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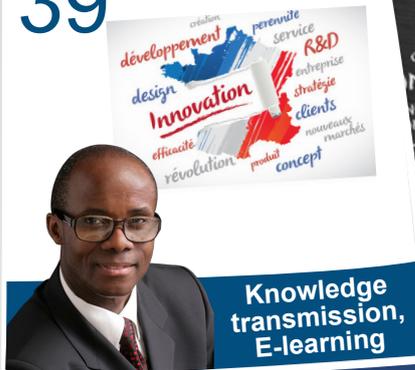
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About InterRegioNovation

InterRegioNovation is the International Association devoted to the transfer and exchange of knowledge and innovations at all regional levels (country, region, city, community etc.) between knowledge transfer professionals (business, research institutions, policy makers, government agencies, individuals, others) in all countries of the enlarged Europe, CIS countries and from other continents for stimulating and enhancing economic and social growth in the regions.

This is a policy and research association that brings together all knowledge transfer professionals who are interested in delivering efficient, flexible, innovative and cost-effective services across the private and public sectors. We work closely with business, research and educational institutions, government agencies, policy makers, NGOs, media, individuals and other stakeholders to promote the interests of their industries.

Our members understand the changing needs of the transfer and exchange of knowledge and innovations and through continuous professional development, marketing and networking opportunities offered in this association, we keep current with the latest knowledge trends and issues that challenge people in their work and life journey. We also offer expansive opportunities for partner connection through our networks.

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About journal

On behalf of the Editorial Board, it gives us a great pleasure to welcome you to the second issue of 2019 of the Regional Innovations Journal.

The Regional Innovations publishes original research papers, policy analyses, review papers and book reviews in order to establish an effective channel of communication between business, research institutions, policy makers, government agencies, and individuals relative to the analysis of various aspects of knowledge and innovations transfer and exchange within regional dimensions.

This is an independent, peer-reviewed, Internet-based international journal devoted to publishing original research papers of highest quality, sharing ideas and discussing innovation sector within regional dimensions. The journal welcomes to submit research papers by exceptional innovators, leading universities, globally recognized business, government agencies, policy makers and political leaders.

We intend that our readers will be exposed to the most central and significant issues in innovations development. We wish to publish papers that exemplify the highest standards of clarity, and that promise to have significant impact on existing front-line debates or to lead to new ones. The journal explores key priorities of the knowledge and innovations transfer and exchange in terms of critical aspects of human life (economy, law, science, business, health, education, culture etc.). We therefore welcome submissions not only from established areas of research, but also from new and emerging fields and those which are less well represented in existing publications, e.g. engineering studies, biomedical research etc.

We also strive to ensure that being under expert evaluation, each submission will receive developmental and supportive comments to enhance the article. Our refereeing process will involve that each submission will be reviewed by one or more specialists in the relevant field. Articles will be added to the volumes and the journal audience will receive e-mails updates to encourage them to the new articles.

We are delighted with, and immensely grateful to the large numbers of colleagues, both members of the Associations InterRegioNovation and FranceXP (France), representatives from many universities in France, Latvia, UK, Azerbaijan, China, Nigeria, Belarus, Ukraine and other institutions, who have supported the editorial process. And we are very proud of the expertise that they collectively bring, which we believe is unsurpassed by any contemporary innovative journal.

We are immensely grateful to our colleagues for their support and advice through the process of setting the journal up, and for the confidence they have placed in us in supporting this initiative at a time of economic uncertainty.

In the development of the Regional Innovations to date, we would like to enlist the support of a number of organisations who wish to promote this online journal to their experts. To ensure its sustainability, we would also like to invite other organisations, networks, conferences and meetings to associate themselves with the Regional Innovations. We therefore aim for the Regional Innovations to become the leading online forum to globally disseminate outstanding research papers on innovation sector in regional dimensions. Being an online periodical, the Regional Innovations is also a forum for exchange of imaginative ideas readers wish to share. Contributions of articles on innovations sector and your comments about this issue are very welcome.

To this end, if you lead, represent, or are a member of any such organisation, please contact us to offer your support and commit to promoting the Regional Innovations as a publication outlet for research undertaken by your experts.

We do hope you enjoy and benefit from the Regional Innovations! And many thanks for staying with us in 2019!

Jean-François Devemy
Editor-in-Chief

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career, professional politicians who, in Weberian terms live from politics rather than for politics [6].

Similarly, it is important to distinguish technocrats from technicians (those who merely provide analysis or advice but are not involved in decision-making) and from bureaucrats (who administer but do not, as a rule, initiate, policy) – indeed technocrats tend to regard bureaucrats as an obstacle to reform and seek to reduce their power [7]. Drawing on the ideas of Habermas, Centeno observes that “the technocratic model of objective necessity replaces the decisionistic model of politics, which leads to a ‘scientification of politics’ and inevitably produces an authoritarian political framework” [8].

While technocracy may be an easy target for criticism, it may be more symptom than cause. In the same year as the example above, 2011, technocratic rule was expanding in Europe, as apolitical technocrats were appointed as heads of government in Italy and Greece in the wake of the financial crisis of 2008 and its repercussions within the Eurozone. By 2013 a reaction against technocratic government was gathering momentum among commentators in Europe. Some even drew a parallel between what had happened with Russian privatisation in the 1990s (a theoretically correct approach diverted from its stated aims by political realities) and the limitations of technocratic reforms in the Eurozone [9].

The informed challenge to technocracy has typically been based on an assumed opposition between politics and technocracy in which politics is seen as pragmatism, the art of the possible, whereas technocracy might be seen as the science of the impossible, rational but not practical.

However, this does not, of course, exhaust the possibilities of the debate, as the context of political activity has, in the years since 2008, itself undergone a transformation, with the emergence of populism as a counter to traditional party-based politics. As early as 2010, Canadian commentator and politician Chrystia Freeland was arguing that the struggle between technocracy and populism had replaced that of Left and Right [10]. The implication was that struggles between conventional politics and populism within Right of Left are now more important than between Left and Right. This is complicated further.

Technocracy and Institutions

In what circumstances are the skills of the technocrat more appropriate than those of the politician? The received wisdom is that a technocrat government is needed when unpopular reforms need to be pushed through, although the effectiveness of this approach is constrained by lack of accountability [11].

It follows that where accountability, especially in terms of democratic institutions, is weak, then technocracy will play a greater role. The role of technocracy in Russia, China and developing countries are discussed below.

Russia

Technocratic reformers, seemingly separated from political and cultural reality have been a recurring feature in Russian history [12]. The distinguishing factor is the inability to establish to establish a political base outside government itself. Although wider public support existed in the early 1990s it had largely been lost by the mid-1990s, leaving the reformers either to go into permanent marginal opposition or to become dependent on the central executive power [13]. To some extent this process was exacerbated by the reformers’ tendency to focus on the executive and assuming that public support was either secondary or unattainable.

This was similar to the model of reform made famous, two decades earlier, by the ‘Chicago boys’, the technocrats who introduced neoliberal reforms in Chile after 1973 (although some have argued that they were more revolutionaries than technocrats) [14]. The Russian reformers had, as early as 1992, split into those in favour of greater concentration of power, and those against [15]. Some reformers even exhorted the incoming President Vladimir Putin to be Russia’s Pinochet and force through reforms [16]. The state-strengthening agenda of Putin’s first term (until 2004) was not seen at first seen as necessarily conflicting with the aim of extending the market economy – alongside the *siloviki* there were also economists and technocrats (associated with Medvedev) [17]. In retrospect, the technocrats may have been the logical catalyst that transmuted the *rechtstaat* envisaged by reformers into the ‘dictatorship of law’ that later emerged [18]. The first Putin term ostentatiously broke with the patrimonialism of the late Yeltsin era (typified by special agreements between Centre and individual regions) but after the financial crisis and the Medvedev presidency, the technocratic aspect gave way to nationalism and populism, a trend which was to spread across Europe. Interestingly, by 2018 a partial retreat from populism was observed in that a new generation of technocrats began to be appointed to regional and national posts [19], the idea being that these will ensure the survival of the state in a future transition.

The Russian example shows technocracy not so much as a means of reform but as a means of consolidating power. The experience of Russia called in question the technocratic approach to reform. The EBRD concluded [20] that that, contrary to previous belief, successful reform was more likely to come from political competition than from ‘a stable, strong government of technocrats committed to reform’. This tendency has not

been confined to Russia but has characterised reform in many developing or transitional countries, where the phenomenon of a network of technocratic experts close to central executive power and, in many cases, supported by external development assistance, but with little wider support, has long been familiar.

In the end, technocracy needs to be assessed against the realistic alternative. In Russia technocrats, which professional expertise are balanced against 'aristocrats', people who have primarily used connections [21]. In this context technocracy is an improvement – I recall a Russian official in the early 1990s, regretting the loss of the Party structure for selection of officials – the argument being that under Party rule about half of those appointed were on connections, half on technical merit, so that a workable minimum of competent people were appointed. Now a logical trend may be discerned, whereby technocrats go to state administration and aristocrats go more to the state-related economy, although it is not possible to generalise.

Technocracy in International Development

A longstanding criticism of development has been its technocratic focus [22]. However, since the early 2000s international development thinking has seen a trend away from the standardised apolitical approaches of previous decades. There has been a growing acceptance that international policy transfer needs to take account of the particular patterns of politics, culture and power of a given country, as exemplified by the Drivers of Change studies of the early 2000s [23] and, more recently, the PDIA (Problem Driven Iterative Adaptation) approach [24] which seeks to link international best practice reforms to adaptive locally-driven problem solving. Andrews presents [25] the terrain of reform as being like an iceberg with only the formal, regulative aspect visible above the surface, while normative, cultural and cognitive factors remain hidden below the surface, invisible to technocratic reformers who focus on the formal and visible and who are subsequently surprised when the invisible contextual factors de-rail the reform.

A related trend has encouraged development aid to be more 'politically smart' through TWP (thinking and working politically), although its proponents note that this approach is not so readily adopted by economist as by governance [26] advisers. In this respect, technocracy is sustained by (and sustains) the organizational division of labour and professional boundaries in government and in the national and international public sector more generally.

China

Critics of technocracy in international development have traced its origins, at least in part, to the top down

authoritarian planning model promoted by US experts in nationalist China in the 1930s [27]. However, Chinese scholars have argued that technocratic government fits well with China's meritocratic traditions and that a key element in Deng Xiaoping's reforms, from 1978 onwards, was the mass recruitment into government of experts, primarily engineers [28], into senior positions after decades during which ideology had trumped expertise, with disastrous results, such as during the Great Leap Forward [29]. It was not just a matter of introducing engineers into politics but also liberating engineers from politics [30]. Deng himself was a fitter (trained in France) rather than an engineer and was a lifelong career politician, veteran of bitter party power struggles, rather than a technocrat, and whose conversion from Maoism to market economics was based on pragmatic experience. The same was true of Deng's key ally (until 1989), Zhao Ziyang. On the other hand, Jiang Zemin, Deng's safe replacement for Zhao after the latter's democratic turn in 1989, was an engineer more in the technocrat mould, referring to himself as the 'chief engineer' implementing the design of Deng as 'chief architect' in what was seen as the emergence of a 'fully-fledged technocratic leadership' [31], a trend that became more evident under successor Hu Jintao [32].

The breakthrough reforms had been led by former revolutionaries (interestingly, both born into the minor landowning class) whose skills and concepts had been developed in political battles, whereas the maintenance and consolidation of the reforms was the responsibility of more formally educated technocrats. The lead reformers were thus now the theorists that in some other cases were seen to be the most credible reformers in a difficult context. Perhaps for this reason they did not follow a simple trajectory, but created a complex and functioning system involving checks and balances rather than working to a blueprint. The aim was to formalise the political process and make the system less dependent on charismatic leadership or personal connections, thereby preventing concentration of power. The resilience of an authoritarian system, according to recent historical research [33] lies in its ability to balance central control of officials and decentralised management of the people, achieved through a system of a system of prefectures and district as practised in various forms during Chinese history.

The semi decentralised system began to run into difficulty by the 2010s and the re-centralization initiated by the current president, also an from an engineering background, represents a different type of technocracy, drawing on systems thinking [34] (echoing the ways in which the power in the Russian system of governance was re-concentrated) and has seen the engineers' generation replaced by experts in politics, law and philosophy [35], in this respect not unlike political elites

in the Western world, except that in the latter overall leadership is provided through democratic selection.

Daniel Bell, (without arguing against democracy as such), has sought to demonstrate the advantages and internal logic of this system of ‘political meritocracy’ [36] – perhaps seeing in the Chinese leadership an example of the systems-based ‘intellectual technologists’ that he had identified in the early 1970s in MIT and the Club of Rome [37]. The principle of meritocracy and the competitive civil service entrance examination has long been a feature of the Chinese system, praised by Voltaire and used by Northcote and Trevelyan as a model for the reform of the British civil service in the 1850s, although the Chinese system of meritocratic appointment had never been based on the principle of separation of politics and administration [38]. Some have argued that the idea of China as run by a technocratic meritocracy has been exaggerated by those who wanted to use the example of China to promote meritocracy in Europe [39]. This seems too dismissive - China has applied elements of impersonality in the selection and promotion of bureaucrats for over two thousand years, it being applied as a means of maintaining state power in the face of powerful interest groups such as aristocratic families [40].

Although Chinese government does not have a clear political-administrative divide, there may be seen to be a divide within the meritocratic principle itself in China, according to Wang and Pavlicevic, between expertise and ideology reliability [41]. By ideology is meant here adherence to the policy architecture of the day, not just to state ideology. Wang and Pavlicevic’s research hypothesized that China’s public administration reforms would lead to convergence with Western ‘one-dimensional’ competence-based meritocracy, that, as the state developed, ability would side-line ideology. This was found to have occurred to a limited extent, which they refer to as ‘transitional meritocracy’ in which professional expertise is the main but not sole element in selection. The lack of a political-administrative divide perhaps makes it inevitable that meritocracy contains a political element.

Current Trends – Beyond Governance?

Europe since 2008 has also not been entirely safe for pure competence meritocracy. Varying degrees of politicization of the civil service may be observed in Europe – for example, CEE countries first de-politicised their civil servants then (in certain cases) re-politicized them some years later [42]. In the UK, once seen as a classic example of the impartial civil service, the principle has been eroded in recent years as successive governments have sought to extract commitment rather than neutrality from their officials – a process which may

be intensified as a result of the continuing Brexit crisis [43].

It is open to question whether the British civil service elite qualify as technocrats when their generalist orientation implies that capability is superior to expertise. France, on the other hand, has a tradition of expertise based technocracy, dating back to Saint-Simon. However, just as impartiality has lost some of its perceived value in Britain, so in France there has been a reaction against the ENA trained elite, to the extent that President Macron, himself an ENA graduate, has planned to close the prestigious institution in order to widen access into leading positions [44].

Despite these anti-technocratic moves, the general trend, reinforced by technological changes, is towards technocratic government. It has been found that in many countries competent government is a higher priority for people than representation [45]. In countries such as Lebanon, there have been explicit demands for a technocratic government, in other words, one where officials are appointed according to merit rather than their community identity [46].

Two trends nonetheless may contribute to the trend towards technocracy. Firstly there has been the erosion of the trust in, or understanding of the idea of impartial bureaucracy as a necessary player in a pluralist system of checks and balances [47]. The decades-long search for a form of government ‘beyond bureaucracy’ is still continuing. As the market-based paradigm of New Public Management encountered practical and political limitations, there was, from the 1990s onwards, a growing intellectual trend towards networks as an organizational principles, in which power would flow horizontally rather than hierarchically. While it was clear that traditional hierarchies needed to incorporate more horizontal collaboration, the trend was towards delegitimization of hierarchies altogether, which could only mean that power relations would become more informal and more personalised. The popularity of various permutations of the governance concept [48], incorporating the idea that government, in terms of formal institutions, was fading away in favour of partnerships and networks. This transformational view of governance has been countered by sceptics who have demonstrated that in practice state authority is not fundamentally altered by working in collaboration and partnership [49].

However, the advance of technology is fuelling a perception that states will no longer be able to exercise power in the traditional sense – the pervasive view is that power has been over-concentrated and will or must be dispersed although it is not always clear whether this will actually benefit the majority [50]. The view is not just about power being re-distributed but a change in the

nature of power from formal to informal, competition to collaboration and from expertise to ‘maker or do-it-yourself culture’ [51]. This sounds exhilarating, but it could be seen to lead to a weakening of facts and accepted knowledge and decisions taken without an adequate technical basis. Here a counter-trend may come to the rescue, via the concept of epistocracy – where the technocrats may be recognised as knowing better than the public [52] although it is not always going to be clear whether this superior knowledge will gain wider legitimacy [53]. Meanwhile, even among technocrats who have risen through the administrative state there are those who are sounding the alarm over this loss of legitimacy [54].

Disruption (through changes in technology, for example) of institutions may lead to reform but de-legitimation, through loss of trust may lead to these institutions being by-passed or undermined. In this respect technocracy and populism, although opposites in that one prizes knowledge or expertise while the other holds these in contempt, may be the twin symptoms of a crisis in the party democracy model, to which both are opposed [55]. The danger is that this may lead to the toxic blend of ‘technocratic populism’ [56], where democratic or competitive party processes are replaced by a simplified combination of management and appeals to mass emotions, reproducing in politics separation of thought and action associated with Taylor’s Scientific Management (or the digital Taylorism facilitated by

artificial intelligence, in which few will have permission to think [57].

Conclusion

In this article we have seen that technocracy has different faces in different contexts. From the China cases the following points may be emphasised. Firstly, that there is not, as sometimes seems the case in Europe, a simple dichotomy between elected politicians and unelected technocrats. One may, in addition, draw a distinction between elected and unelected politicians and between administrative technocrats and experts technocrats and between ideological and professional technocrats. In practice and in different systems there may be degrees of overlap between these categories. However, the conclusion may be that technocracy should be an instrument (as in China in the early reform period) not an end in itself as a basis for power. It should be developed to complement rather than side-line party politics and impartial administration. Where technocracy connects with populism, there is a danger of a reversion to managerial ideologies of the inter-war type as in Burnham’s Managerial Revolution [58]. However, for a more optimistic outlook, it is worth noting Orwell’s response [59], that the managerial revolution theory put too much emphasis on the application of power and too little appreciation of the strengths of institutions. The evidence of China in the 1980s is that technocracy can create or catalyse complex processes of development rather than simplistic plans of the past.

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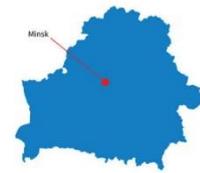
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Belarus

**LOCAL GOVERNMENT AND SELF-GOVERNMENT SYSTEM IN THE
 REPUBLIC OF BELARUS: PROBLEMS AND PROSPECTS FOR
 IMPROVEMENT**

Abstract

The article deals with the problems of local government and self-government in Belarus, the key of which is centralism. New forms of interaction of local authorities with the local community and mechanisms for regulating regional development are revealed. The main directions of reforming the system of local government bodies and the development of the institution of local self-government in Belarus have been determined.

Key words: local government, local self-governance, de-bureaucratization, local initiatives, partnership, reform, local strategies.

The Belarusian system of local self-governance has many specific features in comparison with the systems existing in other countries. It is represented by several institutions: local councils and territorial public self-government. And the main thing is the state model of local self-government, it is inseparable from the system of local governance as the state power at the local level [1; 2].

Such a state approach to building a system of local government has played and in some cases continues to play a significant and effective role in the management of socio-economic and social development of the country.

In Belarus, one of the few countries of the former Soviet Union, social stability is maintained in the society, since the government guarantees social security regardless of the place of residence of the citizen. In the conditions of preservation of the state property, changes in the economy, modernization of branches of the economy on a new technological basis, administrative methods of regional development management are considered as more acceptable.

Belarus is at the stage of transition to market economy, state property is persisted in the country, and in this situation the key task of the local authorities is to create institutional conditions for business development and

support small and medium enterprises. This role is played by local authorities as local policy agents.

The components of this success are: implementation of administrative resources, personal responsibility of the head, strict control over the activities of government agencies, including the population.

At the same time, the weakness and shortcomings of the existing system of local government have recently become more and more evident.

1. First of all, it should be noted that the country's executive authorities, or the presidential vertical, have a stronger influence on the development of the regions.

Representative bodies in the form of *House of Representatives* are not organizationally separated from the executive bodies, their task is to control and coordinate the actions of the state authorities at the local level, based on regional interests.

In the conditions of centralism, the mechanism of self-development of local communities suffers, taking into account the great diversity of cities, villages and countryside, it is impossible to take into account all the local specifics from the center, to identify the reserves of growth. Lack of consideration of local specifics reduces the efficiency of public funds transferred to the regions "from above".

The system of local governance and self-governance in the country is three-tiered (region, district, and village council levels). Functions are almost completely duplicated, only the lower (primary) level has a more limited scope of authority. Relations between the levels are based on the principle of subordination. This leads to the parallelism in the work of local authorities, the workload of employees in the preparation of various references and reports "upwards", reduces the flexibility of the system.

The same principle of subordination applies to different actors located in the regions. The formation of the private sector and the strengthening of civil society institutions have led to the fact that entire sectors have begun to fall out of the field of local government administration and management.

With regard to relations with the local community and citizens, the country is constantly working with citizens' appeals in the aspect of solving the problem of de-bureaucratization of local government bodies. In order to establish feedback on the following issues: the population - local authorities have introduced a book of complaints and suggestions, hot and direct telephone lines have been organized on a systematic basis, heads of public administration bodies and specialists carry out personal receptions of citizens, and additional guarantees for consideration of citizens' appeals have been established. Administrative procedures are carried out by citizens through the "single window" system.

However, these are all so-called "passive forms" of citizens' participation in resolving issues of local importance, mainly related to information. As for active forms of cooperation with the local community, despite the fact that the Constitution provides for forms of direct democracy, however, due to legal difficulties they are practically not implemented in the country [3].

Centralism is also characteristic of the financial and budgetary system in the country. The level of tax autonomy of local governments is insignificant - the volume of local taxes and fees, as well as additional revenues as a result of the implementation of the rights to increase the rates of real estate tax and land tax by local governments is not more than 6 percent of local budget resources.

Thus, it is impossible to speak about the compliance of financial support and the scope of authorities of local government bodies. A significant part of local budgets is of a subsidized nature. Such a vertical imbalance between the volume of own revenues and the volume of expenditure obligations is eliminated by the system of deductions from regulatory revenues from the republic budget.

There is also a so-called horizontal imbalance, i.e. inequality of fiscal capacity per capita at the level of different districts, which is equalized by means of inter-budgetary transfers. However, in the absence of a clear scheme for calculating the size of such transfers to administrative-territorial units, equal access to the budget resources of regions is not guaranteed.

In all the above mentioned problematic areas of local government in the country today there are trends of its improvement, the growth of new relations, a new type of interaction, the state, the population, economic and other entities located in the territory. A number of initiatives aimed at improving the local government system have emerged in the course of the implementation of international projects, including those with financial support from the European Union.

What new phenomena in the management system are we talking about in the regional development and interaction of local authorities with the population?

Decentralization has been developed in the form of local community initiatives. In the country, the process of involvement of the population in the economic life of the regions, participation in the real solution of local community affairs through participation in project activities and the promotion of local initiatives within the framework of international technical assistance has been actively developed. As it is known, the initiative of the local community, citizens of cities and regions is one of the prerequisites for strengthening the institution of local self-government [4].

Several figures of statistics. From 1999 to 2014, 160 local initiatives were implemented in the country, and in 2015 -2018, only one project, "Support to Regional and Local Development", proposed and funded 157 local initiatives (722 out of all 118 districts of Belarus submitted applications). In the projects that won the competition, initiative groups were headed by 49% of representatives of educational institutions, 33% of local authorities, 28% of NGOs. 33% of the projects were implemented in the field of agro-tourism, 20% were social initiatives, 11% were aimed at supporting entrepreneurship, 11% in the field of sports and recreation, 8% were in the housing and utilities sector, and 4% were environmental initiatives.

As a result, new forms of rural business as self-employment appeared and were born, which first were financially supported by projects, and in the future focused on self-development. These are informal additional education for adults and children, physical culture and health improvement services, processing of agricultural products, preparation of berries, mushrooms, medicinal raw materials, formation of the territory's brand on the basis of promotion of outstanding

personalities who lived in a particular area, promotion of local dishes, etc.

New structures were formed to coordinate the activities of citizens, businesses and local authorities in the regions (resource centers, information centers, strengthened the potential of non-profit organizations working in the field of regional development).

For example, in a number of district executive committees there are public councils on entrepreneurship and agro-tourism, in the sphere of housing and communal services (Mozyr, Vitebsk), at the stage of formation of public councils on sustainable development.

Public councils as institutions designed to compensate for the lack of active forms of interaction between local authorities and citizens are considered as a negotiating platform for cross-sector interaction to find the best solutions in various areas of public administration, as a tool for consulting government agencies by representatives of civil society at the planning stage of decision-making affecting local development.

2. A new type of communication between regional stakeholders - partnership - has begun to emerge.

For this purpose, the impulse was received from the state authorities:

The Law "On Public-Private Partnership in the Republic of Belarus" dated December 30, 2015, which regulates the relations of cooperation between the state and a private partner, was adopted. There are few examples of PPPs so far. These include the construction of the Belarusian Children's Hospice, the construction of kindergartens in Minsk district, the construction of a hotel complex in Brest region.

The country has approved a social order, allowing non-profit organizations to participate in a tender for budgetary funds for the implementation of activities in the field of social services. The partnership relations began to be formed on the initiative "from below". Agricultural consumer cooperatives were established in rural areas as partner self-governing organizations. These are supply and sales cooperatives in the Stolinsky district, beekeepers' cooperatives in Volkovysk and Pinsky district.

The partnership principle has become a key principle in the development of local strategies for sustainable development of regions, districts, and rural areas with the participation of local authorities, businesses, public associations and local community initiative groups.

To date, there are more than 50 such documents in the country called "Local Agenda 21". They have been developed in all six regions, districts and village councils.

It is expected that after the adoption of the Law on Indicative Strategic Planning, this practice will become widespread.

3. A new phenomenon for Belarus is cooperation between districts, or administrative-territorial units of the same level, because the experience of such horizontal interactions is presented in Mogilev region, when five districts: Klichevsky, Bykhovskiy, Slavgorodskiy, Cherikovskiy, Krasnopol'skiy began to work together to solve local problems, which have become more acute and are associated with a decrease in income, deterioration of the environmental situation, and improvement of the level of social services. The cooperation resulted in the creation of a regional council of representatives of local authorities, deputies, businesses and public organizations, the development of a joint action plan, and the organization of fairs of regional initiatives and projects.

4. In accordance with the provision of the Law of the Republic of Belarus "On Local Governance and Self-Government in the Republic of Belarus" on the possibility of establishing associations of local self-government bodies, initiatives to create associations of local councils of deputies in the Grodno and Mogilev regions have appeared.

The possibility and expediency of creation of associations exist in the country at the level of village headmen and (or) territorial public self-government bodies associations.

It is the institution of headmen and territorial public self-government bodies that is the most complete embodiment of the principle of local self-government in Belarus. These institutes are now most closely connected with the interests of citizens and need essential support (organizational, financial) from the state. If at the level of local Councils of Deputies there are different mechanisms of coordination, then at the level of headmen and territorial public self-government bodies such mechanisms are not worked out in the country.

5. Financial and budgetary relations have been gradually improved.

The Ministry of Finance has developed a strategy for reforming the system of public finance management in the Republic of Belarus, where a number of innovations have been introduced.

It is planned to switch to results-based budgeting, which means shifting the focus from the management of budget expenditures to the management of results by increasing the responsibility and independence of budget process participants within the framework of clear medium-term targets.

The focus on the program-targeted method of allocating budget funds (currently about 17% of the budget in this way, in the EEU countries - 90%), as well as the application of the principle of competition between programs (subprograms) and budget funds managers, while the current practice is indexation of expenditures; Delegation of a part of managerial powers to the budget funds managers and gradual deviation from the principle of centralization of financial decisions will be implemented.

The main directions of optimization of inter-budgetary relations will be the establishment on a permanent basis of the rules of distribution of revenues between budgets of all levels, as well as the streamlining of the process of distribution of subventions in conjunction with the goals of public policy (by a certain method). The emerging innovations create a platform for further improvement of the system of local authorities, strengthening the institution of local self-government.

There is no legislatively approved and adopted concept of reforming the system of local government bodies in the country, but there are author's projects, including those developed on behalf of the President and public administration bodies.

Further improvement of the system of local governance and self-governance in Belarus is proposed in the following areas.

1) Reform of local government and self-governance bodies is a comprehensive reform, it should be implemented simultaneously with changes in the administrative-territorial division, reforming regional financial and budgetary relations.

2) In Belarus, taking into account traditions, mentality, peculiarities of the existing period of transformation of the economic system, it is necessary to preserve the state power at the local level. Perhaps, it will be a modified version of the presidential vertical of power.

3) It is necessary to develop a full-fledged institution of local self-governance, which exercises power under its own responsibility, has its own terms of reference and appropriate financial resources. It is expedient to carry out it at the grass-roots territorial level. However, the existing level of village councils is small. Therefore, it is necessary to improve ATD (administration territorial division).

4) It is necessary to change the content of management functions, moving away from administrative methods to indirect and economic management tools, especially taking into account the development of market relations. Here, digital technologies should be the driver of fundamental changes, the use of which will reduce the state apparatus, ensure transparency of the management process, and facilitate contacts between the authorities and the population.

5) It is necessary to actively form various communication institutions between different players involved in the regional process, to introduce contractual partnerships, to gradually promote the fact that the relationship of social contract between different social and economic groups, the dialogue between the authorities, business, and the local community would ensure social stability and harmony in society, which is a true democracy.

6) Education, increasing professionalism of managerial personnel, changes in mentality, overcoming the psychology of dependency among citizens, new forms of work with the local community should be the important directions.

These approaches are consistent with the basic principles of the European Charter of Local Self-Government and take into account the Belarusian specifics. It will take a long period of time, especially taking into account that Belarus is a young independent state, where reforms are implemented gradually, in an evolutionary way.

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EXPERIENCE OF THE EU COUNTRIES IN THE VAT ADMINISTRATION WITHIN THE PROCESS OF MEDIUM-TERM BUDGET FORECASTING AND APPLICATION POSSIBILITY OF SUCH EXPERIENCE IN UKRAINE

Abstract

On the path of the European integration of Ukraine, the problem of introducing effective medium-term budget forecasting and planning is becoming increasingly important. The article is devoted specifically to the development of VAT medium-term forecasting in Ukraine in the context of European integration. Medium-term forecasting of VAT is a component of the budget forecasting system, contributes to increasing transparency, consistent continuity of the budget process and improving fiscal discipline.

The experience of budget revenues medium-term planning and forecasting, in particular, VAT in EU countries, is analyzed in the article. The problems of European legislation adaptation in Ukraine is investigated. Process of the VAT harmonization in EU member states is analyzed.

Key words: VAT, budget, budget forecasting, budget planning, budget revenue forecasting, budget revenue planning, forecasting and VAT planning.

Formulation of the problem

Forecasting and budget planning of value-added tax is a part of the overall budget planning and forecasting system. In turn, budget planning and forecasting is a part of nationwide economic planning and forecasting. It should be noted that the reliability of budget forecasts and plans depends, in particular, on the balance of the state budget at all stages of the budget process.

The main objective of the state budget policy is to ensure a balanced budget system and sustainable economic growth, promote structural and innovation and social reorientation of the economy, as well as the formation of a favorable investment environment [1].

An important component of medium-term budget planning is medium-term forecasting of budget revenues. After all, the accuracy of forecasting the budget revenue amount depends on the size of set limits (funding limits) for all budget funds managers that they get annually. Among the taxes that are the basis of the formation of the revenue part of the budget, the most important is the value-added tax. Today in Ukraine, it provides about 54% of all tax revenues and almost 47% of the state budget revenues of Ukraine. The most important advantage of this tax is its potentially high fiscal

efficiency, due to a broad tax base, which includes most groups of goods and services. Consumption in any economic system never stops, because people always need certain goods or services and it is impossible to stop this process, and the change in the range of consumption will not significantly affect on the value-added tax revenue to the budget. Taxation of income or profit in crisis situations can often not be a reliable source of budget filling.

As practice shows, the deviation between the projection and actual indicators of revenue in medium-term budget planning in European foreign countries does not exceed 3-5%. In Ukraine, on average over the last years, the deviation between the projection and actual value-added tax revenue in the one-year budget plan was about 8%. This is too much significant deviation to start the implementation of medium-term budget planning and this problem has to be solved.

It is natural that value-added tax is important in the medium-term budget planning system. Its high-quality and efficient forecasting is an important prerequisite for the success of medium-term budget planning, since the state budget for financing various government programs is ensured by means of value-added tax revenues to the state budget. Therefore, approaches to improving the

quality of VAT forecasting and the introduction of medium-term budget planning require a more detailed research in the context of Ukrainian realities.

In addressing the above-mentioned questions, it is objectively necessary to research the experience of VAT functioning and medium-term budget projection in the EU countries and the possibilities of its implementation in Ukraine, because, given the European integration course of Ukraine, such experience can be indicative.

Analysis of recent research

The importance of planning and forecasting budget revenues and tax revenues is emphasized by the theorists and practitioners in administration, in particular, T. Stinson observes that forecasting budget revenues is the initial stage from which it is necessary to begin the research of problems that accompany the budget process [2]. Among the Ukrainian scholars studying this problem can be highlighted: O. Vasilik, K. Pavlyuk [3], L. Feshchenko, P. Pronozu, N. Kuzminchuk [4], S. Yurii, V. Stoyan, M. Maz [5], L. Safanov [6], Yu. Pasichnik [7] and many others. Despite the large number of researches within the framework of general issues, the analysis of the experience of VAT functioning and medium-term budget projection in the EU countries and the possibilities of its application in Ukraine remain relevant.

The purpose of the article and the hypothesis

The purpose of the article is to research the problems of the development of medium-term forecasting of VAT in Ukraine in the context of European integration and to outline areas of implantation implementation of the best European practice into Ukrainian reality.

The main hypothesis of the article is the assertion that the implementation of the best practice of EU Member States in national medium-term forecasting of budget revenues will improve the fiscal efficiency of VAT.

Presentation of the main material

For Ukraine it is important to constantly monitor progressive changes in the tax system of developed countries. Such an analysis will provide an opportunity to respond adequately to the new challenges of socio-economic development. It should also be noted that both positive and negative foreign experience in conducting tax reforms can be useful in terms of finding effective tax instruments for improving the domestic macroeconomic situation, in particular, with regard to forecasting and planning of budget revenues from VAT.

The tax policy in the EU countries following the sharp economic downturn of 2008 - 2009 is subordinated to the

need of improving the usage of fiscal and regulatory potential taxation by resolving the main contradiction: between, on the one hand, ensuring the balance of public finances and stabilizing the debt situation and on the other, creating conditions for GDP growth. At the same time, sustainable economic growth today (for the acute shortage of resources of the world capital market) is impossible without measures to improve the financial system of the state, and in turn significant changes in the issue of reducing the budget deficit and debt dependency can hardly be achieved without providing an improvement in the dynamics of economic development.

In the EU, Member States set their own tax rates. It can be noted that the standard rates varied from the moment of the introduction of VAT, but accounted for at least 15% (see Table 1). In most developed countries, not one, but several tax rates apply. In addition to the standard, lower rates are used for goods and services that have a social and cultural-consumer destination (such as food, medicines, children's clothing, public transport, newspapers, magazines) and spheres of business activity where VAT is difficult to calculate (insurance, finance). In VAT operating, preferential reduced rates are also used and, as usual, such rates are set for food, medicine and books.

It should be noted that the rates indicated in the table are valid for more than 6 months in the year under review or as at July 1 of the same year. When the course change occurred during the year (not January 1), the exact date is indicated in the notes. Low rates (below 5%) are indicated in brackets. "Transitional rates" are not included in this table, as they are "historical" rates below 15% due to the easing of the transition from a reduced rate to a standard rate, and is an exception to the EU directive (they are retained only in five EU member states). Let's try to fix individual bounce changes. In Bulgaria, on 01.04.2011 the reduced rate has increased to 9%. Czech Republic: May 1, 2004, the standard rate has fallen to 19%. Greece: all rates were increased on April 1, 2005. The general increase was on March 15, 2010 to 5/10% and 21%, the same year there was a further increase to 5.5 / 11% and 23%, which took place on July 1.

The reduced rate has increased to 13%, with a minimum rate of up to 6.5% from January 1, 2011. From July 6, 2015 there was a decrease in the rate of the low-level rate to 6%. The standard rate was raised on June 1, 2016 from 23% to 24%. Spain: there was an increase in rates on July 1, 2010 (a reduced rate of up to 8% and a standard rate of up to 18%). Both rates were additionally raised from September 1, 2012 (up to 10% and 21%). France: until April 1, 2000, the standard rate was 20.6%. Italy: Standard rate increased to 21% on September 17, 2011.

Table 1

VAT rates in EU Member States

EU Member State	VAT rates	Years								
		2009	2010	2011	2012	2013	2014	2015	2016	2017
Austria	standard	20	20	20	20	20	20	20	20	20
	reduced	10	10	10	10	10	10	10	10/13	10/13
Belgium	standard	21	21	21	21	21	21	21	21	21
	reduced	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12	6/12
Bulgaria	standard	20	20	20	20	20	20	20	20	20
	reduced	7	7	9	9	9	9	9	9	9
The United Kingdom	standard	20	20	20	20	20	20	20	20	20
	reduced	5	5	5	5	5	5	5	5	5
Greece	standard	19	23	23	23	23	23	23	23	24
	reduced	9/4,5	5,5/11	6,5/13	6,5/13	6,5/13	6,5/13	6,5/13	6/13	6/13
Denmark	standard	25	25	25	25	25	25	25	25	25
	reduced	-	-	-	-	-	-	-	-	-
Spain	standard	16	18	18	18	21	21	21	21	21
	reduced	7 (4)	8 (4)	8 (4)	8 (4)	10 (4)	10 (4)	10 (4)	10 (4)	10 (4)
Italy	standard	20	20	20	21	21	22	22	22	22
	reduced	10 (4)	10 (4)	10 (4)	10 (4)	10 (4)	10 (4)	10 (4)	10/5 (4)	10/5 (4)
Cyprus	standard	15	15	15	17	18	19	19	19	19
	reduced	5/8	5/8	5/8	5/8	5/8	5/9	5/9	5/9	5/9
Latvia	standard	21	21	21	21	21	21	21	21	21
	reduced	10	10	12	12	12	12	12	12	12
Lithuania	standard	19	21	21	21	21	21	21	21	21
	reduced	5/9	5/9	5/9	5/9	5/9	5/9	5/9	5/9	5/9
Luxembourg	standard	15	15	15	15	15	15	17	17	17
	reduced	6/12 (3)	6/12 (3)	6/12 (3)	6/12 (3)	6/12 (3)	6/12 (3)	8/14 (3)	8/14 (3)	8/14 (3)
Germany	standard	19	19	19	19	19	19	19	19	19
	reduced	7	7	7	7	7	7	7	7	7
Poland	standard	22	22	23	23	23	23	23	23	23
	reduced	7 (3)	7 (3)	5/8	5/8	5/8	5/8	5/8	5/8	5/8
Romania	standard	19	24	24	24	24	24	24	20	19
	reduced	5/12	6/13	6/13	6/13	6/13	6/13	6/13	6/13	6/13
France	standard	19,6	19,6	19,6	19,6	19,6	20	20	20	20
	reduced	5,5 (2,1)	5,5 (2,1)	5,5 (2,1)	5,5/7 (2,1)	5,5/7 (2,1)	5,5/10 (2,1)	5,5/10 (2,1)	5,5/10 (2,1)	5,5/10 (2,1)
Hungary	standard	25	25	25	27	27	27	27	27	27
	reduced	5/18	5/18	5/18	5/18	5/18	5/18	5/18	5/18	5/18
The Czech Republic	standard	19	20	20	20	21	21	21	21	21
	reduced	9	10	10	14	15	15	10/15	10/15	10/15

*Taxation trends in the European Union [8]

Further increase - up to 22% - occurred on January 1, 2013 10/01/2013. From January 1, 2016, 5% reduction of tariffs for medical, social and educational services provided by social cooperatives was introduced. Cyprus: On July 1, 2000, a reduced rate of 5% was introduced together with an increase in the standard rate from 8% to 10%. July 01, 2002 the standard rate is raised to 13%. The second reduced rate of 8% was introduced on August 1, 2005. March 1, 2012 the standard rate increased to 17%, and then on January 14, 2013 - increased to 18%. January 13, 2014, the second reduced rate increased to 9%, and the standard rate increased to 19%. Latvia: May 1, 2004 reduced rate decreased to 5%. On July 1, 2012

standard rate reduced to 21%. Lithuania: reduced rate 5% was introduced on May 1, 2000. From January 1, 2009, the standard rate grew to 19%, and from September 1, 2009 it increased to 21%. Luxembourg: the second lowered rate in the table is actually a "transitional" rate. Hungary: the second reduced rate of 15% was canceled on September 1, 2006. It was re-entered on July 1, 2009 in the amount of 18%, along with an increase in the standard rate of up to 25%. Poland: the low-level rate of 3% was introduced on September 4, 2000. Romania: The second reduced rate of 5% was introduced on December 1, 2008. July 1, 2010 the standard rate is raised to 24%.

On January 1, 2016 standard rate lowered to 20%. On January 1, 2017 standard rate reduced from 20% to 19%. United Kingdom: January 4, 2011 the standard rate is increased to 20% [8].

The statistics of the VAT rates shown in Table 1 demonstrates that the highest VAT rate in Hungary is 27%, the lowest is 17% in Luxembourg. At the same time, the analysis of the experience of EU member states proves that the average standard rate of VAT in the EU is 21.5%. It should be noted that after the global financial and economic crisis in 2008, a number of countries raised VAT rates. In 2008, the average standard VAT rate in the 27 EU countries amounted to 19.5%, and in the context of the global financial and economic crisis, a number of countries have further increased it: Finland - from 22% to 24%; Hungary - from 20% to 27%; the Czech Republic - from 19% to 21%; Spain - from 16% to 21%; Greece - from 19% to 24%; Lithuania - from 18% to 21%; Latvia - from 18% to 21%. The average standard rate of VAT in the EU member states in 2017 was 21.2%.

In 2011 Greece raised the reduced VAT rates from 5.5 and 11% to 6.5 and 13%, while in Italy the standard tax rate increased from 20 to 21%. In both countries, there was a decrease in fiscal efficiency of VAT by 1 percentage point. (from 6.3 to 6.2% of GDP and from 7.3 to 7.2% of GDP respectively [9, p.177]), which can be explained by the crisis of economic development and the increase in the rate in Italy in the second half of 2011. The impact of the market-driven factor on fiscal efficiency of VAT in the EU countries was observed even earlier. Thus, in the crisis of 2009, with an increase in the average standard rate of VAT in the EU from 19.4% to 19.8%, a decrease was recorded in the average indicator of its share in GDP from 7.7 to 7.4% [9, p. 31,177].

In most EU countries, after a sharp economic downturn in 2008 - 2009, there was an increase in VAT rates, which was caused by the aggravation of problems with budget filling and debt situation. As is known, the fiscal role of the VAT increase is lower than the increase in the rates of direct taxes and social payments, affecting the decision-making by market actors on the transfer of capital and increase the scale of the economy shadowing. Overall, in the post-crisis period of 2009 - 2013, nine EU-15 countries raised the standard and / or reduced VAT rates (with the exception of Belgium, Denmark, Germany, Luxembourg, Austria and Sweden; Denmark and Sweden has a standard VAT rate of 25%) and all new EU member countries. Moreover, many EU countries have raised the rates of this tax on several occasions. The average standard rate of VAT in the EU countries in 2013 compared to 2008 increased from 19.4% to 21.3%, in the EU-15 countries - from 19.9% to 21.4%, in the new member countries of European integration - from 18.8% to 21.2%. As of November 2013, the standard tax rate was less than 20% in five EU countries - Luxembourg, Cyprus, Malta, Germany and France (in 2010, there were nine such countries), varying from 20% in post-socialist

countries of the EU in Bulgaria, Estonia and Slovakia to 27% in Hungary. At the same time, we recall that in Bulgaria, Estonia, Germany, Luxembourg, the budget deficit in 2012 was less than 1% of GDP.

Only in 2013, in addition to Slovenia and Finland, that mentioned above, three other countries of the European Union were able to strengthen the fiscal position. In Cyprus, on January 14, 2013, the standard rate of VAT increased from 17% to 18%, and in Italy on October 1 - from 21% to 22%; in the Czech Republic from January 1, 2013, standard and reduced VAT rates increased by 1 percentage point (up to 21% and 15% respectively).

It should also be noted that in 2014 the increase of standard and one (average) of reduced VAT rates in France was expected from 19.6% and 7% to 20% and 10% respectively, as well as another increase in tax rates in Cyprus (standard - up to 20%, and lowered - from 8% to 9%) [10]. No intention to lower the rate / VAT rates in the near future has not been announced by any of the EU countries.

The increasing use of fiscal VAT potential by EU countries is one example of frequent tax changes due to new challenges and threats posed by the precarious balance of post-crisis recovery. It was mentioned above that many EU countries today adjust the rates of personal income tax, corporate tax and social payments for market players - employers, sometimes changing the direction of tax reform to the opposite. In addition, in 2011-2012, thirteen EU countries (Bulgaria, Germany, Estonia, France, Greece, Latvia, Luxembourg, Hungary, the Netherlands, Romania, Slovakia, Finland and the United Kingdom) increased the rates of social payments for workers (no EU country resorted to weakening the fiscal position of these payments) [11, 12].

The mentioned above questioned the expediency of reducing the general VAT rate in Ukraine to 17%, in this case it will be almost the lowest in Europe. On the one hand, reducing tax burden is a stimulating factor for the development of economic entities, on the other hand, it will lead to a sharp decrease in state budget revenues, especially since the Tax Code does not provide sufficient compensatory sources that would allow covering the budget losses. The classical theory of effective taxation argues that in order to achieve the maximum fiscal effect of lowering rates should be accompanied by a reduction in tax breaks. Instead, a sharp decrease in the rates of income tax and VAT in the Tax Code of Ukraine significantly expanded the list of benefits, exemptions and preferences. Most countries that apply VAT in their tax systems have introduced a set of measures to minimize the negative impact of this tax on the welfare of the population. In particular, the EU uses three tax regimes depending on the social significance of goods (in accordance with Council Directive 2006/112 / EC on a common system of value-added tax of November 28, 2006): 1. Consumer goods - a standard rate of not less

than 15%. 2. Luxury goods - an increased rate. 3. Socially important goods and services (food products, pharmaceuticals, library services, etc.) - at a reduced rate - not less than 5% [13, p. 109]. Such an approach seems rather rational and can be taken as a basis in Ukraine [14].

In countries with a well-developed market economy, VAT has a fairly high fiscal efficiency, with an average of 7.4% of GDP in the EU, and in some countries (Austria, Denmark, Portugal, Finland) - more than 8-9%. The range of fiscal efficiency fluctuations of VAT is relatively small - 4.3 percentage points (from 5.4% of GDP in Italy to 9.7% of GDP in Denmark), while the range of fluctuations of standard tax rates is 9 percentage points (from 16% in Germany to 25% in Denmark and Sweden).

According to its fiscal value, in most developed countries, VAT is inferior to only the personal income tax and social security contributions (social taxes), that is the third largest source of filling the state budget. Its share in the total amount of tax revenues (including social insurance contributions) is 18.2% on average in EU countries.

VAT is a fairly stable revenue source. Its fiscal efficiency in the EU countries in the 15 years (1985-2000) increased by one percentage point, and for 10 years (1990-2000) - by only 0.4 percentage points.

The fiscal efficiency of VAT in post-socialist countries are not much different from the developed countries. On average, this group of countries accounts for 6.9% of GDP, which is 0.5 percentage points lower than in developed countries. However, the range of fluctuations in the share of value-added tax in GDP in post-socialist countries is much higher than in the developed countries - 8.2 percentage points (from 1.9% of GDP in Romania to 10.1% in Slovenia), while the range of fluctuations in

standard rates - smaller (from 18% in Romania, Lithuania and Latvia to 25% in Hungary, ie 7 percentage points).

The highest fiscal efficiency of VAT takes place in the Baltic States, Belarus, Bulgaria, Slovenia, Hungary, and the lowest in Romania, Tajikistan, Kazakhstan, and Georgia. And in the last three countries, the smallest share of VAT in GDP is observed at a tax rate of 20%, whereas Slovenia and the Baltic States provide the highest fiscal efficiency of the tax at a lower rate of 18% and 19%. In general, the fiscal efficiency of VAT in post-socialist countries depends not only on the height of tax rates, but on other factors, the main among which is likely to be: the volume of tax privileges, the efficiency of tax administration, the institutional environment (the existence of tight budget constraints, the extent of evasion taxation, corruptions of executive bodies, etc.).

Lower than in post-socialist countries, the level of fiscal efficiency of VAT occurs in such groups of countries as North Africa and the Middle East (on average 5.7% of GDP), North and South America (4.9% of GDP), small islands in the post-socialist countries (4.7% of GDP), sub-Saharan Africa (3.9% of GDP), Asia-Pacific region (3.3% of GDP). These groups of countries have a lower average standard tax rate, respectively 15.7%; 13.5%; 16.1%; 16.0% and 10.4% [15].

With the highest fiscal efficiency of VAT in Denmark, the highest rate of tax efficiency is in Portugal (47.1%). Slightly lower this factor is in Germany, Austria, Greece, which indicates a higher efficiency of the VAT system in these countries. With the lowest fiscal efficiency of VAT in Italy and Spain, Italy and Sweden have the lowest tax efficiency ratios among developed countries.

The share of VAT in GDP in the EU countries in 2009-2015 is presented in Table 2.

Table 2

The share of VAT in GDP in European countries (%)

	2009	2010	2011	2012	2013	2014	2015
Austria	7,7	7,7	7,7	7,7	7,7	7,7	7,7
Belgium	6,8	6,9	6,9	6,9	7,0	6,9	6,7
Denmark	9,7	9,5	9,6	9,6	9,4	9,4	9,4
Greece	6,3	7,1	7,3	7,2	7,0	7,1	7,3
Spain	3,9	5,4	5,3	5,5	6,1	6,3	6,5
Italy	5,5	6,1	6,0	6,0	5,9	6,0	6,2
Ireland	6,1	6,0	5,6	5,8	5,8	6,0	4,7
Germany	7,2	7,0	7,0	7,0	7,0	6,9	7,0
The Netherlands	6,5	6,8	6,5	6,5	6,5	6,4	6,6
Portugal	6,8	7,5	8,1	8,3	8,1	8,5	8,6
France	6,7	6,8	6,8	6,8	6,8	6,9	6,9
Finland	8,4	8,3	8,8	9,0	9,3	9,2	9,1
Sweden	9,1	9,2	9,0	8,9	9,0	9,0	9,1
The UK	5,3	6,1	6,8	6,8	6,8	6,8	6,9
On average, EU-28	6,4	6,8	6,9	6,9	6,9	7,0	7,0

Source: [8]

Given the high fiscal importance of VAT, it is necessary to provide high-quality forecasting of tax revenues to the budget. Forecasting tax revenues lies in the area of budget forecasting and planning.

In the EU, considerable attention is paid to budget forecasting and planning. In particular, in the late 1980s and early 1990s, many countries, particularly the Organization for Economic Cooperation and Development (OECD), began significant reforms in the budget process.

Analyzing international experience [16,17,18,19] it can be noted that the development of medium-term fiscal policy is carried out using five main elements:

1. Availability of a coherent state program (strategy) for socio-economic development of the country;
2. The formation of institutions and procedures that ensure good medium-term macroeconomic and budgetary forecasting;
3. Availability of procedures for the elaboration of "fiscal rules", in particular with regard to limiting the medium-term parameters of the state debt, the amount of funds for its servicing, budget deficit / surplus;
4. Availability of procedures and mechanisms for the formation of "budget limits" for key spending units, monitoring and ensuring their implementation;
5. The existence of mechanisms of communication between elements of the "annual" and "medium-term" in budget planning (medium-term budget programs, PPB, investment programs, etc.).

International experience shows [17,18,19,20] that there are two types of countries that are actively using medium-term budget planning and forecasting:

1. The countries that have formed the medium-term budget planning and forecasting in an evolutionary way are developed countries of the world, most other European countries;
2. Countries actively implementing medium-term budget planning and forecasting using existing methodologies developed by international organizations USAID, UKAID, OECD [21], IMF [20], etc. (including Pakistan, Bangladesh, Tanzania, Zimbabwe and a number of other countries in Asia and Africa).

The following are the elements of implementation the medium-term budget planning and forecasting scenario. The first stage is innovation in budget legislation. The practice of drawing up forecasts of expenditures from the main administrators for the next two years is started. Changes are made to the budget itself, in order to adapt it to planning. The main spending units require a detailed audit and inventory of all expenditures and programs financed from budget funds. At this stage, the software is

being developed for efficient electronic data exchange between the participants in the budget process.

The second stage is the fiscal discipline strengthening. The concept of the medium-term budget planning and forecasting implementation is adopted on the basis of approved state strategic priorities. The strategic component of the medium-term planning is launched. Budget constraints and rules are set. The control of expenditures by the main spending units is intensifying. In practice, developed information products for the technical support of the medium-term budget planning and forecasting are being implemented.

The third stage is the improvement of the quality of medium-term forecasts, the creation of independent budget institutions, the withdrawal of planning and forecasting from a political influence.

The resulted scenario is universal and can be used as a basis for developing a concept for the establishment of a quality medium-term budget planning and forecasting in Ukraine, taking into account specific Ukrainian realities [22].

Planning of value-added tax is an adaptive process of the economic policy regulatory mechanism, within which bodies implementing fiscal policies take measures for the formation, adjustment, monitoring and control of relevant budget indicators, taking into account the trends of the country's economic development and the impact of the external economic environment.

It is important to increase the budget tax revenues forecasting quality, to improve the methodology of forecasting.

Since the late 1990s, in the EU member states, according to the "The Stability and Growth Pact" [23], mandatory three-year forecasting has been introduced in fiscal policy, which should enhance the effectiveness of monitoring the implementation of stabilization programs. More and more governments are developing medium-term, and in some cases, long-term assessments and forecasts. Experts from the International Monetary Fund called this practice a "The Medium-Term Budget Policy Statement". This practice gives a clear idea of the cost of conducting the current state policy, serves as a mechanism for monitoring the introduction of its new measures, as well as monitoring the budget execution beyond one year [24, p. 730].

In all countries, where medium-term budget planning and forecasting is applied, the question arises whether a prospective budget plan should be approved in the form of a law. In most countries, in particular the UK, Canada, the Netherlands, Sweden, France, New Zealand, and others, the Medium-Term Budget is developed, amended and adjusted simultaneously with the annual budget. In these countries, a multi-year budget prepared by the

government is reviewed and approved by legislative bodies and parliaments, and is used in the "rolling three-year" mode. The exceptions are Germany and Austria, as well as the USA, where mid-term projections are developed and submitted as part of the President's budget proposal. At the same time, so-called "direct" or "obligatory" expenses (for example, social obligations) are approved for a multi-year period and do not require reapproval, and multi-year financial plans are submitted to the legislative authorities for reference purposes only.

On the one hand, the benefits of approving the budget for three years in the form of a law guarantee the implementation of selected areas of budget policy, measures of state support for the economy and social programs, as well as increasing the responsibility of the authorities for the performance of their functions. On the other hand, the legislative approval of the state budget for a three-year period strengthens the requirements for the quality of the budget process organization, in particular, for the reliability of macroeconomic forecasting, stability of state policy, its focus on solving strategic tasks of socio-economic development [25, p. 42].

An important aspect of the forecasting process is the time horizon. Most developed countries have switched to medium-term forecasting models. For example, in the EU, this principle is a part of the Stability and Growth Pact.

In total, the forecast horizon in the world is rather short, approximately two thirds of the countries of the world use one-year forecasts of budget revenues. Approximately 30% of countries use medium-term forecasting (3 years). However, this figure is likely to be overstated, since multi-year forecasts are used for descriptive purposes and they are not properly integrated into the budget process [26].

Approximately half (47.1%) of the countries have only one executive body responsible for making forecasts. The value is slightly lower for the macroeconomic forecast (44.1%). Therefore, the average estimate of the simplicity indicator is rather low, which indicates the inefficiency of the organization of the forecasting procedure [27].

The main reason for the development of the medium-term budget planning and forecasting system within the EU was the understanding that the budget process goes far beyond the framework of drawing up and executing the budget for one year. The medium-term budget planning and forecasting in the member states of the European Union is carried out in accordance with the Stability and Growth Pact of the EU member states. Each year, the budgets of countries are formed in accordance with the budget medium-term forecast. Medium-term budget forecasts should contain information on the budget forecast, the forecast of the main economic indicators, a description and assessment of the policy

measures aimed at achieving the proposed goals, how changes in the basic economic indicators will affect the state of the budget and debt, medium-term monetary policy goals and their relationship with currency exchange rate stability. This information should cover the previous and current year and at least three years ahead" [28].

Conclusions and directions of further researches

An analysis of practical approaches in European countries has allowed us to make a number of conclusions. According to the analysis and on the basis of subjective assumptions made, we consider that for developing of the effective system of the budget forecasting and planning, it is advisable to analyze carefully, and possibly apply the experience of the United Kingdom.

Within the framework of this scenario, it is appropriate to introduce the preparation of five-year forecasts, which will include predictions of potential risks in all the spheres of the tax policy; the usage of own projections for medium-term fiscal targets in the terms of balancing the cyclically-adjusted current budget for five years beforehand; thorough analysis of tax administration costs; assessment of the long-term sustainability of the public finance system [27].

The VAT forecast should be based on the concepts of the theoretical VAT liability and the VAT gap. Estimates of the theoretical VAT liability should be based on detailed aggregated cost data by sectors of the economy. The increase of the theoretical tax liability is further projected for each sector separately, using the appropriate determinants of fiscal responsibility.

A key factor in forecasting VAT revenues is the proportion of costs that are subject to VAT at the standard rate, which is derived from the relevant cost data. Changes in the share of costs subject to VAT at the standard rate are estimated using the forecast of changes in the ratio of consumer spending on durable goods to total consumer spending, based on the assumption that durable goods with higher probability are subject to VAT at the standard rate compared to short-term goods use. In some cases, the forecast can be adjusted for the recent developments taking place in the economy.

Forecast of VAT is carried out by deducting the VAT gap from the theoretical tax liability. In the end, adjustments to the forecast are made for one-time factors, such as the results of litigation, which in some cases may entail significant returns.

Main economic determinants for forecasting VAT revenues:

- 1) nominal household expenses - used to predict the growth of the theoretical tax liability in the households' consumption sector;

- 2) expenditures for the durable goods - are used to estimate changes in the share of costs, which are taxed at the standard VAT rate;
 - 3) nominal GDP - used to predict the increase of the theoretical tax liability in the VAT-exempt sector;
 - 4) households' investments in the fixed assets - used to predict the increase of the theoretical tax liability in the housing industry;
 - 5) central government procurement - used to predict the increase of the theoretical tax liability for central government current expenditures;
 - 6) central government investments - are used for the projections of the theoretical tax liability's increase for capital investments of the central government.
- Key predictive solutions:**
- VAT gap: as described above, the VAT gap represents the difference between the theoretical and actual VAT receipts. The forecast of the VAT gap contains judgments about the future dynamics of aggregate errors, deviations and tax debt;
 - the share of the costs charged at the standard rate: while usually this proportion is calculated on the basis of the ratio of expenditures on durable goods and aggregate costs, a decision may be made regarding the change in the value of this share depending on the actual receipts;
 - litigations: for key litigations, which are subject to refunds from the tax authorities to the business, information is provided on the possible amounts and terms of such redemption. The decision is made on how to introduce similar repayments in the forecasting process;
 - estimation throughout the year: monitoring of the forecasts' quality using control dates contains valuable information on the quality of the latter and allows for operational adjustments.

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EFFICIENCY ASSESSMENT OF SECONDARY EDUCATION FINANCING: APPROACHES AND BEST PRACTICES

Abstract

The main purpose of the paper is to determine the most efficient model of financing secondary education. To ensure that the funds are directed to where they are needed the most, the key role belongs to the framework for regulation, allocation and monitoring of the financing for schools. Most national education systems have two main tasks that are: (1) to improve the quality of education to enhance labor productivity and economic development; (2) to find the most efficient ways to use available funds that may require additional educational reforms.

The resources can be reallocated among different levels of authorities and be allocated for certain educational purposes (earmarked grants), for compulsory education (block grant) or for general purpose of education (lump sum transfer). The authorities may impose conditions for the allocation of the grants that can impact the possible ways to use them. Currently, we have the following models of financing depending on the restrictions by the central authorities: (1) lump sum transfer, (2) block grant, (3) earmarked grant, (4) school-specific grant.

The general principle for more effective allocation of financing is to allocate resources transparently and predictably. Stability and predictability of funding allows planning the development to all schools.

Key words: secondary education, financing secondary education, lump sum transfer, earmarked grant, block grant, financing formula

Relevance. To ensure that the funds are directed to where they are needed the most, the key role belongs to the framework for regulation, allocation and monitoring of the financing for schools. Although the overall level of funding is important, the strategies used to allocate and adjust resources to students' needs are no less so.

Since most school funding comes from public budgets, the development of an effective framework for allocating those funds among competing priorities is an important political problem for the governments. School systems possess limited resources to achieve their goals so their priority should be to use those funds efficiently.

Therefore, most national education systems have two main tasks that are: (1) to improve the quality of education to enhance labor productivity and economic development; (2) to find the most efficient ways to use

available funds that may require additional educational reforms. Efficiency alone is not the major problem for school systems, but it must be achieved along with the objectives of quality and fairness defining learning. Therefore, it is crucial to determine how best to design a school funding policy so that available resources are allocated to support high quality teaching and equal learning opportunities for all students.

For this purpose, it's important to develop an effective model of the secondary education funding to allocate resources among high schools in the most efficient way to ensure the high level of students' education. In most cases, efficiency of school education has traditionally been viewed from an economic point of view, but experience has shown that this is not enough, so it is also necessary to study school funding from the point of quality of the education obtained. In this case, the policy

of the secondary education financing is analyzed taking into account the complexity of the educational processes, the diversity of educational goals, the range of different management contexts in all school systems, and the importance of social and institutional frameworks in the development of an adequate school financing policy.

Literature review. Secondary education is widely considered a crucial stage of the human development. Therefore, it is important to provide a high quality and effective one to the children and youth. Considering the ongoing internationalization of educational systems, it became imperative to implement a general assessment system to determine the efficiency of the secondary education regarding its quality and financing. This will make it possible to compare national education systems to achieve better results. Considering the topic in question there are two main groups of academic studies of the effectiveness of the secondary education systems.

The first group consists of surveys, reports and research by the international organizations (OECD, UN, UNESCO, etc.) or affiliated researchers that contain a comparative analysis of the national education systems and aggregate analysis of the financing models for the various groups of countries. For example, Lewin & Caillods (2001) analyzed the strategies of financing secondary education in the select developing countries, particularly, the least developed countries of Asia, Africa and Latin America. The authors came to the conclusion that national education systems of those states have various issues including their financing practices. The main issue is the fact that those systems require major expansion and there is deficit of funds needed to do that.

They propose several policy measures to improve overall efficiency of the secondary education in those countries. The report 'Financing schools in Europe' by Eurydice (Eurydice, 2014) includes the analysis of the authorities involved in financing secondary education, the methods to calculate the necessary expenditures and the criteria used in the formula. It also offers an overview of the methods and formulae used in the European countries to determine the necessary resources for the efficient school education. Another research by the OECD (OECD, 2012) deals with the quality of education provided by school depending on the source of their funding (public or private) and the management model of the educational establishment. The conclusion of the survey is that the students mostly perform better in the privately managed schools. On the national level, Centre for Civil Society (2015) analyzed the potential costs and benefits of implementing the model of per-child financing of schools in India based on the best practices of the developed countries. The research states that there are many benefits of implementing such financing model in India as it will increase the efficiency of resources allocation between different schools and regions.

The second group of papers is authored by independent researchers and concentrates on different aspect of financing secondary education and the ways to improve its efficiency. Papakitsos at al. (2016) created the list of proposals for the alternative means of funding school education in the European countries. The authors noted that as a result of the crisis, public financing is decreasing so the schools are forced to seek another source of funds.

They propose the concepts of *Virtual Enterprise* and *Open School* as effective and successful alternative. Onsomu at al. (2006) examined the long term strategy of financing secondary education in Kenya and various policy options to reduce the costs while maintaining the high quality of the education obtained. Zymelman (2019) research the evolution of the models of financing secondary educations, different sources of funds and methods of financing.

The results of the study. Considering the level of development of national education systems, the financing of secondary education is one of the priorities of government policy, especially in developed countries and countries in Europe. The 2008 financial and economic crisis brought to the fore the question of how the education system can continue to overcome the social and economic challenges it faces in the face of reduced funding. Thus, it was extremely important to identify not only a sufficient amount of funds for the proper functioning of the education system, but also the most effective use of them. Thus, for most national education systems, there are two priorities: (1) improvement of the quality of education to increase productivity and economic growth, (2) development of the effective ways to use the available financial resources, which may require educational reforms to use the funds effectively.

To achieve this goal, it is extremely important to build an effective model of funding for secondary education, which will allow the most efficient and equitable allocation of resources among schools, while ensuring a high quality training for children.

There are three groups of the expenditures in the models for the secondary education financing that are expenditure for teaching staff, expenditures for non-teaching staff, operational and capital expenditures. The next step is to determine which level of authority will finance the particular group of expenditures: central, regional or local. After that the method and the general amount of financing is designated meaning lump sum transfer, block grant or earmarked grant (OECD, 2017).

According to the best practices of the secondary education financing models in the world, the majority of the national education systems have a complex system for the allocation of responsibility for funding education. The resources can be reallocated among different levels

of authorities and be allocated for certain educational purposes (earmarked grants), for compulsory education (block grant) or for general purpose of education (lump sum transfer). Depending on the initial requirements for funds transfer, the authorities allocating them will have

different degrees of freedom for their final allocation. According to the OECD, there are three groups of countries depending on the primary donor for financial resources for the secondary education funding such as local, regional or central authorities (see Table 1).

Table 1

Structure of public funding for secondary education, 2013 (% of total public expenditures)

	Local	Regional	Central
<i>Local authorities provide the majority of resources</i>			
USA	98	2	0
Norway	95	x	5
Poland	94	2	4
Finland	90	x	10
Canada	86	11	3
Latvia	76	x	24
Lithuania	74	x	26
Iceland	73	x	27
Slovakia	72	x	28
South Korea	70	30	1
UK	59	x	41
<i>Regional authorities provide the majority of resources</i>			
Argentina	2	96	2
Australia	..	95	5
Japan	17	81	2
Spain	6	80	14
Mexico	0	73	27
Germany	22	72	6
Belgium	3	72	25
Czech Republic	26	62	12
Switzerland	39	60	0
Austria	12	49	39
<i>Central authorities provide the majority of resources</i>			
New Zealand	0	x	100
Netherlands	11	0	89
Hungary	12	x	88
Slovenia	12	x	88
Turkey	..	15	85
Columbia	9	6	85
Luxemburg	16	x	84
Ireland	17	x	83
Italy	11	8	81
Portugal	15	6	79
France	12	17	71
Israel	30	x	70
Estonia	38	x	62
Chile	44	x	56
OECD average	36	23	41

Source: OECD (2017).

The model country for the allocation mainly on the local level is the United States where the school districts are responsible for the allocation of the funds (98%), whereas the states play a very limited role. Among the OECD countries, Denmark, Lithuania, the Slovak Republic and Sweden also use this type of financing. At the same time, the model country for the allocation of education funding mainly on the regional level is Australia. In this country the central authorities take a very limited part in the secondary education financing, whereas the bulk of resources (95%) is provided by the regional authorities (state governments). Furthermore, there are three types of schools in that country such as government schools, Catholic schools, and independent schools. As a result of using economies of scale and local knowledge of schools and communities, the country achieves maximum efficiency for the allocation of funds to where they are most needed. In particular, larger systems can use more necessary indicators in the formulas for the allocation of the financing for different schools because they are more flexible while providing additional financial support when it's needed (remote schools, new schools, schools with financial difficulties).

Among the OECD countries, Austria, Belgium and the Czech Republic provide the bulk of funding for the secondary education on the regional level.

The model country for the allocation mainly on the central level is the New Zealand (100%), and according to the Reform of 1989, the funding is transferred directly to the schools, while other authorities do not participate at all. Uruguay has the similar system, meaning that central authorities created four Central Educational Councils that are responsible for funding secondary education in the different regions. In Chile, Columbia, Israel, Luxemburg, Portugal and Slovenia, central authorities play an important role in the allocation of funding, although in those countries the local authorities take an active part in school activities financing as well. The rest of the countries have a more balanced system of the secondary education financing, meaning that all levels of authorities take part in the allocation of funding, although their contribution changes depending on the situation domestically (Fakharzadeh, 2016).

The authorities may impose conditions for the allocation of the grants that can impact the possible ways to use them. If the allocation of the resources is decentralized, it is possible to take into account the special needs of individual schools, but there is a higher probability that there will be vastly varying conditions for financing in different regions, because under the same conditions the funding could be different. If the allocation of the funding is mainly centralized, the conditions for allocation will be mostly the same but they won't take into account individual needs of schools.

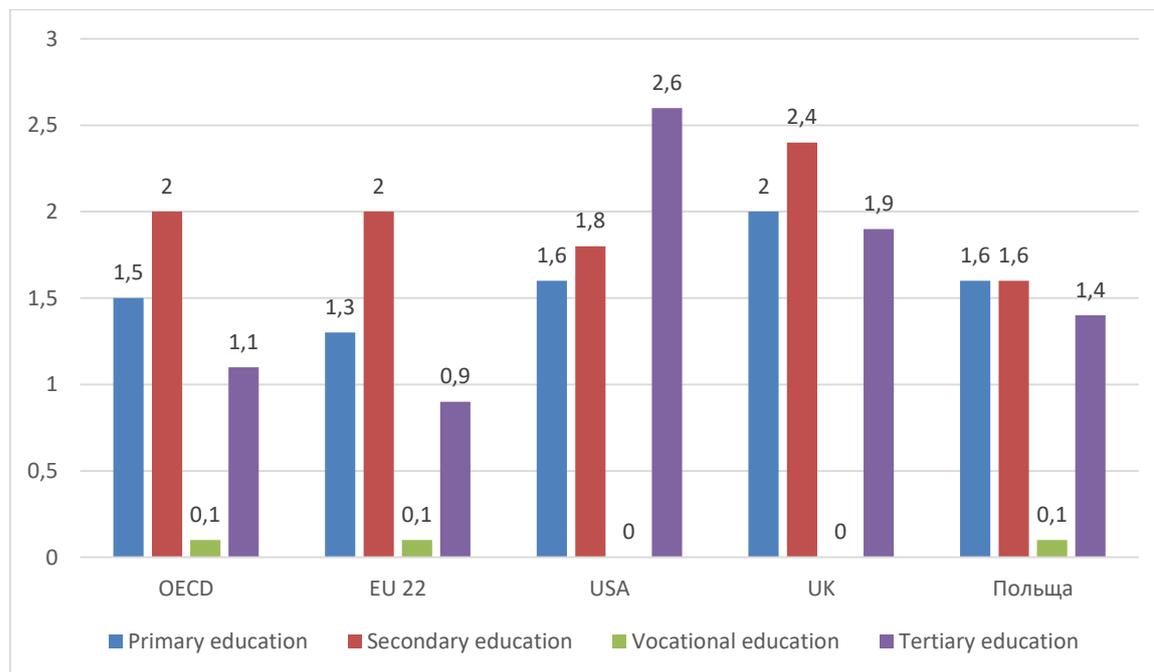


Fig. 1. Total expenditure on educational institutions as a percentage of GDP, 2015
Source: OECD, 2017

It is possible that the model will define the purposes for the expenditures, even if the allocation of the funds is the responsibility of the local authorities. Currently, we have the following models of financing depending on the restrictions by the central authorities: (1) lump sum transfer, (2) block grant, (3) earmarked grant, (4) school-specific grant.

1. **Lump sum transfer.** Using this method of financing, local authorities have the greatest degree of autonomy, since all the funds are transferred in a total amount. In turn, local authorities allocate funding between schools at their discretion. Among the OECD countries, Belgium, Denmark and Sweden use this model. Such a financing model has certain advantages and disadvantages. Among the advantages are the relative flexibility of the allocation of funds, which is regulated by horizontal accountability, as well as the use of a range of performance indicators to be observed by local authorities. The disadvantages are the need to decide on the allocation of funding not only among schools, but also between the education sector and other sectors, as they also require funds to function properly. Sometimes such a decision may not be in favor of the education sector. This means that funding for secondary education in different regions will depend not only on the income of the region itself, but also on the level of priority of education in the region.

2. **Block grant.** This is a model of financing that imposes the requirements for the type of costs it can be used for (for current costs, for capital costs, etc.). The block grant consists of funds that local authorities must use to cover the ongoing costs of secondary education. At the same time, local authorities have the right to redistribute the grant between different categories of current costs (salaries, operating expenses), as well as between different schools (separately for each school).

Among the OECD countries, this model is used by Iceland, which provides municipalities with block grant for compulsory education; as well as a separate block grant to individual high schools for the upper secondary schools (central government funds operating expenses). In Slovakia, financing is provided in the form of a block grant for salaries and operating expenses. Local authorities that provide direct funding to schools can use them for any kind of cost. On the other hand, there are restrictions on the allocation of funds between schools (no more than 10% of the grant for the salary and no more than 20% of the grant for the operating expenses can be allocated to each school). Studies have shown that the main advantage of this model is that local authorities have the flexibility necessary to respond promptly to problems that individual schools may have. The main

disadvantage of this model is that it only allocates a small portion of the funds (1.5% of the salary) to finance the professional development of teaching staff, and sometimes it may not be sufficient. In Chile, there is a mixed model: central government allocates a block grant to general education, but supplements it with targeted funding for pupils and schools (for example, disbursements to students with special needs or incentives for the most efficient schools).

3. **Earmarked grant.** Central authorities may impose more stringent restrictions by setting a specific target for the grant. Earmarked grant consists of funds that local governments must use for a specific component of current expenditures on secondary education (for example, teachers' salaries).

In Estonia, the central government transfers a set of different earmarked grants to the relevant authorities for the general educational needs and salaries of the teaching staff, as well as for the professional development of the teaching staff, teaching materials and nutrition for pupils. The advantage of such a system is that, with a general increase in the level of wages in the country, the main burden of such an increase lies on the central budget and not on local budgets. Also, central authorities can guarantee the targeted use of such funding. In the Czech Republic, central authorities allocate an earmarked grant at the regional level, which covers direct costs of education, including salaries for teaching staff, textbooks and teaching materials for teachers, as well as funds for the professional development of teachers. It also allowed central governments to control payroll policies and influence curricula. In Lithuania, central government allocates a targeted subsidy for the costs of teaching staff, which is calculated for each individual school, that includes teachers' salaries, administration and management costs, school textbooks and some school supplies, teacher training, psychological and pedagogical assistance in special cases. In this case, the chosen model also allows you to partially control the quality of the education offered at school.

4. **School-specific grant.** The most restrictive funding model implies direct funding at the school level, meaning that central government allocates funds to each school separately, depriving local authorities of the right to make this decision at the local level. School-specific grants are funds that local authorities must use to cover current costs in pre-determined schools. This model is more commonly used for additional funding. For example, in Chile, this funding method is used to promote the best schools (Burns & Cerna, 2016; Alonso & Sánchez, 2011).

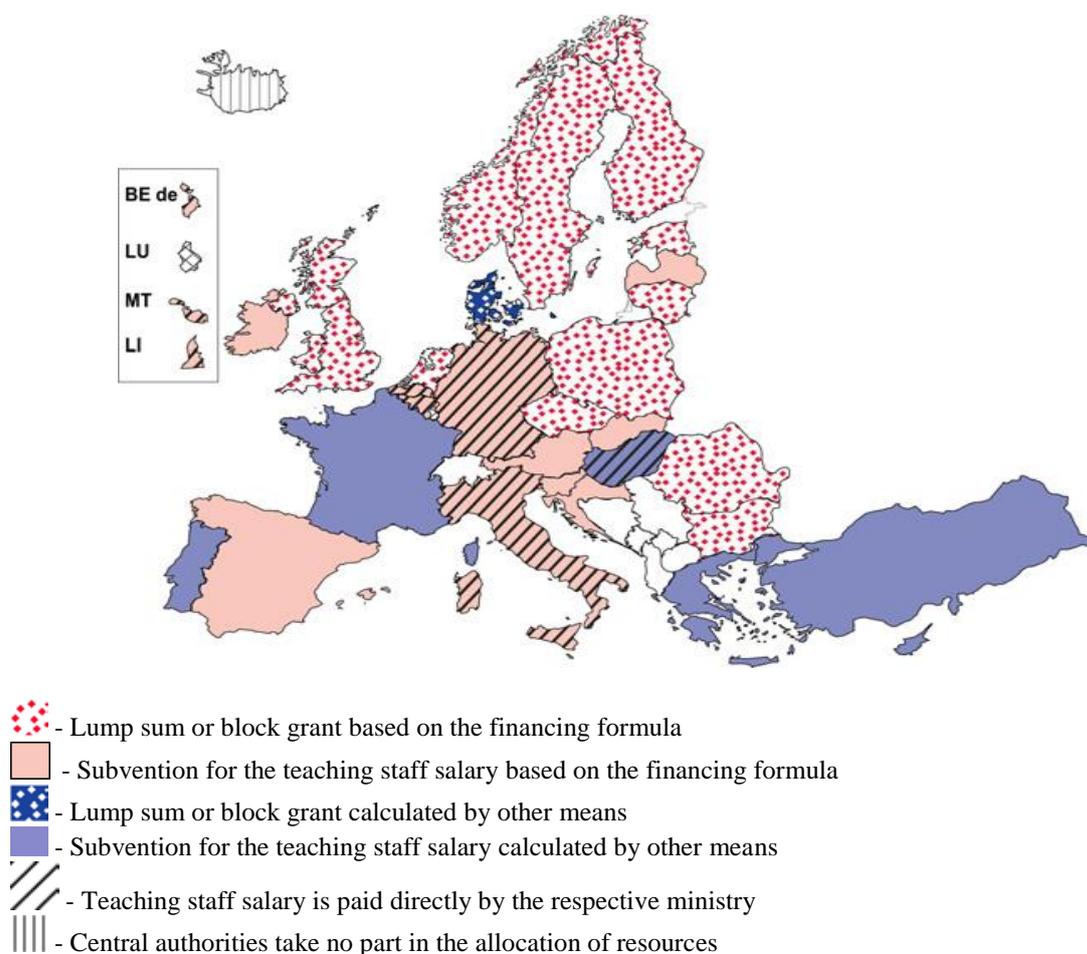


Fig. 2. Funding methods used by authorities in European countries

Source: OECD, 2017

Central authorities may also impose additional restrictions on the use of allocated funds at school level. This means that the level of autonomy of schools in managing their allotted budget may differ.

(1) The school may manage the grant autonomously. In this case, the schools receive a block grant, which they then manage at their own discretion, i.e. freely allocating funds between different types of expenditures. Authorities may impose certain restrictions on the types of expenditures that may or may not be used. For example, in Slovakia, schools must obtain the prior consent of the authorities in order to finance operating costs through block grants.

Central authorities may also allocate an earmarked grant at the school level, which is intended to finance a specific type of expenditure (for example, the professional development of teachers) or a specific event (temporary difficulties in financing the school) that cannot be spent on other needs.

(2) Resources received in kind or paid for (or purchased) by external sources. Another model assumes that schools do not receive direct funding at all, or have no right to dispose of funds autonomously. This means that all resources are either received in kind or paid for directly by external sources. Schools will receive only earmarked grants for specific needs (such as teacher salaries), and operating expenses are funded externally. Among the OECD countries, this model is used by Austria, Belgium and Israel, which use the formula to calculate the grant, as well as Chile and Uruguay, which finance both salaries and operating costs this way (determined by the decision of the administrative authorities on the basis of historical data). In New Zealand, the core staff of teachers and directors is funded directly from the state budget. If the school wants to attract additional teaching staff, it must be funded by a grant for operating expenses. Attempts to switch to financing by the block grant in this country were unsuccessful (in the 1980s) as they met with opposition from many stakeholders.

In Austria, there is a dual funding model for teachers at the federal and provincial levels, whereby teaching staff can receive additional incentives, especially in compulsory education schools funded by local budgets.

Although the amount of funding is determined by a pre-agreed staffing list, the federal government cannot

control how local governments spend this money, in particular on small rural schools, leading to overfunding.

According to experts, in order to increase the efficiency of this model, Austria should switch to direct financing of teachers' salaries, and leave the financing of maintenance costs and investments in infrastructure to the local authorities (Fakharzadeh, 2016).

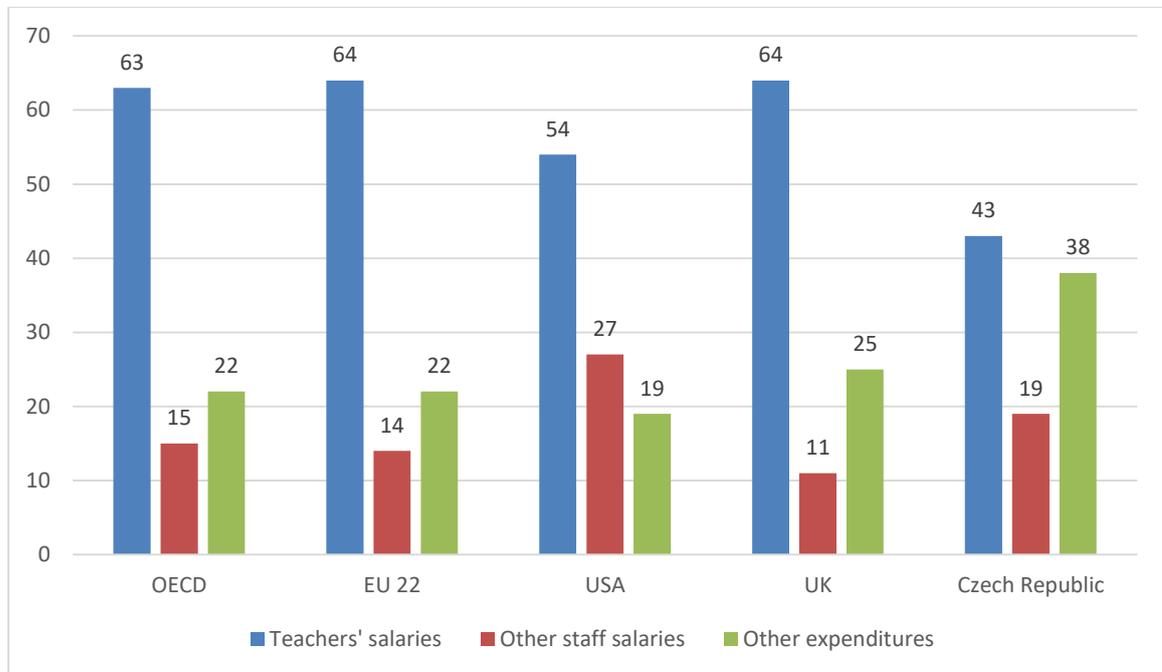


Fig. 3. Current expenditure on school education by purpose (% of total current expenditure), 2015
Source: OECD, 2017

The general principle for more effective allocation of financing is to allocate resources transparently and predictably. Stability and predictability of funding allows planning the development to all schools. This underlines the importance of ensuring the continuity of the principles and technical details of the funding allocation system.

Funding formulas are used in a lot of the OECD countries, in some cases introduction or revision of the formula allowed to involve the stakeholders in the creation of the fair allocation of resources. The transparency of the formula has positive impact on the political debates at the national level. Such a formula creates a clear framework for discussing sufficiency and proper allocation of funding.

The main problem for the development of the formula is to take into account that the costs of education for different students may vary greatly. As a result, individual schools require differentiated funding because

their cost per unit are different regardless of the school's actions. As such, the formula must include different regulatory elements and become very complex. It's necessary to find a medium between a simple formula that does not take into account the needs of the individual schools and the complex formula, that is difficult to understand.

A well-designed funding formula is, under certain conditions, the most effective, equitable, stable and transparent method of allocating funding for operating costs of schools. Allocation by formula is more likely to lead to more efficient and equitable distribution than other methods, including discretionary and additional financing models. There is no single formula for optimal financing. However, the OECD review identified a set of guidelines for the development of funding formulas.

A number of criteria can be used to evaluate the funding formula, in particular efficiency, equity, integrity, administrative costs, accountability and transparency, as

well as sensitivity to local conditions. The balance between the different criteria should reflect the political priority of the government. In terms of meeting equity goals, formula funding can be designed to combine both horizontal goals - schools of one type (e.g., elementary schools) funded at the same level and vertical goals of

fair allocation - schools of different types (e.g., general programs and technical and professional programs) are funded according to their different needs. However, inadequate formulas can increase inequality as well as inefficiency.

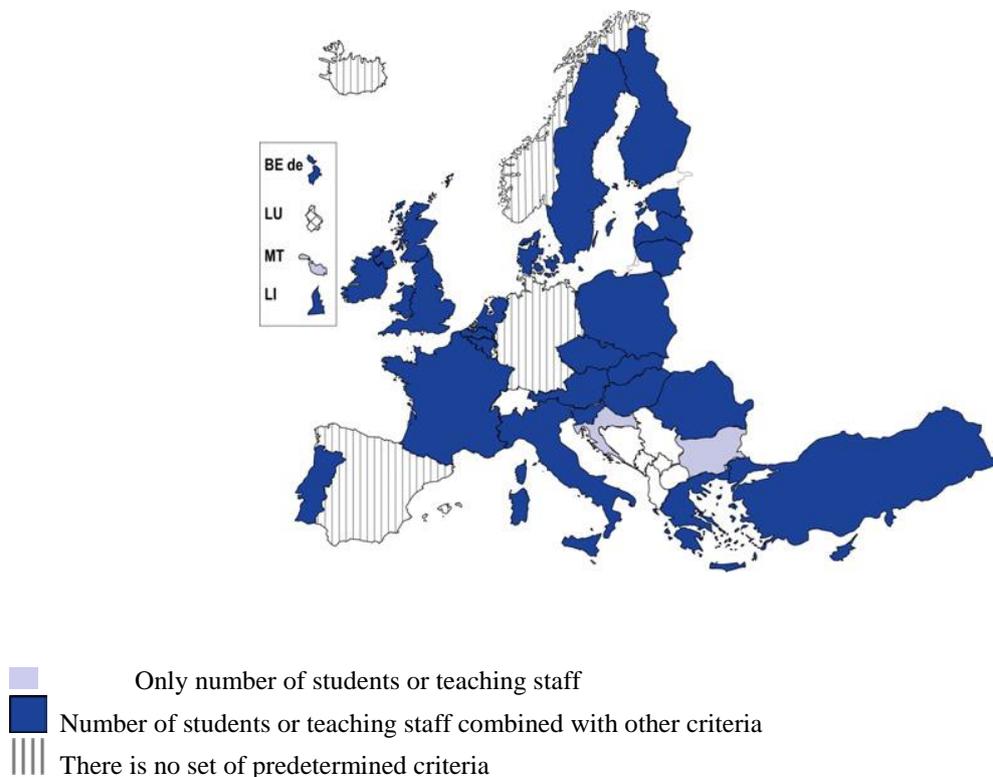


Fig. 4. Criteria used to determine the amount of funding for secondary education in European countries
 Source: OECD, 2017

The main problem in developing funding formulas is to adequately reflect that the cost of teaching different students can vary significantly. There will be a need for differentiated funding for schools, given the objective differences in unit costs that are independent of the actions of the school itself. This requires the introduction of different components of the regulation into the formulas and can lead to a high level of complexity. It is necessary to strike a balance between a simple formula that may not fully cover school needs and a complex formula that can be difficult to understand. There are four main components for the formula development: (1) basic allocation, (2) allocation for specific educational profiles, (3) allocation for students with special educational needs, (4) allocation for specific needs related to school location.

Basic Allocation. This can be the allocation for a student or a class, and be differentiated according to the academic

year (level) or stage of study (e.g., elementary, lower secondary, etc.).

Allocation for specific educational profiles. This component will be adjusted for a specific educational profile at this school. For example, it might be a proposal for a specialized curriculum, such as an emphasis on the arts, sports, or various professional fields. It may also be an offer of an adapted curriculum designed to meet the specific educational needs of the student group.

Allocation for students with special educational needs. This is intended to accommodate the different features of students, which will require additional resources to provide the same level of access to the required curriculum.

Allocation for specific needs related to school location. This is intended to accommodate structural differences in the cost of operating the school grounds, such as schools

located in rural or remote areas with significantly smaller classes, schools with higher maintenance costs (related to local economic factors and / or needs of specialized equipment) (Alonso & Sánchez, 2011).

Funding formulas can be designed to create incentives to improve performance at the local and school levels. This entails a lack of compensation for school overspending unless justified by exceptional circumstances (e.g. emergency conditions, unexpected growth in the number of children, small schools in remote locations). Allocating funding per student may impose greater fiscal discipline, which may be especially necessary in the context of a diminishing student population, which can lead to increased costs because of smaller schools and classes. To acknowledge that not all costs are linear, the funding formula, which essentially follows per student allocation method, may include compensation coefficients for small schools. The advantage of this approach is that it can direct more resources to individual schools (as set out by careful analysis of national data), while maintaining the incentive for most schools in the system to reduce the number of classes by increasing class filling. This funding allocation can be revised and adjusted to increase or alleviate financial pressure on local governments with small schools and classes.

Periodic review of funding formulas is necessary to ensure that they comply with policy needs (which may change). There may be a need to improve funding formulas according to different criteria. This may include the need to increase or decrease the level of difficulty by adjusting the needs of students and schools. Revision of funding formulas should also take into account their position and importance in the overall funding of school education. For example, funding formulas may be better designed to adapt to different student and school needs in order to reduce the number of earmarked funding programs that address different funding needs.

The funding management for the school aimed to be efficient considering quality of teaching and learning requires regular analysis of the cost factors and monitoring of several key indicators of effectiveness, at least yearly. It allows for efficient planning and management of resources and creates an opportunity to enhance efficiency by restructuring staff, curriculum or by using economies of scale.

The school's position on how the budget works can be regularly published on the basis of revenue and expense monitoring. They can be created automatically by the school financial information software. In Slovenia, for example, managing the school budget entails self-assessment and adoption and discussion of reports on the implementation of the annual work plan, as well as financial and staffing plans (Ministry of Education, Science and Sport of Slovenia, 2016).

Given the importance of spending on teaching staff in the school budget, resource management and self-assessment in schools may include an assessment of how the school uses its staff (e.g. student-teacher ratio for the school as a whole or for certain age groups, the share of school budget spent on teachers, contact time with teachers). Such analysis can help determine the value of different models of staff-to-curriculum ratio, and help assess the implications for different types of support staff distribution, different class size policies, and the use and development of support services such as psychologists.

Financial and resource management of schools can also be assessed as part of the school's external evaluation and audit. The assessment of financial and budgetary aspects in schools should focus on ways in which the use of school funding contributes to school improvement and development. School assessment should go beyond the rules, focus directly on the quality of teaching and learning, provide meaningful feedback, and promote school improvement. However, in practice, assessing the financial aspects of school work may focus on the school's compliance with formal criteria without focusing on the assessment of pedagogical aspects and the quality of teaching and learning.

The assessment of financial aspects in relation to educational processes and outcomes can be complicated by various factors. This is possible due to the general lack of common focus on efficiency at all levels of the system, especially at the central government and school levels. The governance structure and division of responsibilities between different authorities can also be a factor. In the Czech Republic, for example, school funding bodies typically do not take into account the educational aspects of financial supervision of their schools and the assessment of individual school heads and focus on budgetary and regulatory requirements when they rely on school inspection and pedagogical processes. In addition, responsibility for managing financial resources and organizing pedagogical aspects of school work can be shared between schools and schools. This can complicate the strategic management of financial resources in combination with pedagogical considerations, as well as effectively control and evaluate the use of resources in teaching and learning.

The assessment of the financial and pedagogical aspects of the school's work can be integrated into one process or carried out separately. Both approaches have potential advantages and disadvantages. On the one hand, the division of responsibilities provides an enabling environment for the implementation of school grades that contribute to school improvement. On the other hand, such arrangements may complicate decision-making about the use of resources for pedagogical reasons, since this requires sufficient coordination and communication between the two processes, and entails the risk of school

overloading with external processes, pressures and expectations (Burns & Cerna, 2016).

Countries should create the necessary conditions for financial monitoring systems at all levels and focus on assessing how the use of funding converts into educational processes and outcomes. An approach to evaluating the use of funding, which includes analysis of financial and educational data, as well as the definition of effective policies and programs, has the potential to improve decision making and to make better use of available funding for teaching and learning.

Monitoring and evaluating the efficiency of financial resources requires comprehensive information on resources, educational processes and their outcomes. Therefore, effective monitoring requires an ongoing and regular assessment of the state of education and the flow of resources. At the same time, long-term learning outcomes that are harder to measure should be kept in mind. According to OECD experts, an in-depth discussion of education system evaluation and policy indicators is needed to improve system-wide monitoring.

Political indicators include, among other things, the adoption of a broad concept of education system evaluation; recognizing that policy making must be supported by high quality data and evidence but not be conditional on the availability of such information; the situation with the evaluation of the education system in the broader context of the public sector performance evaluation system; development of a system of educational indicators to systematically display available information on the goals of the education system; developing a national strategy for monitoring student learning standards; and collecting quality information about the education system.

As a result of the governance and responsibility sharing framework, existing data on various aspects of the school system are often shared at management and institution level. This can confuse the flow of resources and prevent a complete picture of the available input, process and result data. To facilitate the monitoring of the effectiveness of school funding, countries should make efforts to integrate the various existing databases. This will help link resource use decisions to results, facilitate better decision-making and ensure transparency in resource use. In decentralized school systems, integrated data systems must ensure that disaggregated data are available to meet the information needs of all levels of government. In order to ensure comparability of data, common reporting standards for budgeting and accounting should be developed, although the costs involved need to be taken into account. Moreover, an effective assessment of the use of school funding will benefit from the development of strong analytical capacity, systematic and robust evaluation processes for

policies, programs, a culture of use of evidence, and the implementation of strategic budgeting processes (OECD, 2017).

Monitoring and assessment of the effective usage of financial resources requires comprehensive information about funds, educational processes and results. As such, an efficient monitoring needs constant and regular evaluation of the state of education and cash flows. It's necessary to discuss in detail the assessment of the educational system and policy indicators to improve monitoring at the systems level.

To ensure the comparability of the data, it is necessary to develop common accounting standards to create budget taking into account all the expenditures (Zatonatska & Anisimova, 2019).

Conclusions. To ensure that the funds are directed to where they are needed the most, the key role belongs to the framework for regulation, allocation and monitoring of the financing for schools. Since most school funding comes from public budgets, the development of an effective framework for allocating those funds among competing priorities is an important political problem for the governments. School systems possess limited resources to achieve their goals so their priority should be to use those funds efficiently. Therefore, most national education systems have two main tasks that are: (1) to improve the quality of education to enhance labor productivity and economic development; (2) to find the most efficient ways to use available funds that may require additional educational reforms.

According to the best practices of the secondary education financing models in the world, the majority of the national education systems have a complex system for the allocation of responsibility for funding education.

The resources can be reallocated among different levels of authorities and be allocated for certain educational purposes (earmarked grants), for compulsory education (block grant) or for general purpose of education (lump sum transfer). Depending on the initial requirements for funds transfer, the authorities allocating them will have different degrees of freedom for their final allocation.

According to the OECD, there are three groups of countries depending on the primary donor for financial resources for the secondary education funding such as local, regional or central authorities.

The authorities may impose conditions for the allocation of the grants that can impact the possible ways to use them. Currently, we have the following models of financing depending on the restrictions by the central authorities: (1) lump sum transfer, (2) block grant, (3) earmarked grant, (4) school-specific grant.

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(4) allocation for specific needs related to school location.

Allocation formulas can create additional incentives to improve efficiency at the local and school level. It's necessary to review the formula periodically to adjust it to the current policy. There are different criteria for improvement. While adjusting the needs of students and schools, the formula can become simpler or more complex.

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REGIONAL POLICY IN UKRAINE: CROSS-BORDER ASPECTS IN THE CONTEXT OF EUROPEAN INTEGRATION

Abstract

"Cross-border cooperation plays a key role in avoiding the creation of new dividing lines. This new funding will further contribute to a more integrated and sustainable regional development in the neighbouring border regions and to a more harmonious territorial cooperation on EU's external borders".

Johannes Hahn, Commissioner for European Neighbourhood Policy and Enlargement Negotiations.

Key words: cross-border cooperation, regional policy, Association Agreement, cohesion policy.

Introduction

Since 2014, Ukraine has been rapidly transforming the social, economic and managerial spheres, having entered the most responsible stage of its development. Eurointegration benchmarks are enshrined in the Association Agreement between Ukraine and the EU and certain laws of Ukraine¹.

In the same year, the State Strategy for Regional Development for the period up to 2020 was adopted, and a separate presidential decree harmonized the strategic framework for sustainable development "Ukraine 2020" with the strategic goals of the EU for the period up to 2020².

However, in conditions of military conflict in the southeast (Donbas), depopulation of the regions, growing infrastructural imbalances, an outdated mechanism of interrelations at the state-region level, and the large size of their territories, Ukraine needs an effective regional policy. Such a state policy should take into account the unique political-geographical and transport-geographical

position of the country, as well as the cultural and historical specifics of the border regions [1, 5, and 7].

Cohesion Policy

The European Union is developing through a strategic planning mechanism over seven years' consecutive programming periods: 2000-2006, 2007-2013, 2014-2020 and 2021-2027.

Adopted at the 6th Ministerial Conference on Spatial Planning (CEMAT) in Torremolinos (Spain) on May 20, 1983, the European Charter for Regional / Spatial Planning was the first joint document that defined the general principles and objectives of spatial planning in Europe at the national, regional and local levels long term. This charter for the first time laid the foundation for reducing regional differences and for a deeper understanding of the use and organization of space, environmental protection and distribution of economic activities and improvement of the quality of life.

¹ On the Strategy of Sustainable Development "Ukraine 2020": Decree of the President of Ukraine dated January 12, 2015 No 5/2015 // Government courier dated January 15, 2015 - No. 6. Про Стратегію сталого розвитку «Україна – 2020»: Указ Президента України від 12.01.2015 № 5/2015 // Урядовий кур'єр від 15.01.2015. – № 6.

² On stimulating the development of the regions: Law of Ukraine dated 08.09.2005 No. 2850-IV (as amended) // Voice of Ukraine from

08.11.2005. - No. 211; On the Principles of State Regional Policy: Law of Ukraine of 05.02.2015 № 156-VIII // Voice of Ukraine from 04.03.2015. - No. 39 Про стимулювання розвитку регіонів : Закон України від 08.09.2005 № 2850-IV (зі змінами) // Голос України від 08.11.2005. – № 211; Про засади державної регіональної політики : Закон України від 05.02.2015 № 156-VIII // Голос України від 04.03.2015. – № 39,

The integrated approach formulated in this document was the basis for the preparation of subsequent basic documents on the spatial development of the European Union. In the period from 1993 to 1999, extensive political consultations and expert discussions were held, at which intermediate documents were approved (Liège, 12–13 November 1993, Corfu, 3-4 June 1994, Leipzig, 1994, Strasbourg, March 30 - 31, 1995, Madrid, 1996, Venice, May 3 - 4, 1996, Nordvik, June 9 - 10, 1997, Echternac, 1997, Glasgow, June 8, 1998, Brussels, 9 - 10 September 1998) with the participation of the European Commission, the European Parliament and the Committee of the Regions. The final European Spatial Development Perspective (ESDP) was adopted in Potsdam from 10 to 11 May 1999.

Following the adoption of the European Spatial Development Perspective (ESDP) in 1999, the EU prepares regular assessment reports on regional policy (cohesion policy), which is the second largest in terms of funding after the common agricultural policy. Today, economic differences between the more developed countries (north and west of Europe) and the relatively lagging economies of the south and east of the European continent are increasing. This will entail further differentiation between countries in terms of political influence. Value differences between Western European and Eastern European countries become more prominent.

In 2014-2020, Cohesion Policy allocates one third of the EU budget to support Europe-wide growth and jobs targets and reduce economic and social inequality. It is also the largest investment instrument (EUR 325.1 billion) at EU level to achieve the objectives of the Europe 2020 Strategy.

Cooperation in this field calls for an analysis of national, regional and local development concepts with a view to the adoption of common principles, designed particularly to reduce regional disparities and to reach a deeper insight into the use and organisation of space, the distribution of activities, the protection of the environment and the improvement of the quality of life [6].

Strengthening the contact function of borders in the context of globalization has led to an increase in the economic importance and political subjectivity of border zones as an interface between the spaces of neighboring countries [10].

ENLARGEMENT FEATURES IN EASTERN EUROPE

By the time Ukraine declared independence in Europe, the main approaches to regional policy had already been formed, and the mechanism for its practical

implementation through EU structural funds was launched.

At the turn of the century, the Council of Europe adopted a core document on spatial development - Guiding Principles for Sustainable Development of the European Continent (Strasbourg, September 7-8, 2000).

The appearance of these documents was preceded by a long practice of cross-border cooperation on the internal borders of the EU, built on the principles of the European Outline Convention on Transfrontier Co-operation between Territorial Communities or Authorities (Madrid, May 21, 1980) [1-3]. The main engine of these practices was the German-Dutch initiative EUREGIO, on the basis of which the Association of European Border Regions (AEBR) arose in 1971. Currently, this organization has more than 120 members, including the external zone of the EU. Cross-border integration in Europe is a complex and multifaceted process that has a long contrasting effect on the border regions [8].

European Union finances cross-border cooperation programs for the period 2014-2020 under the European Neighborhood Instrument (ENI). There are currently 12 programs for Eastern Europe.

The European Commission has adopted a series of cross-border cooperation programmes totalling €1 billion, supporting social and economic development in the regions on both sides of the EU's external borders (Brussels, 7 January 2016).

TESIM (Technical Support for the Implementation and Management of ENI CBC Programs) is a new technical assistance project that provides support and guidance for 15 ENI CBC programs within the current European program period. This project is funded by DG NEAR, the European Commission, and is carried out by a consortium led by Particip GmbH (<https://tesim-enicbc.eu/>).

Conclusion

The dramatic events in Ukraine caused by the political and military conflict with Russia coincided with the beginning of the European program period 2014-2020. This had a huge impact on the border area as a whole, as a result of which asymmetric segments were formed (in terms of cross-border interactions) in the southeast, north and west of the Ukrainian state. The eastern border has lost its contact functions; all programs of cross-border cooperation with Russia have been suspended in a vast space (11). As a result of this, economic interactions at the interregional level with the Republic of Belarus intensified. At the same time, the contact zone with the countries of the European Union received an additional impetus within the framework of the European Neighborhood Instrument through 4 joint programs

(<https://huskroua-cbc.eu/>, <https://www.pbu2020.eu/en>,
<http://www.ro-ua.net/en/>, <http://blacksea-cbc.net/>).

Taking into account the decisions of the European Commission on the convergence of the INTERREG programs and the Neighborhood Programs in the new European program period 2021-2027, issues of interaction of its western and eastern regions on a project

basis should be included in the regional policy agenda of Ukraine. This will really strengthen the dynamics of social and economic cohesion of individual parts of the country. It will also ensure the complementarity of the European integration processes throughout Ukraine.

The main players in the creation of this mechanism should be the united territorial communities.

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KNOWLEDGE TRANSMISSION, ADAPTATION AND INNOVATIONAL PROCESSES: INTRODUCTION OF E-LEARNING

Knowledge transmission, adaptation and innovational processes. Introduction – E-learning.

Key words:

1. Globalization;
2. Forging a new educational and cultural habitus, according to Pierre Bourdieu (l’Etat) – Collège de France;
3. Widening social certainty with innovation.

The constant skepticism emanating from the profound longevity with respect to the World Economic crisis has demonstrated the diminishing governmental allocations that are characterized to be attributed to the Education Sector of their Economies; and as a result, weakened the aspiration of Scholars, Researches, either in their pursuit for the traditional educational systems or their attunement to the new models available and provided by intuitive thinkers drawn from Anglo-Saxon Universities of higher learning environment that propose what has been characterized as “E-Learning Synergy” [E-L S].

It is interesting to acknowledge the meaning of knowledge in its formational origin that comprises of “Know” and “Ledge”; and in Greek,.. as examples, that an inherent, inexpressible, accumulation of thoughts that are found in an individual, who through several years of research and the sharing of what seemed to be inherent, into potentially viable receptors or scholars that are ready to receive such inherent thoughts and to impacting and re-energizing that that they initially have obtained in their scholarly years at Colleges or other environments where standardized information-sharing systems are adopted within the reach of potentially viable scholars of a mean time.

The E-Learning energizing approach, though it has been Contrary to the existing old form of globalization where non-Compromising innovative Methods were thus said to be applied by trading Polities/entities, whose goals and objectives are quite far from the apparent Knowledge of the recipient trader-Nation; in spite of the *dissonances* as to the exact age of such trading Nations; the Later (E-Learning energizing approach) has tended to shorten the Knowledge transmission; and as it were, that the said becomes and will still be “a global Intellectual Property” for the enhancement of Future prospective development efforts for Mankind in general.

The pre-eminence of skepticisms thus faced by National Polities in their distinct Economic environments has caused very many contemporary Scholars & Researchers to pre-emptively raise some pertinent questions as to how “Knowledge transmission per se could prominently single out itself as the only tooting-tendency Factor that Trading & Competing Nations have to keep in mind in their diverse and Complex diplomatic proceeds of the 21st Century, will certainly be analyzed in detail under the following sections of this brief & short article, and notably:

1. Globalization: the reinforcing Vector of Knowledge transmission,
2. Knowledge Adaptation: the art of innovativeness inherent in Man in a given Society or Environment
3. (iii) The apparent Prospective Knowledge & Perspective for both Endogenous & Exogenous growth.

Globalization: The reinvigorating vector of knowledge transmission BK Amazon

Globalized Educational affinities are seen not only as a new wave of enhancing formal classroom attitudes, but also, has effected character building at the time and space chosen by the recipient scholars, that are geographically located in their distinct Nations. The structures and amenities at the disposal of Universities and institutions of higher learning in the world at large, in spite of its costs, are changing the scope of learning through the re- invigoration of knowledge transfer or transmission.

However, potential scholars around the world, through their inherent and distinct perceptions, have come to realize that in spite of today's globalization where National economies are bound to compete and to survive in this uncertain world Economic Environment, they are assuming and forging new notions as to how knowledge that is transmitted could indeed boost their aspirations for professional development for an endogenous National development. The cobweb style of interdependence that Raymond Aaron characterize as "interpenetrability" of

Trading Nations, through the continuous search for a certain balance ever since mankind rediscovers his inherent Potentials and skills distinct to each and every individual, either, from Argentina or from South Africa, there is the existence of "étincelage" or an osmosis that takes place, when adjacent or opposing thoughts are called to play in an interaction in the international Scene.

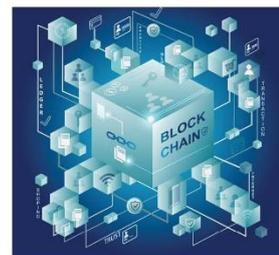
The *étincelage* emanating from semi-fusionalized ideas or thoughts, with time. should these thoughts blend, can indeed reinvigorate the new Learning attitude of international scholars in their endeavors to imperatively research and exploit such profound Educational opportunities that are available that guaranty the Success of their future careers. The globalization of Education has thus set the Pace for Knowledge transmission *in vitro* where scholars around the World appreciate all that touches New Knowledge and the specifics that it tends to grant, in terms of innovation equation and its aftermath, is but the Notion that is to be developed.

Knowledge and adaptation: The art of innovativeness inherent in man.

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TECHNOLOGIES DES REGISTRES DISTRIBUES ET BLOCKCHAINS

Résumé

Après avoir rappelé en termes simplifiés les principes dominants des registres distribués, des chaînes de blocs et des cryptomonnaies, l'article brosse à grands traits les principaux avantages liés à ces nouvelles technologies, évoque ses limites et ses risques, mentionne quelques unes des nombreuses applications possibles dans divers domaines de la puissance régaliennne essentiellement: identité, immigration, transport, élections, frontières et coopération transfrontalière. Les questions financières et fiscales ont été délibérément laissées de côté. L'article s'interroge sur l'intérêt de ces technologies pour les ministères de puissance régaliennne. Il tente enfin de trancher entre l'effet de mode et la révolution que représentent ou peuvent représenter ces technologies.

Mots clés: blockchain, technologie, coopération transfrontalière, transactions électroniques, registres distribués, cryptomonnaies.

Abstract

After recalling in simplified terms the dominant principles of distributed ledgers, block chains and cryptocurrencies, the article broadly outlines the main advantages linked to these new technologies, evokes its limits and its risks, mentions some of the numerous applications in various fields of sovereign power, essentially: identity, immigration, transport, elections, borders and cross-border cooperation. Financial and fiscal issues have been deliberately left aside. The article wonders about the interest of these technologies for the ministries of sovereign power. It finally tries to decide between the fashion effect and the revolution that represent or can represent these technologies.

Key words: blockchain, technology, cross-border cooperation, electronic transactions, distributed ledgers, cryptocurrencies.

1. DLT, blockchains, cryptomonnaies: en termes simples, de quoi s'agit-il?

Difficile pour le profane de se faire une idée de la nature de ces technologies connues essentiellement au travers du phénomène des «bitcoins», cryptomonnaie accusée de favoriser le développement de circuits monétaires criminels ou frauduleux au détriment des Etats et des partisans de l'ordre établi, tout en menaçant les ressources naturelles de destruction par une incroyable débauche de dépense d'énergie (les transactions en bitcoins consommeraient à elles-seules en une année autant d'électricité que l'Irlande dans son ensemble ou quatre centrales nucléaires).

Au risque de simplifier outrageusement, on dira que ces technologies consistent à répartir et disséminer les risques de distorsion afin de limiter, voire supprimer, les risques de corruption de l'information. Un seul fichier central, fut-il le mieux protégé du monde, ou une seule plate-forme d'échange courent toujours le risque d'être attaqués de l'extérieur ou corrompus de l'intérieur. En répartissant, non l'information elle-même mais l'image de ces informations, et en garantissant l'intégrité de cette image par des circuits multiples interconnectés, on acquiert la certitude que l'information d'origine n'a pas été corrompue.

Ajoutons que d'un point de vue technique, il ne faut pas confondre les termes et les concepts pour ne pas jeter le bébé avec l'eau du bain: les bitcoins sont une forme de cryptomonnaie – il en existe d'autres, comme Zecash, qui ont d'ailleurs maintenant la préférence des trafiquants en raison du niveau croissant de surveillance et de traçabilité des transactions en bitcoins. Les cryptomonnaies sont elles-mêmes une forme d'utilisation des blockchains. Et les blockchains ne sont enfin qu'une forme d'application de la technologie des registres distribués (distributed ledgers).

2. Les opportunités et les conséquences

Les DLT et blockchains (DLT/BC) sont donc utilisables pour toute transmission sécurisée de données ou plus exactement pour garantir que la donnée transmise correspond bien à la donnée initiale. Elles ne transmettent pas l'information elle-même, mais son «empreinte digitale».

Le champ des domaines économiques et administratifs susceptibles de s'appuyer sur ces technologies est vaste et pratiquement illimité (cf exemples d'application ci-dessous).

3. Les risques et les limites

L'enthousiasme semble de mise pour ces nouvelles technologies comme il l'a été par le passé pour les PPP (public private partnership). Les mêmes qui nous «vendaient» hier les vertus «gagnant-gagnant» du PPP (anglo-saxons, grands groupes privés), même si pour l'instant les «GAFA» ne sont peut-être pas encore tout à fait leaders sur ce nouveau marché, promeuvent aujourd'hui DLT et blockchains.

Certaines limites ou risques ont été évoqués: les délais de transaction, qui ne sont pas aussi courts qu'avec d'autres technologies, [débauche de moyens qui renforce les coûts et les délais] les coûts (coût en énergie d'abord, bien que ceux-ci ne soient extrêmement sensibles que pour les bitcoins selon plusieurs interlocuteurs, mais aussi coûts d'accès à la technologie).

La mise en place de systèmes décentralisés indépendants peut menacer les monopoles ou les oligopoles, à commencer par ceux des Etats eux-mêmes, et de puissantes plate-formes de services comme Uber pourraient être elles-mêmes mises en concurrence et finir par être à leur tour «ubérisées».

L'absence de responsable identifié en cas d'escroquerie ou de réalisation d'un risque est aussi tout autant une menace qu'un avantage. Les systèmes de DLT mis en place par les Etats présenteraient de meilleures garanties que les systèmes privés.

4. Exemples d'application: identité, lutte anti-corruption, immigration, transport, élections, frontières et coopération transfrontalière

L'essentiel des ateliers organisés tout au long de ces deux journées était consacré à l'illustration par l'exemple des multiples applications possibles: assurances, fiscalité, lutte anti-corruption, impôts, transport, élections, identité, etc.

Au fil des échanges, on retiendra surtout que l'association des DLT/BC aux «smart contracts» - contrats intelligents, accords quasi-automatiques accélérant les échanges, par exemple accord automatique de paiement lorsqu'un usager utilise un véhicule en usage partagé – est à la base de nombreux développements potentiels.

Identité: la base de toutes les autres applications. Mais aussi des questions de réputation et de vie privée

Entre un milliard et 1,5 milliards d'individus dans le monde n'auraient pas d'identité certifiée ou reconnue. Deux milliards n'auraient pas de compte bancaire. Leur niveau d'accès aux services (finances, assurances), au vote ou même au marché du travail sont dès lors limités et l'on voit se développer ou s'aggraver un système à double standard dans tous les domaines.

Les registres distribués et blockchains peuvent répondre à ce besoin d'identification certifiée tout en permettant à chaque individu de regagner du contrôle sur son identité, sa réputation et les informations attachées à sa personne qu'il souhaite partager ou contrôler en fonction de leur diffusion.

Immigration: identification indispensable

Une table ronde spécifiquement consacrée aux questions d'immigration a permis de présenter notamment le programme de l'ONU ID2020, visant à attribuer une identité à l'ensemble de la population, ou les systèmes d'identification et de services aux immigrés organisés par l'Administration finlandaise. Celle-ci réfléchit aussi à la connexion de ce système propre aux immigrés avec un système d'identification généralisé, afin de gommer l'effet de rupture lié au changement de statut lorsqu'un immigré acquiert la nationalité finlandaise.

Une start-up française a présenté un système d'identification automatique fondé sur un boîtier autonome d'enregistrement des empreintes digitales (alimenté par un mini panneau solaire) et permettant aux habitants non identifiés de recevoir ou d'envoyer de l'argent, de payer téléphone et éventuellement électricité. Ou permettant d'établir un «smartcontract» au niveau d'un village et de contrôler et cibler des dons ou soutiens humanitaires en envoyant spécifiquement des dons pour de la nourriture, de l'eau ou des panneaux solaires.

Transport: vers les transports partagés et modulaires

Un rapport spécifique de l'OCDE sur les transports de demain et les développements possibles liés aux DLT/BC a été commenté et développé en séance (rapport disponible sur le site de l'OCDE). Des exemples de développement ont été présentés en particulier par l'entreprise de conseil Ernst and Young. Il est clair que la réglementation et l'administration publique doivent se préparer activement à ces changements disruptifs qui vont se produire très vite: voiture autonome, interchangeable, à propriété et usage partagés. La question de la sécurisation de la cartographie n'a pas été évoquée directement.

Lutte contre la corruption: les cryptomonnaies pas si discrètes, pas d'eldorado disruptif pour la délinquance

La table ronde sur la lutte anti-corruption a permis de constater que les pouvoirs publics n'étaient pas comme on l'a cru, totalement désarmés face aux cryptomonnaies. On y apprend que les transactions sont traçables et que du fait de l'activité accrue des pouvoirs publics dans le circuit des bitcoins, le taux de transactions en bitcoins lié aux trafics et dissimulations en tout genre est passé en quelques années de 30% à 1%. La criminalité se déporte sur d'autres cryptomonnaies qui se développent parallèlement.

Élections: une nouvelle crédibilité pour les élections à distance

Le niveau de sécurité disponible avec les DLT/BC permet d'envisager sérieusement de recourir au vote électronique et même au vote à distance. L'Ile Maurice, la ville de Zug en Suisse, envisagent d'y recourir, et cette technologie a été utilisée pour le vote à distance à l'occasion des primaires en Virginie de l'Ouest aux Etats-Unis. L'Estonie, malgré son degré d'avancement en matière d'administration électronique, a reculé pour l'instant devant cette évolution pour des raisons psychologiques (défiance de la population, crainte de manipulations).

Autres usages, cartographie et systèmes d'information géographique

Il serait trop long et impossible de mentionner les autres usages évoqués ou non au cours de ce colloque. En ce qui

concerne la cartographie, les systèmes d'information géographique et la coopération transfrontalière, on relèvera que la Suède est déjà en train de transcrire son cadastre à l'aide des DLT/BC, de même que le Ghana, la Géorgie, le Kenya, le Honduras certains Etats américains.

5. Quel rôle pour l'État, et en particulier pour les ministères de l'intérieur ou leur équivalent, ceux de la puissance régaliennne et de la force publique par excellence?

Il est clair aujourd'hui que les DLT/BC n'ont pas signé l'arrêt de mort des Etats et de la puissance publique comme on aurait pu le craindre initialement. Son implication est au contraire plus que jamais nécessaire pour ajouter une couche de sécurité à un système technique de sécurité.

D'autres domaines connexes peuvent s'y adjoindre dans le cadre d'une évolution rapide de la société numérique: droit à la protection de la vie privée, organisation des secours, droit de la circulation, garantie des informations géographiques régaliennes (frontières internationales et internes, limites des infrastructures publiques, association identité et localisation géographique fixe ou mobile).

6. Conclusion: mode ou révolution?

Il serait tentant de répondre à cette question par une pirouette: les DLT/BC sont manifestement à la fois une mode et une révolution. Une mode, parce qu'elles ne sont peut-être pas la réponse unique ou idéale aux questions de sécurité qu'elles tendent à résoudre, et qu'il y a encore des trous dans ces technologies émergentes et en pleine évolution. Mais aussi une révolution, parce qu'elles obligent à repenser les structures même de la sécurité et des institutions publiques. Il reste, de toute évidence, une interrogation sur les gagnants potentiels d'un développement de ces technologies au détriment des autres.

Le marché serait aujourd'hui aux mains de 50 ou 60 start-ups réellement actives, les «GAFAs» ne seraient pas encore les maîtres du jeu. Mais il est bien difficile de déceler aujourd'hui les véritables enjeux et influences à la lutte en sous-main. Le jeu est peut-être ouvert mais rien n'est moins sûr.

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Scientific interests: administrative and regional/territorial governance, public administration reform, security, public and private law, cross-border cooperation.

Requirements for papers

- Papers are accepted in English and French. Good English and French spelling and punctuation are preferred. Papers should be written in a third person, impersonal style and any use of 'I/we' should be avoided.
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