on investment decisions of individual company, capital group or economic sector are usually conducted using OECDTAX and CORTAX models. The CORTAX model is a computable general equilibrium model and is thought to be the most advanced and flexible as it can be used to simulate international tax harmonisations in economic terms, from a national or international perspective, including an analysis of the impact of taking investments and corporate taxation to a global and distributed level (Álvarez-Martinez et al., 2016).

Meanwhile, it has been observed that of greater significance than GDP in macroeconomic analyses is prosperity and the dynamic analysis of distribution (Furman, 2016) used to evaluate the real effects of the suggested public policies in a specific legislation. It helps identify, from the point of view of tax burdens, an increase and decrease in a given type of household income following an introduction or change of taxation rules or change of tax rates. However, such an analysis, as a rule, has a couple of drawbacks, for example (Smetters, 2019):

a) it does not differentiate between income earned in a lifetime by young and old people, only using a cross-section scale,
b) it does not account for the consequences of macroeconomic capital expenditure in low-income vs. high-income households,
c) it does not account for the risk factor of idiosyncratic shocks related to non-constant levels of wage and employment/ unemployment rate and the insurance amount; this is typical of progressive tax system, which decreases the risk, decreasing the progressivity as pay conditions deteriorate, and increasing the risk if rates are less progressive,

d) it does not show hidden debt liabilities (hidden debt) of the inter-generational transfer programmes (current people in work vs. pensioners),
e) it does not account for the measures and scope of the impact of inter-generational income (current young people vs. future generations).

The antidote for the drawbacks of this analytical approach is to apply a dynamic analysis of distribution as part of balanced variability in budget models using PWBM (*Penn Wharton Budget Model*) stochastic simulation (Nishiyama and Smetters, 2005, 2014).

The macroeconomic approach is horizontal and enables a broad perspective and comparative analyses, which, as a second step, should be supplemented with a microeconomic approach, bearing in mind that microeconomists' opinion would be often quite the reverse. From the macroeconomic perspective, that is one related to the decision-making approach in economic policies, it is necessary to observe that tax policy, and, more broadly speaking, fiscal policy and economic policy can be used to effectively manage all of the state's social and economic processes. Meanwhile, the approach to both policies should be guided by macroeconomic realism (rather than optimism) about the current and prospective economic situation. Such an approach requires using automatic stabilisers and intervention with respect to the stabilising expenditure rule in the fiscal policy and resorting to the Taylor rule only on a case by case basis in monetary policy. The aim is to have the tools and the capacity for emergency governance of structural deficit in the entire public finance sector, with a view to balancing the national budget, on the one hand, and on the other, to create short business cycles (3–4 years) as part of medium- and long-terms cycles. It should be born in mind, however, that if applied blindly during price deflation, the Taylor rule would lead to economic shocks, as would its application in case of a major increase in CPI combined with a higher-than-expected GDP growth. Indeed, it turns out that were the standard Taylor rule kept in the monetary policy, the aggregate consumption would have remained at a similar level with automatic fiscal stabilisers removed, but it would result in an outflow of funds from social security funds, making it necessary to increase social assistance outlays or to make changes to the redistributive policy and to introduce fiscal slider (Gornemann et al., 2016). In addition, macroeconomic calculations and models all too often discount net benefits, applying zero social risk and thus disregarding

social risk altogether, which prevents running an efficient counter-cyclical policy and does not account for marginal cost of finance, increasing the tax risk and making the government more likely to face unexpected expenditure (Hanson et al., 2018). If such models also refer to balanced budget rules (as they should), it should be borne in mind that it is likely to inadvertently make a false assumption as to the amount of tax receipts, and, consequently, as to the amount of public deficit and public debt. This can generate forecast fluctuations compared to the expectations assumed, which, coupled with business cycles of the real economy, may lead to artificially inflicted but real instabilities. Capital intensity across sectors and labour income taxes are in this respect important differentiators and confounders with regard to real values and deviations (Abad and Venditti, 2019).

The macroeconomic dimension of the tax system is visible especially through the dimension of redistributive fiscal policy, with a particular emphasis on tax preferences, which essentially represent direct tax expenditure. When using tax preferences, the government opts out of charging certain taxes or parts thereof to a given social group, and by defining certain conditions to be met, one social group is rewarded at the expense of another. For that reason, it would be legitimate to require preferences should be more definite and reported nominally, which would help maintain a certain control mechanism to limit the phenomenon of excessive tax preferences wherever one social group is privileged at the expense of another, while the equivalence effect is not adhered to and the overall level prosperity is not raised (Prasad, 2011; Surrey, 1970). In plain words, tax preferences should specify the return on equity (ROE) of preference, reflected also by values of other development indices such as, for example, SEDA (Sustainable Economic Development Assessment), HDI (Human Development Index), MEW (Measure of Economic Welfare) or NNW (Net National Welfare).

Oftentimes, one also tends to forget that an effective implementation of a given tax reform requires the strong government that must have a real rather than ostensible capacity to deter non-compliant behaviours. The first-order necessary condition for this process, rather than strong fiscal administration (though it is also of significance), is maintaining and improving taxpayer behaviours, especially in the context of the voluntary nature of tax payment (Bergman, 2003).

Research conducted by Jia (2018) also proves that a joint use of fiscal and monetary policy yields incomparably better outcomes than applying

F. Ramsey's theory of optimal taxation. However, it must involve an aggressive fiscal policy response to overdue debt and an aggressive interest-rate setting in response to inflation. As argued by Jia "more aggressive fiscal policy (albeit active) improves welfare as it introduces a strong fiscal feedback effect that stabilizes government debt as well as debt-led inflation" (Jia, 2018). However, such changes and fiscal policy making should take place as soon as possible after coming to power, in order to reduce the negative consequences of reforms which will not be good and desirable to each professional and social group but required from the perspective of the redistribution policy and fiscal consolidation (Hübscher, 2016). At the same time, it should be borne in mind that changes in tax policy should not be announced in advance, as they generate a short-term increase in tax receipts which will be later consumed by the additional cost of social assistance. In addition, each change, i.e. an increase in indirect taxes, contributes to an increase in headline inflation so in a way it makes unnecessary to apply monetary policy in that case; using the latter in that situation (in addition to the fiscal policy) could lead to a major economic slowdown (Lipińska and Thadden, 2018).

It is hard to pinpoint clearly when the process of economic analysis of taxes, and especially that of the tax system, was formalised or significantly gained high importance—especially that many countries had different legal, economic and political culture. What is known, however, is that, for example, in the United States the Congressional Budget and Impoundment Control Act, introducing the obligation to inform the public of the estimated tax expenditure for all types of tax was only enacted in 1974 (Carroll et al., 2011). The seemingly stable US system has undergone two key reforms since then—in 1986 and on 22 December 2017 when the Tax Cuts and Jobs Act (TCJA) was signed—to increase employment in the US economy and boost investments. Many years before the last tax reform was planned, James Poterba (2009) expressed his view that tax solutions prepared for implementation are of fundamental significance to the US economy in the future and represent the greatest challenge in history as regards an economically correct analysis of the tax system. He pointed out that this is also an unprecedented challenge to economists, lawyers and accountants, who must suggest solutions, having first conducted research on the changes to be introduced and their consequences—also in the context of efficiency and distributive effects (Poterba, 2009). He was right for two reasons. Firstly, globalisation brings benefits to multinational (including

American) corporations and makes it possible to shift profits from the USA and other countries to tax havens. At the same time, tax solutions used in the USA until 2018 aimed to prevent tax avoidance—were simply ineffective (Schwarz, 2009). Secondly, the US fiscal reform signed in December 2017 as the so called Tax Cuts and Jobs Act (TCJA) introduced a number of changes for companies and less important ones for households. The main ones include: a) a CIT reduction from 35% to 21%, i.e. to its average OECD value, b) short-term expensing deduction for 5 years (for machinery and equipment), c) a change in the rules of taxation on accumulated foreign profits, exempting repatriated dividends, d) introducing an incentive to locate intangible assets in the USA based on three new tax solutions (GILTI—Global Intangible Low-Tax Income, FDII—Foreign Derived Intangible Income, BEAT—Base Erosion Anti-Abuse Tax), e) introducing many minor changes to personal income tax, such as doubling the standard deduction, eliminating personal exemptions, increasing the child tax credit; in addition, taxation and regional and federal preferences changed for real estate and for upper income bracket (Mathur, 2019; Tax Reform…, 2018). In this context, representatives of the International Monetary Fund argue that increasing investment incentives by lowering the CIT burden as part of TCJA (from 35% to 21%) is not as effective an instrument as it is expected to be, while investment could be fostered instead by improving certainty and stability in the economic policy (Kopp et al., 2019). Meanwhile, it is puzzling why a decision was made to introduce the TCJA reform pursuant to which taxes were lowered but the deficit for the coming years was significantly raised. This increased the fiscal gap, causing uncertainty (Gale et al., 2018). It seems that in the medium-term perspective the tax changes introduced will be revised or maybe even there will be a further reform of the public finance system, including a reduction in the expenditure side of the budget. On the one hand, this may be achieved through new public levies such as VAT, and on the other, through a greater tax base, which would simply increase US tax revenues. Another possible remedy is a further possibility to reduce interest rates as part of the monetary policy, which would be, however, only partly effective, should there be any major shocks, slowdown or even a sort of recession in the US economy post-2020.

What may spell a real revolution in the economic analysis of tax regulations within the US tax system (and ensure a practical assessment) is the agreement on the new approach to economic analysis of tax regulations

reached in April 2018 between the US Treasury Department and the Office for Management and Budget (OMB). The idea of the analysis is to help work out and apply analytical standards for three components (Leiserson and Looney, 2018), which, supplemented with a comment and own interpretation, boil down to:

1) Revenue estimation—a good solution would be to apply constant macroeconomic aggregates as a base scenario, while admitting also variable macroeconomic aggregates (e.g. inflation rate, GDP) in working analyses as part of the so called alternative base scenario, which provides for more cautious assumptions. What would be also important for the systemic analysis is admitting a third scenario (so called internal, not for publication) as an unfavourable scenario, which should show a tax system's long-term revenue-generating capacity, assuming macroeconomic aggregates at a crisis level. All scenarios should take account of the impact of changes on households, companies and on the state (budget deficit, public debt).
2) Analysis of tax regulation distribution—as a social prosperity analysis. The analysis should indicate changes in the allocation of tax burdens at the level of aggregates and optimising agents—in the framework of utility maximisation and limitations of DSGE, general equilibrium and heterogeneity of goods models. The analysis should include a strong qualitative approach resulting from market imperfection, expressed in a logical reasoning that also takes account of illicit behaviours which contribute to maximising individual utility and to changes in the competitive process.
3) Estimation of compliance cost—resulting from introducing a given change. It is about the costs of adapting a given economic unit and organisation to bear the same or new tax costs under changed circumstances (e.g. costs of training on adaptation to/ implementation of relevant regulations, costs of changes in accounting and/or tax record keeping and/or controlling—mainly in ERP systems, costs of temporary deterioration of current liquidity).

Not all changes in the tax system have a positive impact on the long-term development, in the same way that tax cuts do not necessarily strengthen the economy (Gale and Samwick, 2014). At the same time, a forecast estimate of the loss of income caused by legislation to be implemented or already implemented, if it fails to factor in sufficient stimuli

for economic activity, may significantly contribute to a calculation error, leading to a loss of income and inadequate coverage of the expenditure side (Slemrod, 2018). Indeed, insufficient finance for expenditure caused by reduced tax receipts resulting from reduced tax charges can be remedied by changes improving production processes and productivity (Hinest, 2017). Expenditure forecasting, especially for expenditure financed with tax revenues, may be often subject to a major error, if the calculation significantly deviated from actual events and possible shocks in the global economy or failed to sufficiently account for the tax gap highlighted by informal economy activities.

Economic analysis of a narrowly defined tax system was in a sense an experimental analysis where logical errors and short-sighted economic policy of a given government, admittedly, secured periodic funding of the central budget, but, ultimately, introduced new models of behaviours which, in the coming years, distorted the functional economics of a state governed by democratic rule of law. A good example would be Iran (but not only), where export customs duties, and internal taxation on opium were imposed in the late 19th and early 20th century. As argued by Bradley Hansen, "attempts to extract revenue from domestic consumers led to a decades-long struggle to control the black market. Attempts to control the export market brought on protests from merchants. Like a chess player uncertain of her opponent's strength, the government would make a probing move, await a response, and follow with another move. Finally, at the moment that the government appeared to have attained control of the market, it discovered that its policies had generated an overproduction problem" (Hansen, 2001: 95-113). This way Iran became the main drug trafficking route from Pakistan and Afghanistan to Europe, unintentionally making many citizens drug dependent, thus greatly increasing the social cost and risk to society. Efforts undertaken by successive Iranian governments to eliminate the drug risk led to 10.000 executions in 2008, sanctioning multimillion fixed expenditure on combating drug crimes and on funding substance abuse treatment programmes (Aliverdinia and Pridemore, 2008). The doubtless short-term budgetary benefits of early 20th century opium taxation in Iran caused incomparably and incommensurately higher financial and social cost the country must bear at present.

Currently at least eight elements can be distinguished in the process of economic analysis of the tax system (Table 3.1).

TABLE 3.1. Chronological order of economic analysis of tax system

No	Systemic analysis stages	Comment
1.	Define the preliminary expectation as to tax revenues and forecasted expenditure for the next period (5–15 years)	The anticipated degree of fulfilment of electoral promises and/or economic stabilisation or growth
2.	Conduct a preliminary analysis of the potential and direction of the policies being implemented with respect to: a) changes in the demand for goods and services; b) setting the budget deficit; c) introducing incentives to work and/or invest and/or save	The economic analysis of the tax policy should be aligned with the economic analysis of the monetary policy
3.	Check the current macroeconomic and microeconomic indicators and long-term economic growth and development forecasts (as part of prosperity-building)	GDP, social development index, capital accumulation, FDI, school attendance rate, rate of innovation, efficiency of the factors of production, quality of governance and management etc.
4.	Check the potential for limiting or shifting the so called fixed and flexible expenses	At the expense of support for pro-growth expenditure and limiting the national budget deficit and public finance sector
5.	Analyse the distribution of tax burdens and social transfers in the social and economic system (cost of compliance, revenues, distribution)	Social transfers, preferences, rates—households and companies; impact on the national budget
6.	Analyse the systemic risk of the tax changes to be implemented	The purpose of a risk analysis is to present risk mitigators/alternative variants of the changes being implemented and to take account of them in the planned solutions and measures
7.	Write draft new legal instruments along with an economic assessment of the consequences of the relevant regulations	The legislative process along with an economic analysis of the proposed changes, including an economic analysis of the potential losses and redistributive effects
8.	Evaluate the tax system	Using *ex ante*, *on-going* and *ex post* assessments and analyses

Source: own elaboration.

It should be pointed out here that **firstly**, the proposed characteristics of economic analysis of tax system puts economy first, while the role reserved for law, that is for the system of legal norms, is that of a tool for secondary fulfilment of the relevant social and economic goals. Indeed, law-making will always follow political inclinations and should support the implementation of the social and economic policies in place. The purpose of the application of law will be both to realise a certain legal value and to achieve previously set goals in furtherance of the common good, which will also fit squarely into legal value.

Secondly, the preliminary stage of an economic analysis of a given tax system can unambiguously point to the need for fundamental changes in a given tax jurisdiction, however, due to political decision-makers' fear of losing their constituents' support, or, in other words, due to their worry about staying in power, these will not necessarily be introduced. Empirical extreme negative examples of that are Greece and Japan. Governments of those countries started to notice fiscal instabilities and budget deficits already back in mid the 1980s. Initially, they attempted some changes but gave up on reforms in order to stay in power (Barta, 2018). This way the generated debt kept growing and no comprehensive fiscal consolidation plan was submitted. Japan, having failed to implement its public finance plans and faced with the aging society, has fallen into a much more serious debt crisis than expected (Japan, 2018) and most probably will be forced into drastic budget and social spending cuts, while increasing taxes. Meanwhile, in Greece, adding to the problem is that economic analyses were manipulated with creative accounting—both at the government and corporate level (Pazarskis et at., 2017), which is not only an example of extreme irresponsibility and, in fact, a violation of law but also a sign of having no concern for the welfare of future generations facing an excessive debt and a culture of dishonesty. The example of the Greek government was a stimulus for the society to comply less with tax regulations, which matches the theory that inefficiency of government expenditure, high level of government corruption and irregularities represent a direct incentive for tax avoidance and evasion (Wu and Teng, 2005).

Thirdly, economic analysis of the tax system may represent a challenge related to taking a decision on whether to further centralise or decentralise it. As a matter of fact, many countries carried out a decentralisation, granting local governments an overall or partial autonomy with respect to tax policy, while introducing tax incentives and competition between regional governments (James, 2013; Li, 2016). One of the examples is China, where smart tax policies have been an intrinsic part of its concept of governance for centuries but it was not until 1850 that the country finally worked out a macroeconomic approach to taxes that would be comparable at that time to the approach adopted in Europe (Vries, 2015). Only China's tax system reform of 1994 introduced the new division of taxes into central, local and joint ones and, through a fiscal transfer policy, made it possible to give control to local governments. The fiscal equalisation as part of transfers from the central budget to provinces accounts for 80% of central revenues. However, decentralisation entails local protectionism

and may lead to abuse (Blanchard and Shleifer, 2001). At the same time, research by Fajgelbaum, Morales, Serrato and Zidar reveals that lack of tax rate harmonisation within a country and using a number of fiscal regional autonomies instead (like, for instance, in the USA, Spain, Germany or Italy) causes an aggregate deadweight loss. These are important findings, in our opinion, as they empirically prove—based on examining 350 tax changes in the United States between 1980 and 2010—that: "heterogeneity in state tax rates leads to aggregate welfare losses. In terms of consumption equivalent units, harmonizing state taxes increases worker welfare by 0.6 percent if government spending is held constant, and by 1.2 percent if government spending responds endogenously" (Fajgelbaum et al., 2019: 333-376).

And **fourthly**, economic analysis of tax system, necessarily supported by legal comparative analysis, must answer the question that is only seemingly simple though it is of fundamental importance in the contemporary world: "How should the right to tax the global profits of multinational companies (MNCs) be divided across countries, while also preventing tax avoidance and evasion that exploits gaps and mismatches between national tax systems" (Hearson and Prichard, 2018). Indeed, the observed lack of international coordination of companies results in some countries losing revenue from public levies for the benefit of others, which changes the terms of market competition. The idea is not to introduce a single global tax policy with harmonised rates, which would be utopian and unrealistic from today's perspective. Instead, it would be useful to work out shared mechanisms of actual taxation and fair administrative collaboration, irrespective of the scope of economic activity, form of taxation or actual tax jurisdiction.

Therefore, it could be said that economic analysis of tax system should refer to the model of a given economy, taking account of transnational factors, and influence the overall social and economic system by (Tosun and Abizadeh, 2005):

a) boosting investment (adequate allocation and tax rates for companies, natural persons and capital gains);
b) boosting economic growth through incentives to choose labour market and to stay on labour market (even at retirement age);
c) boosting efficiency—by fostering innovation, and R&D as the key element (in addition to changes in the tax structure) of building an innovative economy (Jiang, 2018);
d) boosting an adequate sectoral allocation of tax burdens and an efficient use of human capital.

Since there are no borders to multinational operations run as part of economic activity, it is legitimate to say that an economic analysis of tax system should be systemic and global, just like tax system itself. As a rule, utility maximisation within each tax system in developed countries (to a lesser extent so in developing countries) is limited as it generates only some of the revenues that could be generated, but it can still create incentives to move revenues or economic activity to other tax jurisdictions. It does not maximise the investment function; quite the opposite, it can often prevent it as a result of applying substantial withholding tax to dividends (Grubert and Altshulter, 2013), royalties, interest or fees for intangible services.

3.2. Tax system in a practical macroeconomic analysis

A broadly defined tax policy is an intrinsic feature of the scale at which value-added is distributed by state institutions. This is the taxation of households and economic operators, whose principle is to preserve tax sources and further economic development (and, consequently, further ability to bear tax burdens and achieve the fiscal goal set by the state) in aggregate values. Such a system, from an economic perspective, should analyse, for instance, the ratio of total taxation to GDP per capita—however, there are no such data for comparison between countries or for a long time series. That is why the available macroeconomic data at a comparable international level refer to total tax revenue as a share of GDP. Hence, this is a measure that helps determine, in a very general manner, tax burdens in a given country. For this reason it is justified to present the overall state of taxation globally, though not as a list of tax burdens but, instead, by identifying countries and groups of countries which, being at a different level of development, have shared or different characteristics when it comes to their approach to taxation and to the use of redistributive policy as part of their GDP and development. Such an approach makes it possible to adopt the "state-as-investor" paradigm, both from the point of view of company location decisions and from the perspective of the state, which is interested in negotiation-based relations with taxpayers and in authorisation of debt issuance (Macey, 2006).

The importance of practical macroeconomic analyses has been especially visible in recent years in the United States, where the Joint Committee

on Taxation (JCT) started to include macroeconomic aggregates in 1995, and since 2003 it has been obliged to provide macroeconomic analyses for all new tax regulations. However, the controversy over the estimates and the different research methodologies provided the stimulus for joint efforts to work out a more efficient perspective on macroeconomic modelling at the US National Tax Association (NTA) Symposium in 2017. As a matter of fact, it was observed that JCT estimates were based on the conventional modelling of the impact of legislation on the federal budget, relying on three models: Macroeconomic Equilibrium Growth (MEG) model, Overlapping Generations (OLG) model and the Dynamic Stochastic General Equilibrium (DSGE) model, failing to take account of behavioural responses. In addition, they all represent the neoclassical approach to production and labour, perfect market information and the rationality of expectations. It was the reason why the Tax Policy Center and the Tax Foundation developed their own macroeconomic models, quite unlike those suggested by JCT, resulting in different values of aggregate data because of different assumptions (Grinberg et al., 2017). This clearly shows that there is still much work ahead on the long way towards being able to reliably calculate in macroeconomic terms what is written in the language of tax law and has an impact on the entire economy (not only in the USA). In addition, even with joint research and despite a convergent approach to its interpretation and reasoning, some discrepancies exist in the macroeconomic approach to tax system and tax policy, which can determine unpredictability and the need to introduce sudden changes and tax rate rises in the coming years (Barro and Furman, 2018).

In Germany, European Tax Analyzer (ETA), a computer model used for comparative analysis of tax burdens on companies and partnerships has been developed at Leibniz Centre for European Economic Research (ZEW). Aggregate data make it possible to analyse a total of 35 countries, i.e. 28 EU member states and China, Japan, Canada, the United States and Switzerland. The model's research methodology is based on simulating the development of the given company and of its value before and after tax in the 10-year period analysed. ETA input data come mainly from the AMADEUS system and from 25.5 thousand corporations operating in the EU. The advantage of the ETA model is its high flexibility, which enables factoring in real economic parameters and process-based activities undertaken at a company as well as any legislative processes in a relevant country, which directly or indirectly introduced tax credits, tax

restrictions or new tax rates ultimately resulting in a change of total tax burdens. In addition, the ETA model provides for building a baseline model firm based on different results of the profit and loss account, sources of finance and firm size (Dutt, 2019; The impact…, 2017). What could be seen as a drawback of the ETA model, and of any other model-based methodology, is that it averages out financial data parameters, which, especially with respect to equity, profitability and ROE (expressed as percentages), but also with respect to return on sales, may distort values of some companies which, whether deliberately or as a result of the crisis or restructuring and remedial actions, exceed the average. In fact, companies can be especially interested in artificially increasing the accounting gains, in particular in indebted and listed companies, where the dividend amount, executive assessment, further financing opportunities and share pricing hinge on the net financial result. Common practices include overstating the book value of inventories, depreciating tangible fixed assets, clearing long-term contracts inconsistently with work progress or overstating (sometimes several times over) capitalisation of intangible assets.

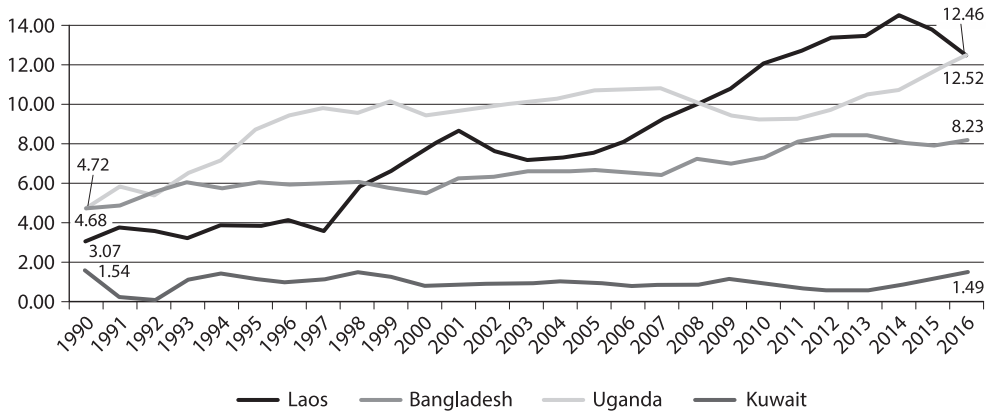
For this reason a practical macroeconomic analysis of taxes adopted for the purposes of this chapter presents groups of global countries which are extreme (lowest and highest) in terms of taxation in 1990 and 2016, and the dynamics of change in taxation until 2016 (inclusive). It has been assumed, in accordance with Eurostat, that total tax revenues encompass all types of taxes, including social security contributions (Taxion in 2017, 2018) and are reflected in this research as total tax revenues as a share of GDP (in other words: tax-to-GDP ratio). In common parlance, synonyms for a given country's level of taxation include terms such as total tax burden or total tax revenues, though it should be borne in mind it's just a manner of speaking and they are subject to significant limitations, especially in the context of other possibilities of calculating total tax burdens.

Outputs for breakdowns and estimations come from the ourworldindata.org/taxation database, which contains both estimations and source data from the International Centre for Tax and Development, OECD, World Bank, CEPALSTAT, as well as a breakdown of published studies on taxes by 34 other authors (Ortiz-Ospina and Roser, 2019). Even though some limited tax comparisons can be carried out going back as far as to 1775, most tax data considered for macroeconomic purposes start from 1990, that is from the time of significant geopolitical transformations that took place worldwide. As regards data availability, countries with gaps in data continuity in

the period under analysis were excluded and, in the end, countries with the lowest taxation in 1990 (Kuwait, Laos, Bangladesh, Uganda) and in 2016 (Kuwait, Sudan, Equatorial Guinea and Indonesia) were identified. A preliminary analysis of shifts in the selected low-taxation countries indicated a risk of dynamic changes of this rate, which is why a decision was taken not to apply interpolation, which could significantly deviate from the actual state and render the analysis unreliable. A similar method was adopted for highest-taxation countries. In 1990 this group included: Denmark, Hungary, Bulgaria and Sweden and in 2016, Belgium, Denmark, Finland and France. It follows from the above that **countries with the lowest rate of taxation are situated in Asia and Africa and the highest rate of taxation can be found in European countries**.

To ensure clarity of the analysis for countries with the lowest rates of taxation, graphs showing its changes will be presented in separate figures and tables (Fig. 3.1, Table 3.2).

FIGURE 3.1. Evolution of total tax burdens in lowest-taxed countries in 1990, with developments until 2016 (tax-to-GDP ratio)



Source: own elaboration based on data from ourworldindata.com/taxes

In three countries that had the lowest rate of taxation in 1990, there has been a noticeable increase in tax-to-GDP ratio over 27 years (Laos, Bangladesh, Uganda). Laos, whose taxes used to be among the lowest, recorded the highest growth of 9.4%, in Uganda taxes went up by 7.8%, and Bangladesh recorded a 3.55% increase. Kuwait, with the world's lowest taxes, recorded a barely noticeable change of –0.05% over 27 years.

As regards the selected 27-year period, shifts in the rate of taxation were analysed comparing its change between 1990 and 2016, as well as the difference between the maximum and minimum value in the years under review. These ratios help us assess whether the trend of change in the rate of taxation underwent major fluctuations. Table 3.2 presents the difference between these rates in the countries analysed, which does not go beyond 2.05%, indicating that changes were regular (upward) in nature and there were no factors in the period (for example political, economic, environmental) that could have led to a significantly greater difference indicating major changes in the rate of taxation (Table 3.2).

TABLE 3.2. Changes in the taxation of lowest-taxed countries between 1990 and 2016

Countries	Min taxation 1990–2016	Max taxation 1990–2016	Max–Min difference	Change in taxation 1996–2016
Kuwait	0.09%	1.54%	1.45%	–0.05%
Laos	3.07%	14.51%	11.44%	9.40%
Bangladesh	4.68%	8.45%	3.77%	3.55%
Uganda	4.72%	12.52%	7.80%	7.80%

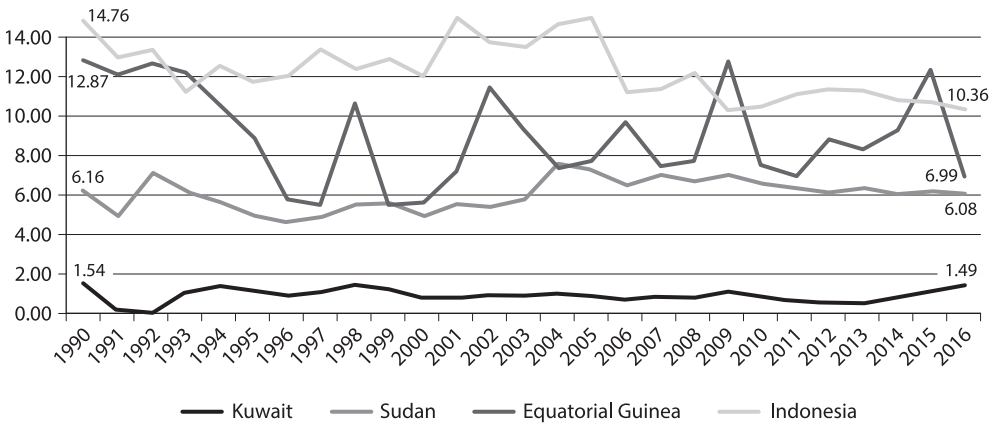
Source: own elaboration based on data from ourworldindata.com/taxes

The second group of countries with the lowest rate of taxation, that of 2016, has countries from several continents. Figure 3.2 and Table 3.3 show the evolution of the rate of taxation.

Only Kuwait was among the countries with the lowest rate of taxation both in 1990 and 2016. It is noticeable that Equatorial Guinea recorded the most stable decrease in taxation (5.88%), which gave it the third rank on the list of countries with the lowest tax-to-GDP ratio. However its major fluctuations over time could also be observed—5 upward and 6 downward movements. Indonesia, admittedly, had a higher taxation in 1990, but the next years saw its downward trend until 2000, followed by a 3% growth, and since 2006 taxation had been steadily declining. As a result taxation decreased by 4.41 p.p., making Indonesia the fourth lowest-taxed country. Sudan, like Kuwait, maintained its tax burdens at a virtually unchanged level as the difference between the dates analysed amounted to a mere 0.08%.

Differences calculated for the countries analysed, and changes in taxation between 2016 and 1990 for respective countries are presented in

FIGURE 3.2. Graphic presentation of lowest-taxed countries in 2016 and their variability between 1990 and 2016 (tax-to-GDP ratio) (in %)



Source: own elaboration based on data from ourworldindata.com/taxes

Table 3.3. The results show that differences in both rates for Kuwait and Sudan are similar, though Kuwait is characterised by the greatest stability over 27 years as the difference in the range and change in the rate of taxation stood at 1.45%, indicating a very high stability of tax changes and securing the first rank among countries with the lowest tax burden. Sudan is characterised by a slightly greater variation in taxes, though the difference between the rates stood at 2.94%, which does not seem to be a high rate of variability, either. Against this backdrop, Indonesia appears to be a country of major variation in taxes, though the range did not differ from those calculated for other countries (4.64%). With the total change in taxation between 2016 and 1990, which stands at 4.41%, despite the turbulence of 2000–2005, Indonesia achieved a stable decline in tax burdens in the

TABLE 3.3. Countries with the lowest tax-to-GDP ratio in 2016 based on the 1990–2016 analysis

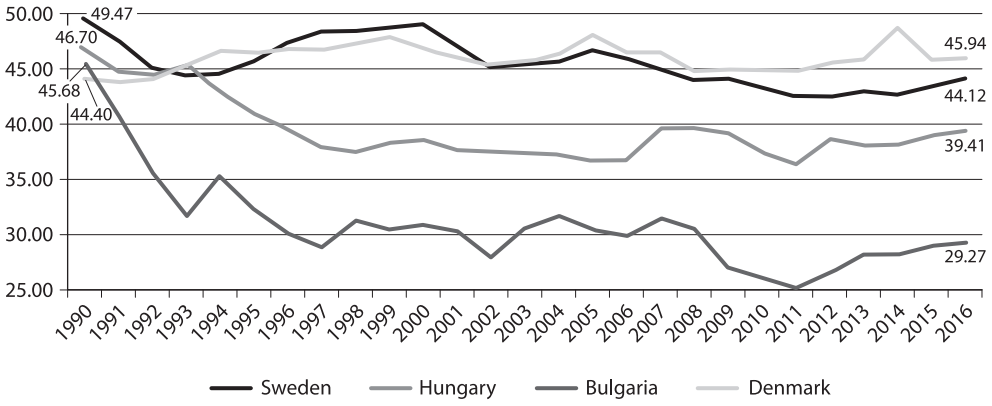
Country	Min taxation 1990–2016	Max taxation 1990–2016	Max–Min difference	Change in taxation 1996–2016
Kuwait	0.09%	1.54%	1.45%	–0.05%
Sudan	4.67%	7.61%	2.94%	–0.08%
Equatorial Guinea	5.49%	12.87%	7.38%	–5.88%
Indonesia	10.31%	14.95%	4.64%	–4.40%

Source: own elaboration based on data from ourworldindata.com/taxes (due to the downward movements of the rates, the difference is in absolute values as only such calculation makes it possible to properly assess the changes in the rate).

period analysed. It is Equatorial Guinea that is characterised by the highest variation in tax burdens among the countries analysed, i.e. 7.38%. The results show a major tax system instability in Equatorial Guinea, where political, economic and social factors most probably could have contributed to such changes in tax burdens.

For countries with the highest tax burdens, the situation is clearer as in 27 years only one of the four countries with the highest rate did not change and all countries are in Europe. In the period analysed, Sweden, Hungary and Bulgaria changed their own tax burdens whereas Denmark did not (Fig. 3.3, Table 3.4.).

FIGURE 3.3. Countries with the highest tax-to-GDP ratio in 1990



Source: own elaboration based on data from ourworldindata.com/taxes.

Sweden had the highest tax-to-GDP ratio in 1990, which stood at 49.47% of GDP. None of the other countries reached such a high tax threshold. Over the years, attempts had been made to lower tax burdens, resulting in a 5.35% drop in the ratio analysed and making Sweden fall out from the group of four countries with the highest tax burdens. Curiously enough, two countries from the former Eastern bloc, i.e. Bulgaria and Hungary, had a tax burden level similar to Sweden in 1990, but in 2016 the burden in both countries was down, by 16.6% in Bulgaria and by 7.29% in Hungary. In Denmark, over 27 years, the rate of taxation did not significantly change, the difference between 2016 and 1990 amounting to 1.54%, which made Denmark the highest taxed country in 2016.

Differences for respective countries are presented in Table 3.4, and they are quite varied. In Bulgaria, where tax burdens decreased the most, the

difference is the highest as the tax-to-GDP ratio diagram shows that the high taxation was reduced by 14% in the first three years and no other country analysed recorded such a decrease. The difference between minimum and maximum taxation level (the range) was not substantial for Denmark. In 2005 and 2014 there was a noticeable increase in tax-to-GDP ratio (compared to previous year, it went up by 1.61% and 2.69% respectively), followed by decreases in 2006 and 2015 (down by 1.54% and 2.68% respectively). The above fluctuations in tax burdens made Denmark the only country to record their increase, which put it at the top of the ranking at the end of 2016. Hungary reduced its tax burdens the most by 1998, while the later years saw a slight variation. The analysis of the absolute range and total change in the tax-to-GDP ratio indicates that the differences between those two values are not big: 1.44% in Sweden, 2.98% in Hungary, 3.27% in Denmark, 4.05% in Bulgaria, which points to a more or less regular trend of changes in taxation and a relatively stable political and economic situation in those countries.

TABLE 3.4. Variation of tax-to-GDP ratio in countries with the highest tax burden in 1990, based on the 1990–2016 analysis

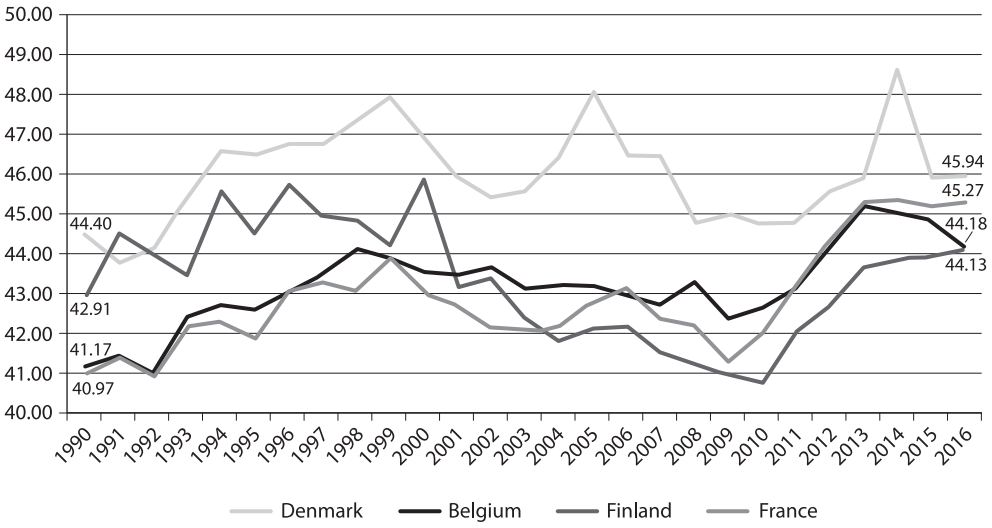
Countries	Min taxation 1990–2016	Max taxation 1990–2016	Max–Min difference	Change in taxation 1996–2016
Sweden	42.51%	49.47%	6.97%	–5.35%
Hungary	36.43%	46.70%	10.27%	–7.29%
Bulgaria	25.21%	45.86%	20.65%	–16.60%
Denmark	43.78%	48.58%	4.81%	1.54%

Source: own elaboration based on data from ourworldindata.com/taxes.

An analysis of changes in taxation in respective countries indicates that in 2016 Denmark was the only country left from the 1990 group of highest-taxed countries and, together with Belgium, Finland and France, had the highest tax-to-GDP ratio (Fig. 3.4).

Based on the developments in the highest-taxed countries in 2016, it can be concluded that the ratio analysed had comparable values in Belgium and France throughout the whole period, and its changes followed similar trends. Finland had been characterised by a greater variation in taxation until 2004 but later on the changes were similar to those taking place in France and Belgium, resulting in a tax burden of around 44–45%.

FIGURE 3.4. 2016 highest-taxed countries in the 1990–2016 analysis (tax-to-GDP ratio) (in %)



Source: own elaboration based on data from ourworldindata.com/taxes.

In all countries the ranges calculated were very similar and differed by no more than 1% from the others. The absolute difference between the range and the total change in the rate of taxation confirms a greater trend stability in France (0.10%) and Belgium (1.2%). Meanwhile Finland and Denmark found it slightly more challenging to maintain a stable trend of changes in tax burdens, which stood at 3.81% and 3.27% respectively. In Finland, higher trend changes took place until 2001 and in Denmark, after 2001 (Table 3.5).

TABLE 3.5. Highest-taxed countries in the world in 2016 in the variance analysis for 1990–2016

Countries	Min taxation 1990–2016	Max taxation 1990–2016	Max–Min difference	Change in taxation 1996–2016
Belgium	40.96%	45.16%	4.20%	3.01%
Finland	40.79%	45.82%	5.03%	1.22%
France	40.94%	45.34%	4.40%	4.30%
Denmark	43.78%	48.58%	4.81%	1.54%

Source: own elaboration based on data from ourworldindata.com/taxes.

Another area of analysis was to compare countries which in 2016 had the lowest and highest GDP per capita, with the lowest and highest total tax revenues calculated as a share of GDP. To visualise the above data on a map, World Bank data on respective countries' population as of 2016 was used as well. It was found that in 2016, i.e. at the end of the period under analysis (Table 3.6):

a) The lowest tax-to-GDP ratio could be found in: Kuwait, Saudi Arabia, Chad and Sudan.
b) The highest tax-to-GDP ratio could be found in: Belgium, Denmark, Finland and France.
c) The lowest GDP per capita was in: Liberia, Malawi, Mozambique and Togo.
d) The highest GDP per capita was in: Kuwait, Singapore, Luxembourg and Macau.

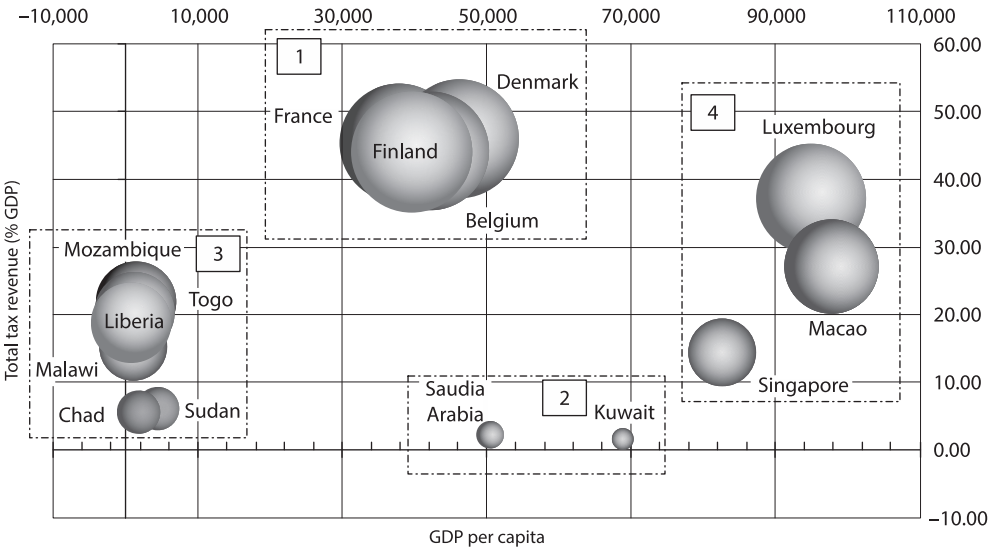
TABLE 3.6. Comparison of the lowest- and highest-taxed countries in 1990 and 2016 in relation to GDP per capita as of the end of 2016

Countries	GDP per capita, PPP	Total tax revenues (as a share of GDP)	Population in millions (2016)
Liberia	753.56	19.13	4.61
Malawi	1083.80	15.42	18.09
Mozambique	1127.35	20.10	28.83
Togo	1388.50	21.72	7.61
Chad	1878.38	5.67	14.45
Sudan	4386.35	6.08	28.00
France	38,062.64	45.27	66.86
Finland	39,659.17	44.13	5.50
Belgium	42,083.64	44.18	11.33
Denmark	45,991.22	45.94	5.73
Saudi Arabia	50,423.01	2.23	32.28
Kuwait	68,861.79	1.49	4.05
Singapore	82,621.50	14.31	5.61
Luxembourg	94,920.96	37.07	0.58
Macau	97,751.73	27.20	0.61

Source: own elaboration based on data from ourworldindata.com/taxes.

Figure 3.5 shows the distribution of respective countries on a 2-D map. Due to the need to visualise tax burdens, the diagram was extended to include negative values of the GDP per capita axis, and tax revenues as a share of GDP, which are not negative values and serve only to show relational proportions between the data presented.

FIGURE 3.5. Cluster analysis of the highest- and lowest-taxed countries of the world (tax-to-GDP ratio) as of the end of 2016 in the context of countries with the lowest and highest economic growth (GDP per capita)



Legend: 1—highest-taxed countries; 2—lowest-taxed countries, 3—lowest GDP per capita; 4—highest GDP per capita; the size of the sphere reflects the amount of taxation (total tax revenue as a share of GDP).

Source: own elaboration.

The map shows some regularities:

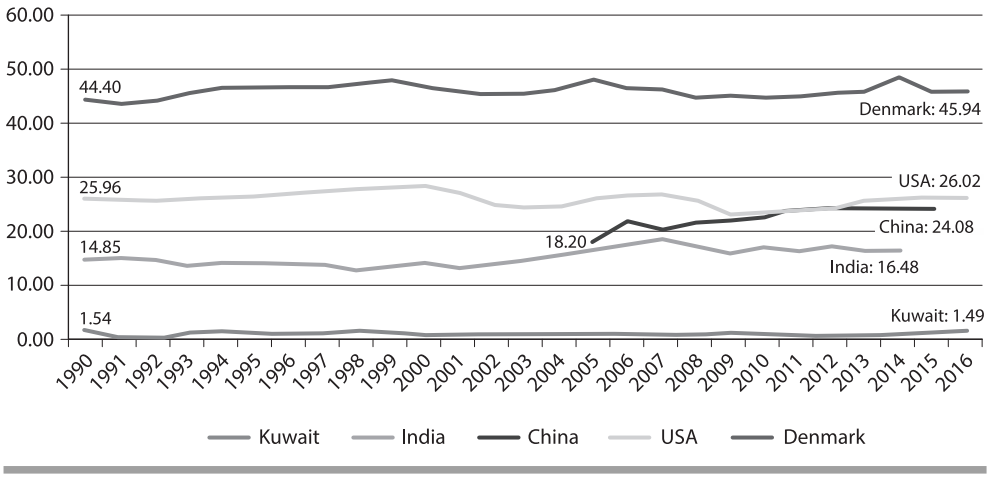
a) The African countries analysed have the lowest GDP per capita, not exceeding USD 4300, irrespective of the tax burden or the population size.
b) The European countries analysed have the highest tax-to-GDP ratio of around 45% and have a GDP per capita between USD 36,000 and 46,000. Here the population size also has no impact on the GDP per capita. Admittedly, Luxembourg has a tax-to-GDP ratio of 37%, however, it is among the countries with the highest GDP per capita, which stands at USD 96,000.

c) The Arab countries analysed, which are leading crude oil suppliers have the lowest tax burdens, but Kuwait, with a smaller population, has a GDP per capita that is USD 18,000 higher than that of Saudi Arabia.
d) Small-population countries have the highest GDP per capita, while Singapore, which is the largest of them, has the lowest tax burden and, at the same time, the largest population in this group of countries, and its GDP per capita is USD 15,000 lower than in Macau, which, at the end of the research period, was the unquestionable leader in terms of GDP per capita and had the tax-to-GDP ratio of 27.2%. Luxembourg, with a population similar to that of Macau, has 10% higher tax burden and its GDP per capita is lower by ca. USD 2800.

The picture of global taxation would not be complete without collating the values analysed with the world's largest economies (the USA and China) and India, which a couple of years from now may become the most populous country of the world.

The analysis presented (Fig. 3.6) only covers the range of data available in comparable databases of the World Bank, OECD and ourworldindata. Consequently, it was necessary to balance the quantitative analysis

FIGURE 3.6. Analysis of the tax-to-GDP ratio in the lowest- and highest-taxed countries compared to the economies of the USA, China and India



Source: own elaboration based on data from ourworldindata.com/taxes

with a synthetic qualitative analysis for China and India, and so the overall findings on the lowest- and highest-taxed countries compared to the economies of the USA, China and India can be summarised as follows:

1. There is a gap in tax revenues (tax-to-GDP ratio) between Kuwait and Denmark. Kuwait with a nationalised economy based on the hydrocarbon sector has, according to the report *Doing Business* (2019), the second most favourable (after Bahrain) tax jurisdiction in the region. It has the lowest taxes in all of Gulf Cooperation Council (GCC) countries, i.e. 15% tax on oil and gas extraction, accepts 100% foreign ownership in free tax zones, grants 5-year general tax exemptions for new non-Kuwaiti companies and 10-year tax exemptions for new economic projects (Tax Policy, 2015). Meanwhile, in Denmark, which bases its tax revenues on personal income tax, and which back in 1986 still had a 73% tax rate, the upper values for the highest tax rates were successfully decreased. However, the tax reforms undertaken (1987, 1994, 1994, 2004) (Tax Policy, 2004) did not lead, in the period analysed, to a substantial change in the parameters that could impact the tax-to-GDP ratio.
2. In 1990, the tax-to-GDP ratio in China could have stood at 20% (Wang, 1998). If so, then between 1991 and 1995 there must have been a very sharp drop in China's tax revenues if the ratio amounted to only 10.7% in w 1995 while the extra-budgetary revenues had increased. This resulted from the then tax reforms, which enabled state-owned companies to generate high profits, though this was at the expense of a drastic reduction in budget receipts. It was not until 1994 that a tax reform introduced a real system of tax-sharing and transfers (central, local, central and local), which made it possible to rebuild budgetary tax revenues (Shuanglin, 2009).
3. India, which in 2013 contained the largest share of the world's extreme poor (Page and Pande, 2018), who accounted for 1/5 of its population, has an acute gap between the well-to-do portion of the society and lower-caste Hindus and Muslims, who are experiencing continued social and economic discrimination. Such a policy significantly undermines the potential for economic growth and development (Page and Pande, 2018; Alvaredo et al., 2018; Mitra and Ray, 2014), resulting in the need to maintain lower tax rates, and fails to ensure adequate budgetary revenues from taxes that could have been otherwise earned.

4. The United States have for years maintained quite a uniform tax policy, which, through tax cuts mainly in the high-income group and taxation shifts or changes in other social groups caused the deficit and debt to grow, increasing the income inequalities and not sufficiently improving the economic growth. Two so called Bush tax cuts of 2001 and 2003, i.e. *Economic Growth and Tax Relief Reconciliation Act* (EGTRRA) and *Jobs and Growth Tax Relief Reconciliation Act of 2003* (JGTRRA) generated 1/3 of the debt due in 2018 (Horton, 2017). In addition, the so called Bush tax rebate for natural persons was approved in 2008, on the first USD 6000 taxable income, which represented an expenditure of over 1 percent of GDP, and the tax cuts originally adopted as a temporary solution actually did not expire until 2018 as in 2012 another act on tax exemptions was signed, which made permanent 82% of Bush tax exemptions (American…, 2012). In December 2017 TCJA act was enacted in the USA, which contains some solutions that are worthy of attention and support, but the broad tax cuts implemented fail to rebuild the tax revenue side of the budget.

The qualitative analysis of taxation, presented here in a very concise and simplified form—limited to countries with the lowest and highest tax-to-GDP ratio against the backdrop of the world's two largest economies and India—illustrates two key correlations. China probably kept public finance in a state of shock between 1990 and 1994, which helped state-owned companies generate profits, and next changed the terms of competition and introduced state protectionism between 1994 and 2016 (and later). This situation made it possible to increase taxation in the following years, which helped China virtually catch up in this respect with the world's largest economy that is the United States. Without tax base increases and/or spending cuts, the USA will have a hard time maintaining the assumptions with respect to tax revenues, deficit and economic development, and these will be the main determinants of the ability to develop competitive advantages in the global economy. On the other hand, the examples of Kuwait, Denmark and India—each unlike the others—show how the availability of resources and the degree of capacity utilisation may drive total tax revenues as a share of GDP in different economic models.

3.3. Tax system in a simplified financial analysis

A company's financial situation cannot be evaluated without a financial analysis, which is an integral part of economic analyses and helps establish or refer to tax strategies applied in a given company or to tax decisions adopted with respect to factors such as (Famulska, 2015):

a) costs—understood as a company's total outlays resulting from its economic activity (including all tax charges),
b) revenues—understood as economic gains from operating, financial and/or investment activity and from the sale of goods and services, which are subject to costs (including tax liabilities),
c) tax burden—understood as a sum total of the company's liability to pay tax arising out of legislation in place in a given country and out of the forms of tax shifting applied,
d) income (gross profit)/loss—in other words revenue less expenses (among others, fiscal expenses), which has an impact on the rate of return, especially return on equity (ROE) and the company's liquidity,
e) net profit—a company's valuation indicator and profitability indicator which stands for the monetary value of the financial result, used in addition to the principal profitability indicator that is EBITDA.

In a given company's tax strategy, two concepts of how tax rates affect the financial result are often adopted and applied jointly. The first one is the marginal effective tax rate (METR), which indicates which portion of income expressed in a given monetary unit will be paid to the state treasury. This is where the cost for a given capital investment is calculated, along with the return on equity for the investors and real depreciation. METR factors in the level of corporate taxation, pro-investment regulations (so called tax incentives to invest), the ability to deduct interest from the capital group's consolidated income (e.g. interest relief), ability to deduct tax on capital gains and dividends (Auerbach, 2018). The second tax rate concept relates to average tax rate, which determines which part of income is paid as tax (Hungerford, 2012).

From the point of view of governance, audit and controlling, it is important to verify whether the financial statements prepared (profit and loss account, balance sheet, cash flow statement and additional notes) reflect economic events that correspond to the actual facts and are compliant with the applicable laws. As a matter of fact, the accounting principles

applied or a certain discretion in creative accounting, which may be considered aggressive and illegal accounting, may result in an artificial overstatement (usually) of the financial result. Such a result is reported and influences the share price of a listed company, building or undermining its reputation, which attracts or deters potential investors and counterparties. A loss of reputation, which causes directly a loss of market value, is especially financially painful (Karpoff et al., 2008). Companies struggling with debt, facing a prospect of contract terminations and lower valuation in the event of mergers and acquisitions, or simply of no dividend payment and no payment of the performance-related variable remuneration component for senior executives, may be interested in stretching the applicable accounting standards in force. This leads to misrepresenting the company's actual situation. Indeed, it has been proven that the dishonest reporting taking place in such cases is used by managers when other forms of profit overstatement have failed, with losses rarely recognised in the previous two years (Kamarudin et al., 2012). In addition, aggressive reporting practices resulting from a higher risk acceptance are much more likely to occur in companies with external asset growth rather than those following the path of organic growth (Frank et al., 2018). At the same time, a strong pressure on an audit firm to retain the client contributes to a more frequent acceptance of aggressive reporting (Koch et al., 2012).

The above findings are of significance as it has been clearly proven (Frank et al., 2009) that there is a strong link between financial reporting and aggressive tax reporting, which is an integral part of financial statements. A reported revenue increase which has been artificially generated, stems from a discrepancy between tax law and financial accounting standards and from the possibility to adopt different interpretations which are not challenged unless this approach is revealed and called into question on the occasion of other economic events or tax inspections in the future. Indeed, creative accounting is a form of manipulating the accounting data within the limits of principles and norms resulting from loopholes. When the "legality" threshold is exceeded, one can hardly talk of acceptable creativity potentially meeting the definition of defectiveness of books. A breach of principles laid down in legal regulations in this respect means we are dealing with unreliability of books, which is subject to criminal and criminal tax sanctions. Such acts involving accounting books should not be equated with the concepts of tax or financial fraud. Undoubtedly, aggressive forms of creative accounting may also be intended to falsify tax books, registers, management reports and grant applications, and

directly to artificially create results meant to paint an overly optimistic or pessimistic picture of the company's situation. Creative accounting does not cover events resulting from errors or incompetence; it represents a deliberate action targeting the recipients of financial statements and serving a variety of purposes. Even though the use of unreliable accounting has been exposed on many occasions, both in highly developed economies and in those that are less developed, with the advancement of globalisation, IT progress and flow of knowledge, the problem of fudging the results of economic operators is aggravating. It should be concluded that the phenomenon manifests itself in the area of economic crimes and offences, including: irregularities in mergers and acquisitions, tax embezzlement (among others, diverting revenues, concealing revenues and assets, creating artificial expenses), financial fraud, insurance fraud (artificially creating value of assets when they have none, organising actions intended to lead to the entity's bankruptcy or liquidation), fraudulently inducing and obtaining undue loans from the banking sector, lending facilities, European funds and state aid funds, impeding mortgage foreclosure or seizure, and many others.

The simplified balance sheet presented (Table 3.7) for an entity doing business as "ALFA", which is a legal person, illustrates quite an easy creative accounting technique meant to convince trading partners and financial institutions of its credibility and to raise large amounts of credit. It should be borne in mind that only a detailed (causality) analysis of economic events in the economic operator can verify the correctness of respective items of the financial statements.

The entity, presenting audited data for which a positive audit opinion was issued, overstated the balance-sheet total.

On the assets side, it carried out the following accounting operations during the financial year:

a) in long-term investments/real estate, it revalued to the market price the real estate held but encumbered with many mortgages (from EUR 1 million to EUR 10 million);
b) in long-term investments/shares, it classified as long-term investments the value of subsidiary shares acquired (as a result of the agreement to convert a bad debt which would have been surely lost) (plus EUR 1.9 million);
c) in short-term debtors, it recognised 5 years past due trade debtors (plus EUR 30 million).

TABLE 3.7. Simplified balance sheet of an entity DBA "ALFA" (in EUR thousands)

Item	Presented data	Adjusted data
Total assets	**441,712.00**	**400,812.00**
Fixed assets	**146,200.00**	**135,300.00**
Intangible assets	720.00	720.00
Tangible assets	**124,000.00**	**124,000.00**
Land	112,000.00	112,000.00
Buildings	8,000.00	8,000.00
Plant and machinery	4,000.00	4,000.00
Long-term debtors	**9,480.00**	**9,480.00**
Long-term investments	**12,000.00**	**1,100.00**
Real estate	10,000.00	1,000.00
Shares	2,000.00	100.00
Current assets	**295,512.00**	**265,512.00**
Inventory	85,000.00	85,000.00
Short-term debtors	148,200.00	118,200.00
Short-term investments and prepayments	62,312.00	62,312.00
Total liabilities	**441,712.00**	**400,812.00**
Capital and reserves	**119,712.00**	**78,812.00**
Share capital	1,012.00	1,012.00
Supplementary capital	90,500.00	90,500.00
Reserves	21,000.00	21,000.00
Net profit or loss	17,200.00	–23,700.00
Profit or loss brought forward	–10,000.00	–10,000.00
Creditors and provisions	**322,000.00**	**322,000.00**
Provisions	4,700.00	4,700.00
Long-term creditors	38,000.00	38,000.00
Short-term creditors	268,000.00	268,000.00
Accruals and deferred income	11,300.00	11,300.00

Source: own elaboration.

On the liabilities side, the entity overstated the value of capital and reserves, which resulted in closing the financial year with a net profit of EUR 17.2 million.

However, considering the need to identify the correct amount of the net financial result (Table 3.8), the following adjustments were made in the single-step version of the profit and loss account to other operating expenses:

a) recognising EUR 30 million, an amount corresponding to past due debtors which the entity did not write off, knowing they are lost,
b) recognising EUR 1.9 million, an amount corresponding to the value of the shares acquired, pursuant to an agreement, in a related company which is in bankruptcy due to the loss of liquidity,
c) recognising EUR 9 million, an amount corresponding to the difference between the value determined through market price valuation of a real estate and its pre-revaluation value.

TABLE 3.8. Simplified single-step profit and loss account of an entity DBA "ALFA" (in EUR thousands)

Item	Presented data	Adjusted data
Net sales	1,202,007.00	1,202,007.00
Net sales of products	26,000.00	26,000.00
Net sales of foods and materials	1,176,007.00	1,176,007.00
Operating expenses	1,145,000.00	1,145,000.00
Depreciation	30,000.00	30,000.00
Third party services	33,000.00	33,000.00
Material and energy consumption	60,000.00	60,000.00
Value of goods and materials sold	1,022,000.00	1,022,000.00
Profit or loss on sales	57,007.00	57,007.00
Other operating income	16,000.00	16,000.00
Other operating expenses	42,000.00	82,900.00
Profit or loss on operations	31,007.00	–9,893.00
Financial income	1,193.00	1,193.00
Financial expenses	15,000.00	15,000.00
Net profit or loss	17,200.00	–23,700.00

Source: own elaboration.

The main objective of the above presented unreliable records was to create an artificial profit and to conceal the actually sustained loss. The increase in the value of assets and equity directly contributed to achieving the financial indicators within ranges expected by lending institutions (mainly with respect to profitability, liquidity of fixed and current assets as well as debt service coverage ratio). The adjustment of net profit to a net loss of over –EUR 23.7 million revealed that the reporting entity had manipulated the principal economic indicators used in the financial analysis. A creditworthiness assessment conducted based on non-adjusted financial

data would make it possible to grant undue financing, for which potentially there would be no source of repayment in the future and whose amount could be considered lost.

3.4. An economic analysis of taxation and of informal economy

3.4.1. Tax system and the shadow economy

There are many terms and synonyms used in the literature to describe more or less accurately this economic reality which is not to be found in official statistics. If we assume, for structural simplicity sake, that a given economy can be divided into licit (or formal) and illicit (e.g. informal, unofficial, black, underground, hidden, grey, parallel, shadow), then such a division clearly represents semantic differentiating features (Kasipillai, 2003). However, for a more precise definition of shadow economy, it must be noted that it is divided into four types (Feige, 1990):

a) illegal economy—is oriented to intentional violation of laws and regulations in one's economic activities (e.g. money laundering, drug trafficking, contract killing),
b) unreported economy—involves income-generating economic activities that are not reported to tax authorities,
c) unrecorded economy—involves economic activities that are not reported to registers and statistical institutions,
d) informal economy—involves economic activities that avoid inspection and regulatory costs by giving up on the benefits of participation in the official economy.

Shadow economy is probably the most commonly used term for illegal economy, both in scientific and journalistic literature on the subject. In the broadest sense, it means "economic activities and the income derived from them that circumvent or otherwise avoid government regulation, taxation or observation" (Schneider and Williams, 2012: 23–24). In other words, shadow economy involves "all currently unregistered economic activities that contribute to the officially calculated (or observed) Gross National Product" (Schneider and Williams, 2012: 24). From the economic perspective, the main problem with the shadow economy is the phenomenon of tax

evasion consisting in illegal and complete elimination of tax burden from economic event or events that have actually taken place and that by law are liable to tax. A taxpayer does not disclose the taxable object in its conduct. A synonymous though semantically different term is tax avoidance, which should be understood as legally allowed tax optimisation. Hence, tax avoidance seems to be inconsistent with the axiology of tax law, as its connotations are closer to tax law circumvention aimed to reap certain tax benefits. It must be borne in mind, however, that tax avoidance does not violate tax law provisions until tax authorities declare that the authorised limits of tax optimisation have been exceeded and classify the action in question as tax evasion.

Taxes and the amount of taxation have always been inextricably linked to the size of the shadow economy (Remeikiene et al., 2014). Fiscalism shapes political decisions as part of respective governments' social and economic policies, company's investment decisions and households' consumer behaviour decisions. In addition, research demonstrates that tax burden accounts in nearly 50 percent for the size of the shadow economy, and consequently it is of the greatest significance of all the relevant factors and variables (Schneider, 2017).

It is assumed that in the analysis of shadow economy phenomena, the following should be seen as its most important determinants (Table 3.9):

TABLE 3.9. The main causes/indicators determining the shadow economy

Causal/indicator variable	Theoretical reasoning	References
Tax and social security contribution burdens	The distortion of the overall tax burden affects labour-leisure choices and may stimulate labour supply in the shadow economy. The bigger the difference between the total labour cost in the official economy and after-tax earnings (from work), the greater the incentive to reduce the tax wedge and work in the shadow economy. This tax wedge depends on social security burden/payments and the overall tax burden, making them key determinants in the existence of the shadow economy.	E.g. Thomas (1992), Johnson et al., (1998), Giles (1999), Tanzi (1999), Schneider (2003, 2005), Dell'Anno (2007), Dell'Anno et al., (2007), Williams and Schneider (2016); Raczkowski (2015);
Quality of institutions or corruption	The quality of public institutions is another key factor in the development of the informal sector. In particular, the efficient and discretionary application of the tax code and regulations by the	E.g. Johnson et al. (1998a,b), Friedman et al. (2000), Dreher and Schneider (2009), Dreher et al., (2009), Schneider (2010), Teobaldelli (2011),

TABLE 3.9. cont.

Causal/indicator variable	Theoretical reasoning	References
Quality of institutions or corruption	government plays a crucial role in the decision to work off the books, even more important than the actual burden of taxes and regulations. A bureaucracy with highly corrupt government officials tends to be associated with larger unofficial activity, while good rule of law through securing property rights and contract enforceability increases the benefits of being formal. A certain level of taxation, mostly spent in productive public services, is characteristic of efficient policies. In fact, production in the formal sector benefits from higher provision of productive public services and is negatively affected by taxation, while the shadow economy reacts in the opposite way. An informal sector developing as a consequence of the failure of political institutions to promote an efficient market economy, and entrepreneurs going underground due to inefficient public goods provision, may reduce if institutions can be strengthened and fiscal policy moves closer to the median voter's preferences.	Amendola and Dell'Anno (2010), Losby et al. (2002), Schneider and Williams (2013), Hassan and Schneider (2016), Williams and Schneider (2016)
Regulations	Regulations, for example labour market regulations or trade barriers, are another important factor that reduces freedom (of choice) for individuals in the official economy. They lead to a substantial increase in labour costs in the official economy and thus provide another incentive to work in the shadow economy: countries that are more heavily regulated tend to have a higher share of the shadow economy in total GDP. The enforcement and not the overall extent of regulation—mostly not enforced—is the key factor for the charges levied on firms and individuals, inducing them to operate in the shadow economy.	E.g. Johnson et al., (1997), Johnson et al., (1998b), Firedman et al., (2000), Kucera and Roncolato (2008), Schneider (2011), Hassan and Schneider (2016)
Public sector services	An increase in the shadow economy may lead to fewer state revenues, which in turn reduces the quality and quantity of publicly provided goods and services. Ultimately, this may lead to increasing tax rates for firms and individuals, although deterioration in the quality of public goods (such as public infrastructure) and of the administration continues.	e.g. Johnson et al., (1998a,b), Feld and Schneider (2010)

TABLE 3.9. cont.

Causal/indicator variable	Theoretical reasoning	References
Public sector services	The consequence is an even stronger incentive to participate in the shadow economy. Countries with higher tax revenues achieved by lower tax rates, fewer laws and regulations, a better rule of law and lower corruption levels should thus have smaller shadow economies.	
Tax morale	The efficiency of the public sector also has an indirect effect on the size of the shadow economy because it affects tax morale. Tax compliance is driven by a psychological tax contract that entails rights and obligations of taxpayers and citizens on the one hand, but also of the state and its tax authorities on the other hand. Taxpayers are more inclined to pay their taxes honestly if they get valuable public services in exchange. However, taxpayers are honest even in cases when the benefit principle of taxation does not hold, i.e. for redistributive policies, if such political decisions follow fair procedures. The treatment of taxpayers by the tax authority also plays a role. If taxpayers are treated like partners in a (tax) contract instead of subordinates in a hierarchical relationship, taxpayers will stick to the obligations of the psychological tax contract more easily. Hence, (better) tax morale and (stronger) social norms may reduce the probability of individuals working in the shadow economy.	E.g. Feld and Frey (2007), Kirchler (2007), Torgler and Schneider (2009), Feld and Larsen (2005, 2009), Feld and Schneider (2010)
Deterrence	Despite the strong focus on deterrence in policies fighting the shadow economy and the unambiguous insights of the traditional economic theory of tax non-compliance, surprisingly little is known from empirical studies about the effects of deterrence. This is because data on the legal background and the frequency of audits are not available on an international basis; such data are difficult to collect even for OECD countries. Either the legal background is quite complicated, differentiating fines and punishment according to the severity of the offence and true income of the non-complier,	E.g. Andreoni et al., (1998), Pedersen (2003), Feld and Larsen (2005, 2009), Feld and Schneider (2010)

TABLE 3.9. cont.

Causal/indicator variable	Theoretical reasoning	References
Deterrence	or tax authorities do not reveal how intensively auditing is taking place. The little empirical survey evidence available demonstrates that fines and punishment do not exert a negative influence on the shadow economy, while the subjectively perceived risk of detection does. However, results are often weak and Granger causality tests show that the size of the shadow economy can affect deterrence, instead of deterrence reducing the shadow economy.	
Development of the official economy	The development of the official economy is another key factor in the shadow economy. The higher (lower) the rate of unemployment (GDP growth), the higher the incentive to work in the shadow economy, ceteris paribus.	Schneider and Williams (2013), Feld and Schneider (2010)
Self-employment	The higher the rate of self-employment, the more activities can be performed in the shadow economy, ceteris paribus—which is not to say that self-employment should be treated as a threat to the economy, quite the contrary.	Schneider and Williams (2013), Feld and Schneider (2010)
Unemployment	The higher the rate of unemployment, the higher the probability to work in the shadow economy, ceteris paribus.	Schneider and Williams (2013), Williams and Schneider (2016)
Size of the agricultural sector	The larger the agricultural sector, the more possibilities to work in the shadow economy, ceteris paribus.	Hassan and Schneider (2016)
Use of cash	The larger the shadow economy, the more cash will be used, ceteris paribus. Mostly measured as M0/M1, or M1/M2, or cash per capita outside the banking sector.	Hassan and Schneider (2016), Williams and Schneider (2016)
Share of labour force	The higher the shadow economy, the lower the official labour force participation rate, ceteris paribus.	Schneider and Williams (2013), Feld and Schneider (2010)
GDP per capita (economic growth)	A larger shadow economy is associated with more economic activities moving out of the formal economy, hence, it shows a decrease in economic growth, ceteris paribus.	Schneider et al., (2010); Medina and Schneider (2018)

Source: (Schneider, 2017; Schneider, 2018).

3.4.2. Research approach to estimating the shadow economy

Due to the nature of illicit economic activities, the measurement of shadow economy yields different results depending on the research methodology adopted, the quality of data available and the scope of aggregate illicit activities constituting shadow economy. In addition, not all research methods eliminate the problem of so called double counting, where the value of output is wrongly added twice to GDP. In general, three research approaches are used: direct micro-level procedures, indirect macroeconomic procedures and statistical modelling of the so-called unobservable variable (Schneider and Williams, 2013). In practice, these comprise five methods, which are not mutually exclusive and can represent an addition and sometimes a necessary complement to one another (Table 3.10).

According to the Authors, a good research approach to shadow economy estimation would be to combine the MIMIC-macro-adjusted method with the national accounts—discrepancy method and a direct company surveys, as regards developed countries. Meanwhile, for developing countries, and especially those least industrialised and with a high level of corruption, the MIMIC-macro (non-adjusted) method seems more reliable—which does not rule out the possibility of using additional methods. At the same time, it must be pointed out that in the shadow economy research for 31 European countries using MIMIC-macro and MIMIC-adjusted-macro (Fig. 3.7), the discrepancies of the values presented were substantial—from 2.1% for Luxembourg to 10.4% for Bulgaria, and the difference was the greater, the larger the estimated share of the shadow economy (as a percentage of GDP) in a given country's economy.

TABLE 3.10. Main methods for estimating/analysing the shadow economy

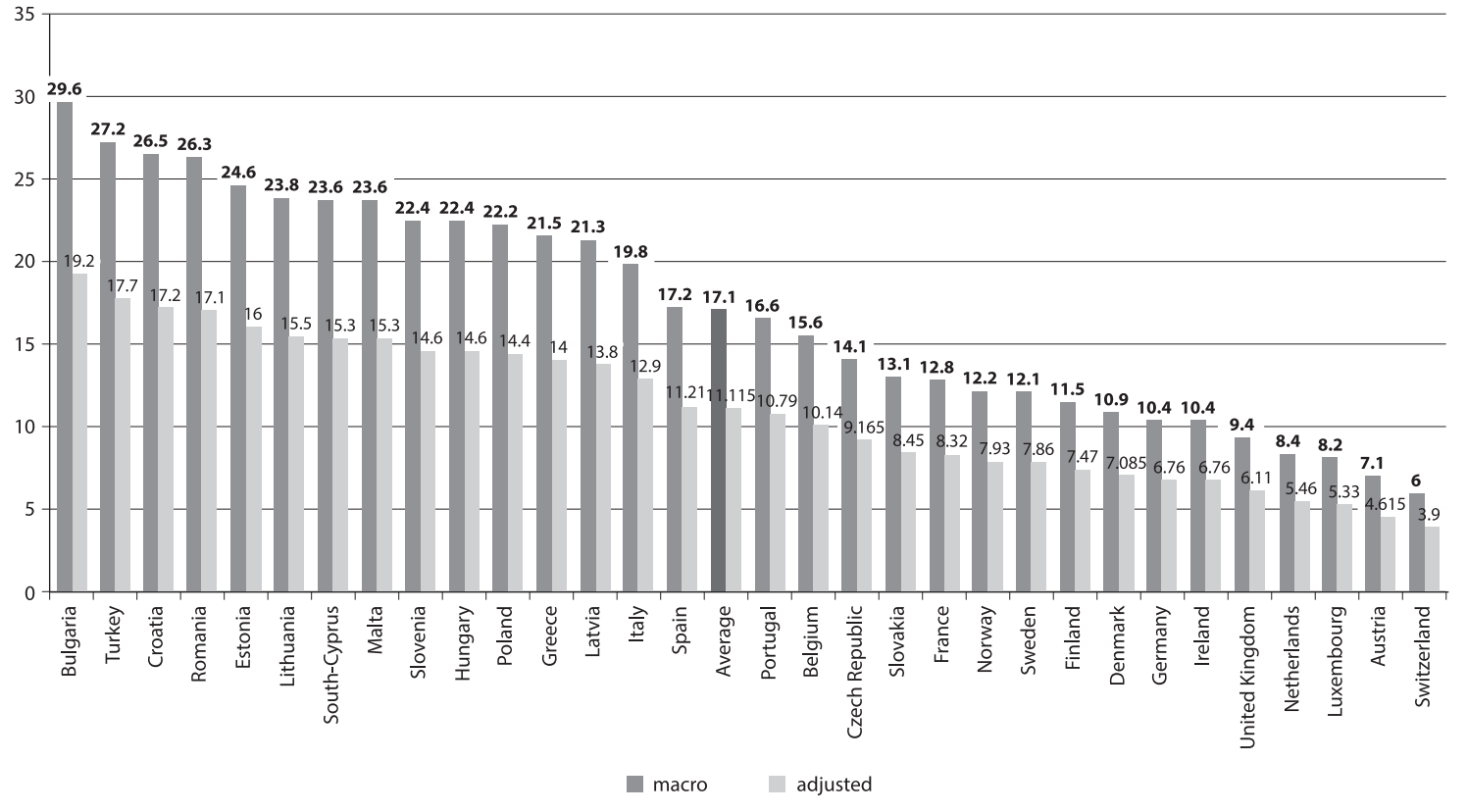
Analysis method	Method description	(Selected) references
National Accounts Statistics—discrepancy method	It comprises the analyses of: Underground hidden production; Illegal production (in violation of the law); Informal sector production; Production of households for own final use (consumption or capitalisation); Statistical estimates of all productive activities that should be included in official reporting but are not.	Gyomai and Van de Ven (2014)
Micro-Approach: Representative surveys	Typical targeted studies on the shadow economy, using a diagnostic survey. They contain, among others, questions on undeclared working hours, which helps calculate the estimated value of income replacement and hidden employment (as a share of GDP)	Zukauskas and Schneider (2016)

TABLE 3.10. cont.

Analysis method	Method description	(Selected) references
Micro method: the use of surveys of company managers	A diagnostic survey conducted among company managers. It analyses their knowledge of the size of the shadow economy, i.e. companies, income and wages, in individual, sectoral and total terms, potentially generated in the shadow economy (as a percentage of GDP)	Putnins and Sauka (2015)
Micro method: estimating the consumption-income-gap in households	The method uses an endogenous switching regression with an unknown sample separation rule to estimate the probability of underreporting, excluding an arbitrary a priori assignment of individuals/sectors to evading and non-evading	Lichard et al., (2014, 2016)
MIMIC (macro- and macro-adjusted) method	It is a combination of the cash (currency/demand) approach and of the Multiple Indicators Multiple Causes (MIMIC) method. It measures shadow economy quantities, yielding relative estimates, which, with the help of the cash approach, are converted into absolute values (nominal values and as a percentage of GDP). For preliminary estimates, the method includes neighbours help and do-it yourself activities which is next deducted. Especially the improved MIMIC (so called macro--adjusted) method shows a high accuracy, close to that of micro approaches. In turn, Sub-Saharan African countries prove that the non-adjusted MIMIC-macro can be better for analysing these countries, where the level of shadow economy has been always high with their development lagging behind industrialised countries.	Frey and Weck-Hannemann (1984), Loayza (1996), Giles (1995, 1999), Giles and Tedds (2002), Dell'Anno (2003),Dell'Anno and Schneider (2003), Cziraky and Gillman (2003), Bajada and Schneider (2005), Schneider (2005), Chaudhuri et al. (2006). Solomon (2007),Dell'Anno and Schneider (2009), Schneider et al., (2010), Williams and Schneider (2016)

Source: compiled based on: (Schneider, 2017; Gyomai, and Van de Ven, 2014; Zukauskas et. al, 2016; Putnins and Sauka (2015); Lichard et. al, 2012; Lichard et. al, 2014; Williams and Schneider, 2016; Medina and Schneider, 2018; Schneider, 2017; Dell'Anno and Schneider, 2009; Schneider, 2016).

FIGURE 3.7. Comparison of shadow economy using the MIMIC-macro and MIMIC-macro-adjusted method for 31 European countries for 2017 (as a percentage of GDP)



Source: own elaboration.

3.5. Economic analysis of law in tax system and economic policy

The links between law and economics can be found as early as in the ancient Roman law of property and obligations, in the works of Machiavelli (1984, p. 69–70), who rationally calculated profits and losses involved in decision-making in his famous book "The Prince" and in cameralism, the 17th century extension of the mercantilist doctrine (16–17th century), aiming to put productive capacity and human resources to full use. Incidentally, mercantilism, though criticised for years, in fact stands for attention to interest rates, which shape the inflation rate, and to loan margins, preventing usury, and promotes exports thus ensuring positive trade balance. In the mercantilist doctrine, law should be just a means to economic ends, where causal links are intended to ensure a given country's sustainable prosperity and even prestige. Whether or not mercantilism is referred to as economic nationalism (LaHaye, 2019), it can be hardly considered a flaw, also considering the fact that it defines money as wealth and legal tender. Meanwhile, what is a great flaw of this doctrine is the demand to keep wages at a low level, which would allegedly lead to building the competitive advantage of exports, contributing to growing poverty and social inequalities. Another weakness of this doctrine is the depreciation of internal supply of goods, which would significantly lead either to a decline in consumer behaviours and to a lower participation in the economic growth (this factor not being compensated for by net exports) or to import substitution and using foreign goods on local markets.

Some insights on the economic analysis of law (L&E) can be also found in the works of Adam Smith (1723–1790), who developed moral philosophy of private law with references to economics (Mahoney, 2017). However, these references, based on the Roman and natural law, would not put Smith among the leading thinkers of this school. Smith, together with the founder of the classical economics, William Petty (1623–1687) and classics such as David Ricardo (1772–1823) and John Stuart Mill (1806–1873), built the foundations of the paradigm of the classical economic thought, which provides for economic and political freedom. Nevertheless, he advocated a possibility to introduce customs duties as protective measures for new branches of industry. This, in essence, boiled down to protectionism and using law to protect economic interests, which contradicted Smith's views but was consistent with utilitarianism and logic.

Economic analysis of law was also present in the 18th century British utilitarianism, which combined ethics, economics and politics, and involved mainly the principle of utility and the links between happiness, and pleasure and the avoidance of pain. The main representatives of utilitarianism were Jeremy Bentham (1748–1832), a hedonistic utilitarian, and John Stuart Mill (1806–1873), an altruistic utilitarian and empiricist, who based judgment and moral principles on experience, and aimed to improve the general standard of living in a society. Later critics of utilitarianism argued that this school of thought was immoral as "utilitarian principles, logically carried out, would result in far more cheating, lying and unfair action than any good man would tolerate" (Ewing, 1953: 40). The utility calculus itself, as seen by utilitarianism, disregards human relations and the only thing that matters in any considered act is its end, that is maximising the greatest good, irrespective of the means applied to achieving it. Moreover, or maybe first and foremost, consequentialism propagated by utilitarianism, which waives the obligation to abide by rules and fulfil promises, valuating instead only the future consequences of the considered acts, gives rise to serious doubts or thoroughly negates such principles of building a better future or valuating good and evil in acts that are only seemingly utilitarian, at least for one of the parties.

It is often stated in the literature that economic analysis of law can be tentatively divided into two periods of its formation and development. The first period ran from 1830 to 1930 and involved the functioning of law in different social structures. The second one, from 1930 onwards, is related to economic analysis of law, intellectual property rights and anti-monopoly law (Boehlke, 2005). At the same time, alternative dates are provided for the development of economic analysis of law, namely for the so called first period (i.e. 1890–1920) (Hovenkamp, 1995), which would indicate blurry lines between two periods and lack of clear paradigms or research in the first one which could be attributed to that school in a more systemic rather than referential manner. At the same time, H. Hovenkamp (1995) points to 1840 as a symbolic date when the first broadly described economic analysis of US legal policy was presented (Raymond, 1840). In turn, Charles K. Rowley (2005) traces the roots of economic analysis of law already back to 1739 but this relates to certain moods and references rather than to paradigmatic research conducted in a given school of thought.

Economic analysis of law did not fully emerge as a separate sub-discipline of economic and legal sciences until the 1950s and 60s. What sparked

this separation was further exploration of the anti-monopoly law, and the development of research areas such as economic analysis of tort liability (Calabresi, 1970), social cost analysis (Coase, 1960), economic analysis of crime and criminal law (Becker, 1968) and, and last but not least, the publication by the libertarian pragmatist Richard Posner (Posner, 1972) in which he collects and systematises the knowledge on the subject, and rightly argues in favour of the hypothesis of economic efficiency of institutions. Hence, it can be assumed that 1972 should be a tentative starting point for economic analysis of law as a research sub-discipline. Posner says that: "The economic analysis of law, [...] tries to explain and predict the behaviour of participants in and persons regulated by the law. It also tries to improve law by pointing out respects in which existing or proposed laws have unintended or undesirable consequences, whether on economic efficiency, or the distribution of income and wealth, or other values. It is not merely an ivory-towered enterprise, at least in the United States, where the law and economics movement is understood to have influenced legal reform in a number of important areas." (Posner, 1998: 2). However, such interpretation narrows down the systemic scope of research in economic analysis of law, which should encompass all sorts of interactions between legal institutions and the economy, and provide answers to the question of how law affects the functioning of economic systems (Medema, 2009). Meanwhile Thomas Ulen argues that the most important characteristic of economic analysis of law is the "use of rational choice theory to examine legal decisions". (Ulen, 2000: 797), however both from the theoretical and pragmatic perspective, this argument has been essentially falsified. Indeed, research by Herbert A. Simon has demonstrated that an economic operator cannot be fully rational and relies on only selective rationality as it is exposed to limitations that are both subjective (insufficient knowledge, insufficient capacity to predict the outcomes and consequences of the decisions taken) and objective (uncertainty of the future and of the outcomes of decision choices made) (Simon, 1953, 1964, 1986). It is especially in the recent years that this research direction based on behavioural law, behavioural economics and the economic system as a whole has come to the fore, challenging the traditional rationality in favour of social norms which are at a variance with the model perspective of maximisation (Jolls et al., 1998), though such outright defiance certainly seems unwarranted. It also appears that economic analysis of law is a predominant or one of the mainstream trends in the contemporary philosophy of law.

3.5.1. The research concept and methodology in economic analysis of law

Economic analysis of law in its neoclassical variety is defined as an art or an ability to apply the rational choice theory (Kerkmeester, 2000; Parisi, 2004). Such understanding does not account for the fact that seemingly rational individuals will never have full information and very often have to rely on purely intuitive premises. At the same time, they are often incapable of a cooperation that would maximise all parties' utility in equal measure. Furthermore, the neoclassical approach to rationality itself would not stand the test of time as it has been demonstrated that human decisions are subject to cognitive biases, rationality is limited, preferences vary over time and human choices are not only based on maximisation of one's own profit (De Bondt, 1985). From an economic perspective: "Law plays an important role in creating certainty and predictability in investment. Without the legal certainty assurance, the economy development is uneasy to be conducted, since the support is hard to get" (Ginting et al., 2018).

Meanwhile, a definition suggested by Lewis Kornhauser argues that the behavioural economic analysis of law is of key importance to a company and deploys the tools of micro-economic theory to study legal rules and institutions (Kornhauser, 1984, 2011). However, the above cited perspective would narrow the economic analysis of law down to the microeconomic sphere, entirely or partly overlooking the broader macroeconomic context, or the one involving the economy as a whole or even integration groupings. This is why a much more correct definition is provided in the approach of Charles K. Rowley, who says that economic analysis of law is: "the application of economic and econometric methods to examine the formation, structure, processes of law and legal institutions" (Rowley, 1998: 65). This definition would also correspond to the view conventionally held in the academic community that **economic analysis of law consists in using economics to conduct an in-depth analysis of a legal system (**Marciano, 2016).

Economic analysis of law reduces unfairness to economic efficiency and "fits squarely into the previous century's broadly defined 'defiance' against the predominance of the positivist theory of law, which can be attributed, among others, to American and Scandinavian realism, psychological schools of thought, sociological jurisprudence, decisionism, hermeneutic concepts, rhetorical and topical concepts of law, Ronald Dworkin's

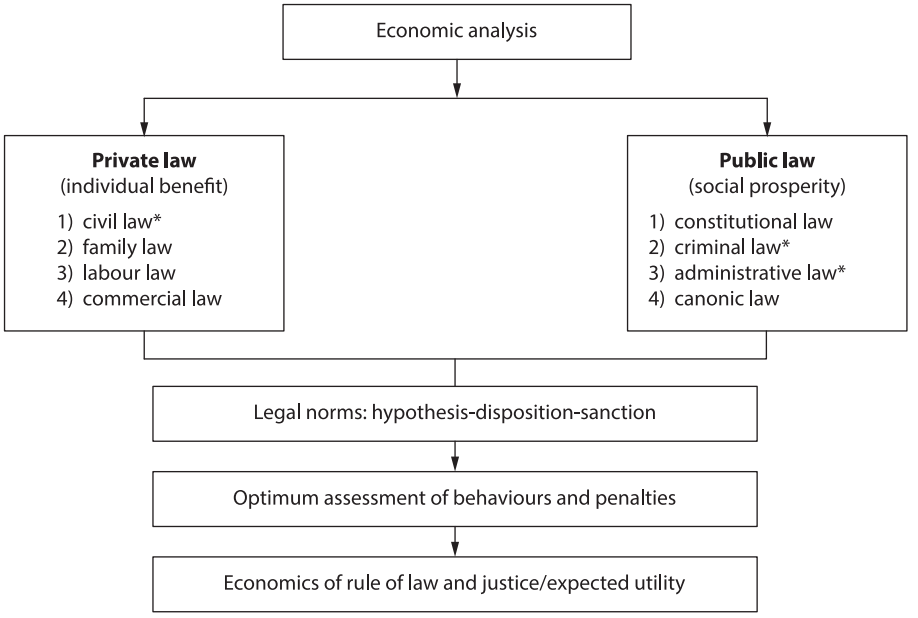
theory of law as integrity, the law and literature trend, and even Marxist and post-Modernist theories" (Koźmiński, 2016: 35). In general, economic analysis of law must meet two fundamental criteria, i.e. law should be economically efficient, bearing in mind that the subject and creator of law is an economic operator, *homo oeconomicus* (Stelmach et al., 2007: 17). At the same time, economic analysis of law should represent both a standalone and complementary type of economic interpretation, especially in economic matters and in all of the financial law, in addition to systematic, teleological and linguistic interpretations used. This is not to say, however, that lawyers and economists must use the same language (Francis, 2015), as they consider the same problems from different angles, using different method in analysing specific phenomena.

The paradigm of economic analysis of law encompasses a number of theories, schools and interpretations that depend on a given researcher. A positive perspective within this discipline studies the economic efficiency of respective regulations and deals with data and facts. Meanwhile, the normative perspective focuses on law-making activities and formulating based thereon specific practical conclusions, judgments and recommendations. Richard O. Zerbe (2015) also calls for including moral sentiments in the normative economic analysis and for adjusting Kaldor-Hicks' efficiency to make a connection between the valuation and the specification of rights.

Certainly the orthodox approach within this discipline, which reduces all kinds of decision analyses and law itself to the binary measure of wealth maximisation, should always meet constructive criticism. What is of particular importance here is the need to preserve the respect for law and social values as a product of culture, and, in this context, also for common law (especially in the framework of international public law). The economisation of social and economic relations must not lead to axiological neutralisation of statutory or common law, destroying models of social behaviours developed through generations. Economic analysis of law may not apply such moral reductionism in which every agreement, contract and interplay of market forces boils down to an action motivated solely by individual gain. What matters, meanwhile, is the economic practice and non-normative circumstances, which very often may be incompatible with the actual provisions of the historically enacted legislation. Indeed, what's the good of a seemingly normative system if it does not reflect the common sense and actual reality of subjects of legal relations, leading to excessive length of court proceedings or legal absurd in the rulings issued.

Hence, with respect to economic analysis, law should contribute to a consciously defined social change inspired by the technocratic spirit, with inputs from politicians, lobbyists and experts but without disregard for axiology and the reductionist perspective on the wealth maximisation principle. Economic analysis of law should, therefore, address efficiency by maximising social prosperity on the individual and collective scale alike (Fig. 3.8).

FIGURE 3.8. Systemic possibilities of the application of economic analysis of law



* Three main branches of law in economic analysis.

Source: own elaboration.

The systemic scope of economic analysis of law must include the possibility of a multi criterion use, joint or separate, of a given type of efficiency within the framework of (Mathis, 2008):

a) Marginal analysis—where profitability of a given undertaking is the main criterion, and the efficiency assumption is that marginal profits must be higher than marginal costs (on the proviso that marginal analysis can be also efficient if a financial loss rather than profit,
b) is generated by a given undertaking as a result of a well-thought-out decision to reduce the tax burden and increase capital expenditure with a view to generating profit and liquidity at a later time),

c) maximising social prosperity by applying laws in a way to increase social prosperity,
d) Pareto efficiency—where introducing a legal change or decision has a positive impact on an individual while not making any participant worse off
e) Kaldor-Hicks efficiency—as a generalisation of Pareto efficiency—used as a resource allocation method. Efficiency is achieved if the gain of the actual beneficiary is higher than the loss of another entity (at expense of which the gain is achieved), and at the same time those at the losing end are somehow compensated for their loss by the beneficiaries. In other words, "The Kaldor-Hicks criterion is that an economic activity or change is socially desirable if gainers from this activity or change could compensate any losers and remain better off than before the change" (Thisdell and Ahmad, 2018: 376).

The choice of relevant research methods and techniques as part of economic analysis of law should, on the one hand, represent the application of theory and explanatory knowledge in social and economic processes, and, on the other hand, the methodology should aim to confront theory with the evidence from empirical facts. Only then will it be possible to discover general regularities which affect the phenomena under analysis, in order to diagnose the existing states, through the system of the methods applied, dogmas and paradigms, first economic and then legal ones, and then to transform them into desirable states. To a representative of economic sciences, law will be a tool that delineates the boundaries of acceptable behaviours, protection of property rights and reduction of social costs. To a representative of law, economic analysis, especially in civil and criminal cases, could be crucial and irreplaceable in establishing reliably the guilt and penalty, ultimately leading to wise law-making and application of law. Such an approach would be justified seeing as the methodology of scientific research in legal sciences is undergoing a sort of identity crisis, and theoreticians and practitioners of jurisprudence are struggling with the need to work out functioning ways and possibilities of conducting doctrinal research (Smith, 2017). Research methods that are most often applied in legal sciences, such as dogmatic, comparative and historical method do not refer to facts but solely to the content of a legal norm (Kelsen, 1937), causing them to overlook or insufficiently address the ontological reality. Moreover, the fundamental dogmas of the legal doctrine can be, to a great extent, falsified using Popper's critical rationalism:

1) There is one legislator—falsification: in a model perspective such a dogma would be legitimate but in internal and external relations we have, after all, a formal and an actual legislator. Meanwhile, as regards integration groupings such as the EU, we can speak of two legislators in the implementation of the EU, especially in case of complete harmonisation, based on a single standard with no possible derogations. Furthermore, the existence of one legislator would fit squarely into the practically fictitious separation of powers into three branches, which originated from the continental legal culture (Habermas, 2005) rather than from pragmatic solutions used in the interplay of powers. The judiciary does not only apply laws but through their interpretation in dispute adjudication also creates new laws. In turn, the executive power, even in the presidential system, where it has no legislative initiative, may have an impact on the shape of laws in the pipeline.
2) The legislator is rational—questioning the paradigm of the legislator's rationality would be tantamount to questioning the entire jurisprudence and legal dogmatics. As a matter of fact, rationality is idealised and often unattainable in practice, reducing a legislative action to one that is effective but logically, methodologically as well as ontologically and epistemologically limited by the decision-maker's own deficiencies, values and preferences. Nevertheless, the legislator's rationality can be treated as a paradigm but it seems necessary to adopt a counterfactual perspective, that is one which acknowledges the above-mentioned limitations, especially the awareness of unreality. Hence, if we assume the interpretation of G. De Geest (1996), for example, as the main paradigm in law, it can be argued that the assumptions of a given theory within economic analysis of law are only meant to translate human behaviour to law, and not necessarily to lead to the understanding of human behaviour. Thus the legislator does not have to be strictly rational, and the very idea of paradigm refers to a model attempting to reflect idealist approaches, with greater or smaller deviations from the original. In that case, though, would it not be worth working also on the theoretical post-modernism of the legislator's rationality since it failed the test of time confronted with facts, the same as R.E. Lucas's (Lucas, 1972) theory of rational expectations did in economic sciences? Indeed, a number of studies have demonstrated that the hypothesis

of rational expectations may be insufficient for economic operators to take decisions (Frydman, 1982) or require a more systematic modelling of planning (Mlambo, 2012).

3) Law—as a system of norms created by the legislator—this dogma essentially defies all attempts at falsification. Both within the meaning of objective law expressed in the legislative acts enacted and published, and subjective law—whether we are dealing with the systemic perspective of legal positivism or natural law perspective—it is a more or less multicentric and networked system of different subsystems and legal orders as part of the acceptable level of cohesion. In this sense, the systemic scope will be preserved if the legislator retains the capacity to derogate from a given norm which is in conflict with another norm and/or if it is possible to apply an interpretation of legal norms that avoids conflict, and/or conflict rules.

Economic analysis of law extensively uses in its research methodology an event history analysis, rare-event time series techniques (Berry and Berry, 1992; Murray, 2018), statistic macroeconomic and microeconomic analyses, W. Domhoff's (2002) theory of power or the analysis of economist and lawyer migration (Schleef, 2015). Of equal importance are scenario and simulation methods, often used jointly. Simulation methods which use the decision theory may be of particular interest in determining the degree of utility maximisation and identifying decision-making behaviours—which, as a result, may serve to design and implement legal changes. Specific economic operators, or specific economic systems (company, state) are replaced with an analogue of a model constructed in a prediction of specific behaviours, where, rather than a real experiment, a thought experiment is carried out referred to as a simulation experiment.

Systemic possibilities of using economic analysis of law can be found, among others, in the research into compensation and anti-bankruptcy mechanisms for financial institutions (Dijkstra and Faure, 2011) or research into the risk prevention possibilities and choices. This is especially true of research into autonomous individual choice and expected utility function (Phillips, 2015). It must be emphasised, however, that not all of these economic schools and models have stood the test of time and some of them may currently be out of touch with reality, regardless of the model limitations and interpretations we might impose. This is why variables and modifications of known economic theories should be considered at all

times in the research process adopted, and a good foundation for that could be behavioural analysis of law, even if it is not error-free. In turn, A. Freeman (2010) notes that the use of deterministic theories which fail to acknowledge the context of human actions leads to distortions and adoption of the mistaken assumption that there is no real alternative to the adopted direction of economic law and free market capitalism. He rightly goes on to argue that equilibrium models always point to unavoidable results caused by the market, that is impersonal forces—which contradicts decision-making capacities of specific individuals as decisions depend on the will and choice of a human being rather than on a model. Furthermore, the research methodology of economic analysis of law was underappreciated and scientifically weak wherever legal realism was disregarded and replaced with autonomisation of the jurisprudence methodology.

3.5.2. Criticism of economic analysis of law—pros and cons

Those contesting the importance of economics in law have demonstrated, as part of a critical analysis, that economics may only present reliable calculations and results, but the ultimate decision choice depends on normative options which are determined by ethics, experience or a certain form of aesthetics. Among them is R.P. Malloy, who believes that economic sciences do not contribute science into law, only a certain code of cultural interpretation (Malloy, 2004) — a view that is hard to concur with from the economic, methodological and pragmatic point of view, considering that Malloy disregards various economic schools of thought, only referring to the neoclassical economics. Indeed, such statements are proved wrong when confronted with facts, especially with the international assessment of scientific research in economics. Between 1969 and 2018, the Nobel Prize in economics was awarded 50 times to 81 scientists, and their research touched on, among other things, the application of dynamic models in the analysis of economic processes (winners: Ragnar Friesch and Jan Tinbergen 1969), empirically founded interpretation of economic growth (winner: Simon Kuznets 1971), pioneering research on the welfare theory and contributions to general economic equilibrium theory (winners: John R. Hicks and Kenneth J. Arrow 1972), pioneering research into the economic decision-making process (winner: Herbert A. Simon 1978), application of econometric models to the analysis of economic policies (winner: Lawrence R. Klein 1980), economic and political decision making

(winner: James R. Buchanan 1986), and the famous research on applying microeconomic analysis in human behaviours—including illicit and non--market behaviours (winner: Gary S. Becker 1992), analysis of equilibria in the theory of non-cooperative games (winners: John C. Harsanyi, John F. Nash and Reinhard Selten 1994), consistency of economic policy and business cycles as part of dynamic macroeconomics (winners: Finn E. Kydland and Edward C. Prescott 2004), analysis of economic governance (winners: Olivier E. Williamson and Elinor Ostrom 2009), analysis of market power and regulation (winner: Jean Tirole 2014) (All., 2019). At the same time, the practical perspective of economic analysis of law proves that a more rigorous economic analysis has become a requirement over recent years in class action suits and anti-monopoly proceedings before US courts (Langenfeld and Richards, 2014).

Some researchers emphasise that the theories used in economic analysis of law display a high degree of abstraction, and that precise forecasts and quantitative studies require advanced mathematical methods to justify normative evaluations. This gives rise to criticism that too much mathematics hinders legal and economic evaluation (Morrison, 2009: 120). It is a fact that mathematical equations may be used in the framework of general theory of cognition, but those equations are also translated into the language of logic and reasoning. Indeed, it is hard to expect that representatives of legal sciences but also, at times, of economic sciences, who lack basic knowledge of the formal structure of mathematics or, more broadly speaking, econometrics, will be able to read and understand the scale, structure, space and change in respective research domains and the problems being solved.

Economic analysis of law is particularly criticised as part of Critical Law Studies (CLS). It makes one wonder why in this seemingly constructive but not error-free criticism there emerges a sort of radicalism or conservatism which wrongly assumes that economists, who are, after all, representatives of social sciences, think and act only in an instrumental manner, aiming for a situation where the legislators starts to think in reductionist terms? Why would their intention be to glorify the stronger and make the majority market participants worse off? (Parfit, 1986). CLS often wrongly omits to mention that: maximisation of allocative efficiency in law and economics (L&E) fits squarely into the neoclassical school of economics only (the so called Chicago school) or into the extreme libertarian liberalism—which is wrong as it would mean excluding other economics

schools from L&E, which provide for and recommend a broad perspective of state interventionism, among other things.

There is the Progressive School within L&E (the so called Legal Reformist School), which points to the need to reduce costs but calls for fixing any inefficiencies through government interventions—so, for obvious reasons it is at a variance with the traditionally understood neoclassical economics and mainstream. There is also Institutional School of L&E, which investigates interrelations between economics and law (Medema, 1989). Moreover, within L&E research there is also a functional perspective of the so called Virginia School (Parisi et al., 2017: 48–61), based on the public choice theory and analysis of nonmarket decision-making process. It is this (functional) trend that focuses on normative individualism and clearly indicates that law may not be always economically efficient as the state does not always act in the interest of the general public (Mackaay, 1999).

In this context, valid and pragmatic propositions are being put forward by former World Bank economist and former main economic advisor to the government of India, Kaushik Basu, who says that the traditional, namely neoclassical economic analysis of law, cannot always be effective. In a theoretical analysis and using game theory he rightly argues that the effectiveness of law depends most of all on commonly held views, expectations, actions and reactions. An amendment to law will not in itself change anything unless there is a change in the views of the society that is to apply this new law. Higher penalties and fines hardly ensure greater compliance, quite the contrary, they may lead to stigmatising law as useless if there is a greater potential for collusion and bribery as part of illicit actions of two or more contracting parties (Basu, 2018). This is why what matters more is continuous rather than occasional compliance, building the culture of norms and behavioural patterns, irrespective of individual political sympathies or other social phenomena.

Conclusions

Microeconomic categories of economic rights in the economy are the building blocks of the macroeconomic dimension with strong deterministic correlations. It is the dynamic causality links, functional links and those based on the simultaneous co-existence of many economic events that make economic analysis of the tax system such an uneasy task. Tax system

represents one of the key interfaces between *homo oeconomicus* and a given country's or country grouping's power of taxation, where this power is actively contested. An unintentional or deliberate attempt to maximise individual utility is made through profit maximisation, at the expense of reduced tax burden.

Nation states each year try to build a budget for the upcoming year, relying on historical data and taking account of the expected financial flows and economic trends for the next year. The problem is, however, that, contemporarily, planned taxable investments, capital, goods or services can be drained virtually overnight. As a rule, this is not accounted for by microsimulation models, general equilibrium models and even by dynamic stochastic general equilibrium models and the dynamic distribution analysis, unless they have been programmed to do so. Usually these models assume a baseline approach, less often an optimistic scenario, and almost never a worst-case or crisis scenario. In addition, in many countries there are virtually no reliable methods in place for modelling and analysing these phenomena. A remedy could be economic analyses of law, but if they disregard economics and only focus on the interpretation of legal provisions, it is hard to expect them to address, for example, the sharing economy, new shadow economy phenomena and demand and supply factors which determine the allocative decisions in the economy.

Economic analysis of the tax system should be a must in every country that truly cares about the common good and strives to consciously create and implement specific economic policies.

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