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FISCAL POLICY AND ECONOMIC DEVELOPMENT

Summary

The authors considered the main theoretical approaches to the impact of fiscal policy instruments on economic development. We proposed a structural-functional model of fiscal policy's impact on aggregate demand, which is based on a complex combination of fiscal instruments, mechanisms and levers, considering the decomposition effect, time lags, macroeconomic dynamics and changes in the institutional environment of fiscal policy. An analysis of the measure's policymakers took in advanced and developing economies to intensify investment flows has been carried out. Considerable attention was paid to tax instruments for stimulating investments. The main ones are reducing the tax burden in taxes on capital, using investment tax benefits, improving conditions for cross-border movement of capital, and providing targeted tax benefits for payment of other taxes. Provisions regarding the impact of tax policy instruments on economic development have been improved. We found that increasing the tax burden negatively influences real GDP per capita growth. Thus, policymakers should use sound fiscal policy to attract sufficient budget revenues and maintain an environment for economic development.

Introduction

The role of fiscal policy in ensuring economic development has been a vital scientific problem for a long time. The evolution of fiscal policy is interrelated with the expansion of public institutions' tasks and functions. The nature and influence of fiscal instruments on economic development are determined by the redistribution of GDP through public finance, the fiscal architectonics model of the respective country, and the quality of institutions.

The investment activity of economic agents, economic growth, and prospects for socio-economic development depend on the level of tax regulation and

enforcement. The formation and implementation of tax policy requires using a balanced approach. It should ensure the appropriate funding level for budget expenditures, creating conditions for sustainable economic development. Institutional changes in tax policy should ensure the attraction of additional investments in the real sector of the economy. Further development of provisions on the development of tax policy will increase the degree of adaptability of the impact of taxation on socio-economic development. Considering the institutional environment's influence on fiscal relations, using opportunities to improve its quality level will increase the tax system's efficiency and regulatory potential.

Neoclassical and neo-Keynesian economics propose contrasting arguments regarding the impact of fiscal policy instruments on employment, domestic demand, and real GDP growth rates. The convergence of these approaches shapes the doctrine of public financial policy preparation in advanced economies. It is crucial to emphasize the need for further research to refine the assessment of the discretionary fiscal policy's application design to stimulate economic growth.

The evolution of social relations shaped the transformation approaches to the government's role in economic regulation. Classical economics stayed for the state's regulating role minimization. According to the classicists, the state should prepare the appropriate legislation (setting the market's "game rules") and finance public spending (ensuring its own institutional existence). The aforementioned expenditures should protect public order, executive and judicial authorities, etc.

Chapter 1. Theoretical approaches to the role of fiscal policy influence on economic development

The Great Depression and its consequences for the global economy caused the need to update theoretical statements on the tools ensuring macroeconomic balance and sustainable growth in the long run. In "General theory of employment, interest and money", J. M. Keynes presented an alternative point of view on the state's macroeconomic regulation.

In terms of recession, the questions of fiscal stimuli preparation become crucial. The most common institutional instruments of the above policy include tax and budget regulation in the sphere of expenditures aimed at aggregate demand maximization. Implementation of discretionary fiscal policy in a number of countries was caused by the need to respond properly to the prolonged global recession in 2008–2009. That fact boosted further development of theoretical and methodological provisions for the above policy's application. The empirical experience of the USA, Japan, and the European Union (hereinafter – EU) proves that higher efficiency of

discretionary fiscal policy is associated with a low level of the key interest rate and quantitative easing.

The policy of budget revenues' forming affects the dynamics of economic development and public welfare; its components should be characterized by compromise parameters, ensuring a sustainable balance between public interests and taxpayers' perceptions about fair distribution. The government determines the tax policy's key parameters regarding the objective need for public resource formation. Those resources should be sufficient to support public order, social justice and sustainable economic development. The tax regulation's environmental variability and the distribution/redistribution processes' complication determine the inclusion of the aforementioned issues in modern scientific discourse.

The fiscal policy mix should be adequate and relevant to the phase of the macroeconomic cycle. Thus, in the case of sustained economic growth, fiscal policy affects investment and consumer demand, disclosing a long-term effect. That policy should be determined as an effective macroeconomic stabilization factor in rational coordination with the monetary policy mix and other sustainability-friendly components of public financial regulation. To reactivate aggregate demand, the government should comprehensively apply financial policy measures contributing to the achievement of macro-equilibrium.

Neoclassical economics classifies fiscal policy instruments based on their impact on economic growth into four main groups. Those groups are a) *distortionary taxes* that reduce the economic agents' investment (both in human and physical capital) intentions; b) *non-distortional taxes* that do not have any destructive and / or restrictive effect on the decisions of the economic agents (regarding their savings and further investment); c) *productive expenditures*; and d) *unproductive expenditures*.

The first group includes taxes on income, profit and capital, while the second group combine consumption taxes and rent. *Productive expenditures* are associated with education, scientific research and development (hereinafter – R&D), infrastructure, and health care. *Non-productive expenditures* are associated with public administration, defense, social order and judiciary, economic activity. The highest degree of positive impact on economic growth could be ensured in the case of financing *productive expenditures* by *non-distortional taxes revenues*.

The main tax policy's features influencing aggregate demand are the tax structure and the level of taxation, characterized by the tax burden. The taxation level is commonly accepted due to a social compromise. Hence, the tax burden is set considering the country's socio-economic development model, primarily the ratio of GDP redistribution through public finance and state institutions' role in providing social goods and services. The tax burden is usually regarded as the taxes-to-GDP ratio at the macro level. That ratio directly depends on the

tax rates and the provision of tax benefits. The efficiency of a certain level of the tax burden setting could be assessed by comparing the effective rate indicator for each tax with its nominal value or by using the average effective (implicit) rate.

Variable scenarios of combining tax bases and rates determine the taxation structure. Considering the bases, there are: a) consumption taxes and taxes on income and profit; and b) taxes on labor, taxes on consumption, and taxes on capital. According to the OECD methodology, there are: a) taxes on income and profit; b) mandatory social insurance contributio paid to the central government; c) workforce taxes; d) property taxes; and e) taxes on goods and services. Regulation of the tax burden on labor and capital affects the market situation of those factors and determines the reasons for both labor and financial capital migration between different regions and countries of the world. Regarding the impact of the tax rates on economic activity, two main groups should be determined: a) depending on the method of setting – ad valorem, specific, and combined; and b) depending on the taxation scale – regressive, proportional, and progressive.

Taking the multiplicity of tax bases and rates combinations into account, the government has significant opportunities to influence investment and consumer demand as well as the GDP growth rate (in general). The impact of the tax structure on economic growth can be described by the following formula:

$$agr_i = \beta_0 + \beta_1 tl_i + \beta_2 tc_i + \beta_3 tcon_i + \varepsilon_i, \quad (1)$$

де:

agr_i – annual real GDP growth in the period i;

β_0 – independent variable;

tl_i – tax level of taxes on labor;

tc_i – tax level of taxes on capital;

$tcon_i$ – tax level of consumption's taxes;

ε_i – error;

J. Di John highlighted the significant features of the taxation structure and systematized the tax reforms experience in emerging market economies [1]. The author focused on the fundamental differences in the dynamics of macroeconomic indicators in Latin America, East Asia, Eastern Europe, and South Africa in the context of the taxation system' modification. Considering the taxes' inherent nature, the scholar argued that the tax space's reform should either meet the consensus parameters regarding the cost and quality of public goods and services or provide institutional instruments for forced redistribution. Moreover, the researcher expressed rather controversial ideas of direct and progressive income and property taxation strengthening. The position of the property taxation system's modernization is quite general,

shared by many researchers (in particular, Ukrainian) and deserves support. Meanwhile, progressive income taxation in economies with a significant degree of property differentiation often turns out to be unjustified and leads to enormous disparities in fiscal regulation, pushing the agents to the tax evasion schemes.

J. Arnold *et al.* studied macroeconomic, demographic and financial dynamics of 21 OECD countries over a period of 34 years in order to identify the impact of the taxation structure on economic growth, in particular in terms of the micro-mechanisms of investment and public production (identified as the main development drivers) [2]. Based on the factor analysis, the tax policy correction measures (aimed to ensure resistance to economic shocks and to activate post-crisis recovery) were proposed. It was pointed out that economic growth could be accelerated by optimizing the fiscal space in terms of improving both consumption and real estate (primarily, residential) taxation. Additionally, the authors confirmed the effectiveness of measures aimed to reduce the level of corporate taxation and sales taxes (e.g., in the form of various tax exemptions and benefits).

Basing on the analysis of 100 national tax systems' structure and respective macroeconomic dynamics, K. McNabb stated that (compared with advanced economies) issues of fiscal regulation were crucial for emerging markets and required systematic, consistent and balanced solutions [3]. Regarding the sample of transitive economies of the Baltic states and Central Europe and applying a threshold regression approach, C. Aydin & Ö. Esen investigated the multiple dependencies between the optimal tax revenues and economic growth rates [4]. The scholars pointed out that an increase in economic development induced the threshold value of the tax burden (associated with an optimal growth proportions).

Tax policy has both direct and indirect levers of influence on the development of inter-budgetary relations. Firstly, through the division of taxes into national and local ones; secondly, through the delegation to the local self-government bodies certain powers in the field of the local taxes and fees' bases and rates regulation; and finally, through the assignment of some national taxes (either in whole, or in part) to the local budgets. The actual degree of fiscal decentralization affects the interest of the local authorities in mobilizing tax revenues to the respective budgets. That fact requires scientific justification regarding the risks of inter-regional economic development disparities' emergence or increase. One of the determining prerequisites for the effective local self-government institute's functioning is the own budget revenues' sufficiency as opposed to the grants received from the central budget. It should be regarded that the decentralization effects differed depending on the model of the country's administrative-territorial organization and regional structure.

The tax policy affects aggregate demand by the tax cuts in the forms of reduction in the tax rates or provision targeted temporary tax benefits. The intermediate result of the above measures is a decrease in the budget revenues in both short- and medium-term perspective as well as an increase in the budget deficit (requiring additional financial sources). Keynesian economics supported government policy measures aimed at reducing the tax burden and to ensure deficit financing at the phases of economic decline and recession. Ultimately, a revival of the economic agents' business activity and the aggregate demand's stimulation should occur.

An empirical experience proves that in emerging market economies the tax policy is mainly pro-cyclical. Moreover, the possibilities for a targeted reduction in the tax burden under conditions of economic recession are quite limited (due to the underdeveloped domestic public debt markets and rather limited access of public institutions to the external debt financing). Therefore, the changes in the taxation system aimed to reduce the tax burden require the implementation of a set of balanced and consistent measures aimed to reduce public spending simultaneously. Given the above, it should be concluded that application of the tax policy's stimuli could be temporal and associated specifically with the taxes directly affecting investment activity and consumption of the economic agents. Primarily, such fiscal instruments include labor taxes and capital gains tax.

A. Laffer, the founder of supply-side economics, is an active supporter of a moderate tax burden. On the example of a tax curve, the scholar argues that under conditions of lowering tax rates – that are in the so-called "prohibited zone" – the fiscal significance of the corresponding taxes increases. In addition, the excessive tax burden leads to an increase in the shadow economy, reduces the overall national economy's efficiency and undermines the trust of economic agents in the state (as a social institution). Theoretically, a possible decrease in the tax revenues in the transitional period should be associated with a reduction in inappropriate and infective budget expenditures. The application of the above measures (aimed to reduce the tax rates) – proposed by the proponents of supply-side economics during the presidency of R. Reagan – led to a significant increase in the budget deficit. Meanwhile, the real GDP growth rates intensified and the average indicator for the period of 1981–1988 equaled to 3.50%. The above situation positively affected the unemployment rate, the population's income and the social standards as well.

The fiscal regulations and the other components of economic policy's impact on aggregate demand (as a tool for influencing aggregate supply and economic growth) should be considered not as the alternatives (depending on the socio-economic situation), but in an inseparable unity, taking their interaction and variable possibilities of combining into account. The proposed structural-functional model of the fiscal policy's impact on aggregate demand (Figure 1)

is based on a complex combination of fiscal instruments, mechanisms and levers, regarding the decomposition effect, time lags, the dynamics of the economic environment and permanent changes in the institutional foundations of the fiscal space.

The above model's application will increase the fiscal policy's adaptability to the different stages of economic cycle; improve the government performance in the areas of public revenues, spending, and inter-budget relations as well as budget deficit and public debt management. To achieve financial sustainability and intensive economic growth, both budget and tax policies should be prepared and set considering their strategic complementarity and functional relationship.

where:

tax_{α} – the tax policy's impact on the inter-budgetary relations development;

exp_{α} – the budget policy's in the field of expenditures impact on the level of fiscal decentralization;

tax_{γ} – the tax policy's impact on the budget deficit;

exp_{γ} – – the budget expenditures impact on the budget deficit;

tax_{imp} – the tax policy's impact on aggregate demand;

exp_{imp} – the tax policy's impact on aggregate demand.

According to the Ukrainian legislation, the main institutions involved in the preparation and implementation of fiscal policy are the Ministry of Finance of Ukraine, the State Tax Service of Ukraine, and the State Customs Service of Ukraine. However, in the process the fiscal space' evolution, a number of certain powers (e.g., determination of the local taxes' rates and bases) were delegated to the local self-government bodies. The State Tax Service carries out systemic regulatory measures planned and coordinated by the Ministry of Finance. The Cabinet of Ministers of Ukraine is another element of so-called "institutional triangle" responsible for the fiscal space's design and permanent improvement in the tax policy's architectonics. The interrelations between the above institutions should meet the criteria of a Nash equilibrium, ensuring the most effective development of the tax policy. In that case, each individual participant must fulfill its own powers (determined formally and informally), considering the powers and predicting the behavior of the other individuals. A system of counterbalances to maintain a Nash equilibrium and to prevent the use of the powers by any two institutions of the above "triangle" to harm the third one should be developed.

To satisfy the taxpayers, fiscal policy should be stable, well balanced and predictable. Moreover, it should meet the government's interests and support the economic agents' individual activities simultaneously. The critical social gaps and unfair property stratification should be prevented as well. The above situation could be achieved regarding the principals of: a) sufficiency –

determination of the tax's or the fee's profile, taking the budget balance into account; b) social justice – adjustment of the taxes and the fees according to the payers' ability; c) efficiency – timely and maximally complete tax revenues' collection (needed to guarantee extended reproduction, fulfilling the fiscal policy's goals, the prerequisites for improving the created products' quality and the national production's global competitiveness); d) performance – compliance of the actual tax regulation results with the defined goals and indicators of socio-economic development; e) stability – an unchanged approaches to the legal regulation and administration during a certain period; f) adaptability – prioritization of the policy's directions in accordance with the stages of macro-financial cycles and the governments' social and economic development strategy; and g) neutrality – determination of the taxes and fees in a way that does not increase or decrease the payers' competitiveness.

An efficient tax policy should maximize the revenues' collection (regarding current fiscal legislation) and optimize the tax burden (providing relevant advisory services to the taxpayers, assistance in the fulfillment of the economic agents' obligations, repayment of the excessively paid taxes, the tax accounting optimization, and analytically support for the transaction costs minimization).

The fiscal institutions' transaction costs should be managed properly. Considering their impact on the taxpayers' behavior, specifically the stages of concluding an agreement, O. E. Williamson divided them into *ex ante* and *ex post* transaction costs [5]. The *ex ante* costs occur before the transaction, while the *ex post* costs – after the transaction, respectively. Application of the above approach allows to separate *ex ante* costs of fiscal institutions (associated with ensuring the latter's voluntary fulfillment of the economic agents' tax obligations) and *ex post* costs (associated with forced fulfillment of the above obligations). *Ex ante* transaction costs should include expenses for planning and forecasting, mass-explanatory and advisory work, registration and accounting of the paying agents, collection and processing of reports, accounting of obligations, etc. *Ex post* transactional costs include the costs of appeal procedures and court hearings, expenses for combating fiscal risks, financial investigations, different types of inspections, and their legal consequences. *Ex ante* transaction costs' quantification is complicated by their multivariate and combinatorial nature. Thus, the task of the tax planning is to determine a system of institutional restrictions, which will be as friendly as possible for the taxpayers and will ensure the tax revenues' collection sufficient for the public administration simultaneously. The transaction costs parameters' correction should be achieved by the improvements in the tax mechanism, successive reforming of non-tax institutional mechanisms, and comprehensive development of public financial regulation.

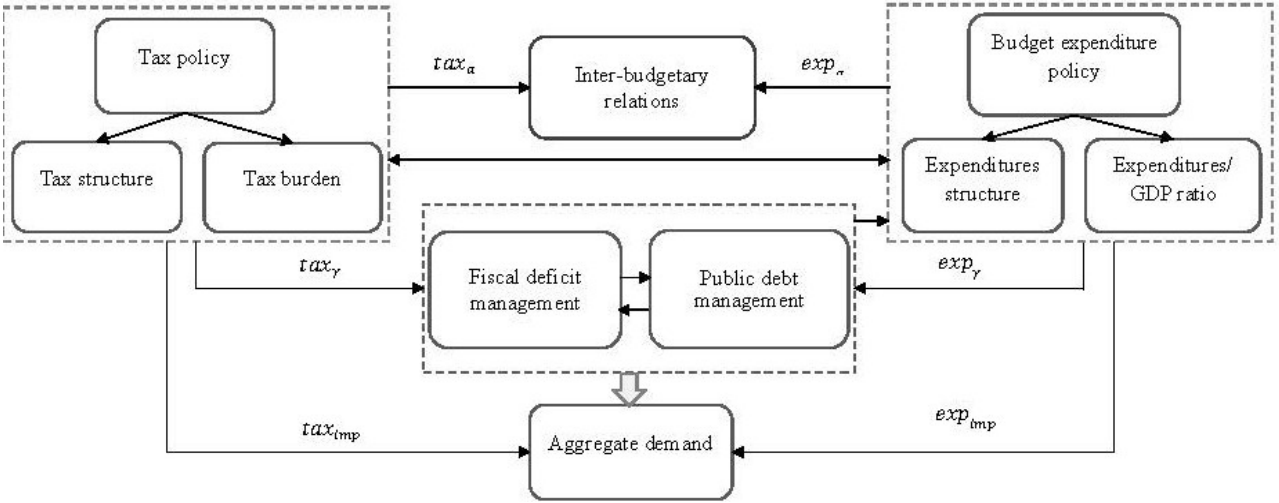

Figure 1. The structural-functional model of the fiscal policy' s impact on aggregate demand

Source: the author' s own wor

Chapter 2. Assessment of the tax policy instruments' impact on economic growth

For several centuries, a fierce competition among different countries in capital market existed. Nowadays, competition is regarded as one of the key factors ensuring economic growth.

To confirm this thesis, we investigated the relationship between investment (given as a percentage of GDP) and the annual real GDP per capita growth rate for 22 member-states of the European Union from 1992 to 2022. We excluded from the sample four small countries (Cyprus, Ireland, Luxembourg, and Malta). Croatia was excluded due to the lack of information on investment activity in the 1990s). Figure 2 represents the obtained results. There is a direct proportional dependence between the indicators: the higher investment activity is associated with the higher economic growth.

It is relevant and important for Ukraine to investigate the cases of the Czech Republic, Estonia, Latvia, Romania, and Slovakia. Regarding the sample of the EU member-states over the last 30 years, both the highest indicators of economic growth and investment-to-GDP ratio characterized the aforementioned countries. Regarding a sample of the Visegrád 4 countries and Romania, M. Simionescu *et al.* (2017) pointed out that the impact of direct foreign investment had been positive in the context of ensuring and maintaining economic growth [6].

A plethora of countries propose to the potential foreign investors significant tax preferences and the other special conditions (e.g., simplified procedures for allocating the land for the business constructions, access to the infrastructure, certain exemptions from custom duties for the import of equipment, etc.). The tax policy is an effective tool for the state influence on investment and consumer demand and has a long-term effect on economic growth [7]. L. H. Summers notes that those tax measures that are aimed at stimulating investment flows and simultaneously have no impact on savings could lead to a decrease in the national economy's competitiveness level in the future. Therefore, fiscal stimuli should be comprehensive and relevant to the country's productive and economic policies' priorities [8].

To stimulate the economy, the policymakers should focus on regulating those taxes that have the highest potential to activate investment and consumption. B. Ślusarczyk concluded that taxation was a significant factor in attracting foreign capital to Poland. Tax benefits for paying income and property taxes had a positive effect on the inflow of foreign direct investment in the studied period of 2004–2016 [9]. The researchers found out that the reform of capital taxation in China, which provided tax preferences to the economic agents that had invested in fixed capital, reactivated both investment activity and productivity of the companies. The above fact positively affected economic growth [10].

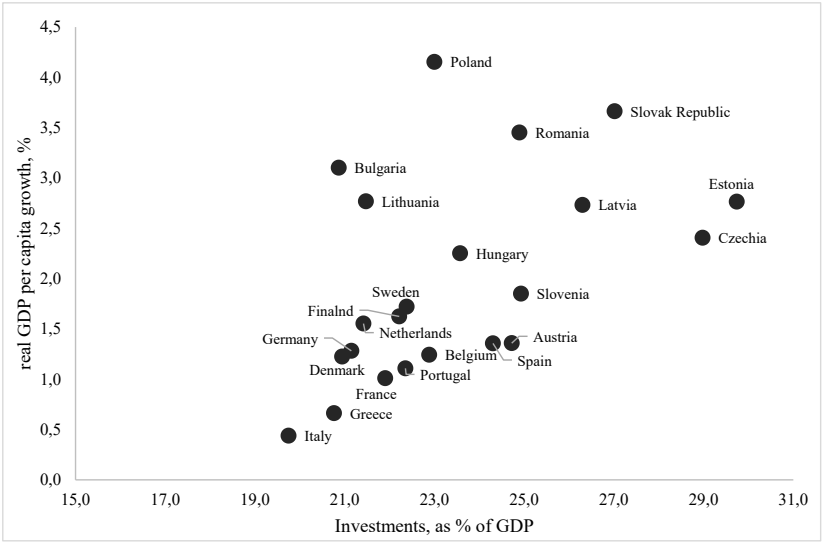

Figure 2. The relationship between investments and economic growth in the EU member-states over the 1992–2022 period

Source: compiled by the authors based on data from Eurostat and the World Bank

The Organization for Economic Co-operation and Development (hereafter – OECD) notes that the governments use taxation to achieve both social and economic goals. To attract investment flows, the authorities use the instruments of taxation as the most common element of the public finance regulation system. Tax competition for attracting additional investment capital is an established global trend. The countries try to offer investors the best fiscal conditions compared with their neighbors. Fiscal stimuli improve the country's investment attractiveness through the reduction in the tax rates compared with the external financial space's design. Moreover, to gain the best result, better tax conditions in the other spheres of economic activity could and should be formed by the national government [11].

There are four specific types of tax instruments commonly applied by the government. Those instruments include: a) a reduction in the income taxation, (tax cuts, special economic zones, tax holidays); b) fiscal stimuli to attract capital investment (public financial benefits and credits, specifically for the reinvested profit); c) improvement in the cross-border capital movement by lowering the tax rates for the profits repatriation, removing any restrictions on the dividends payment to the foreign shareholders, the reduction in custom tariffs, etc.; and d) provision of targeted tax benefits regarding the other taxes

(e.g., regarding social fees for the newly created workplaces). According to the international financial organizations' recommendations and regarding the empirical experience, the benefits for the investors or investment-related operations should be limited in time. Those benefits should be targeted and properly evaluated in terms of investments stimulation.

The modern competition on global markets determines the need to activate innovation and to create the appropriate institutional conditions for business development. The government's economic policy (considering both fiscal and monetary components) is an important international competitive factor for the investment flows' redistribution. There is lots of empirical evidence that investors (including the potential ones) are interested in prudent, balanced, consistent and transparent fiscal policy. International competition for investment resources determines the necessity and relevance of certain guarantees for the long-term development of economic sectors. At the same time, a positive foreign experience in the field of capital taxation is not enough to prepare a balanced investment policy. Considering several low-tax jurisdictions, reduction in the country's tax burden gained by the lowered tax rates or the tax benefits could not lead to a rapid attraction of capital investment. The trust of economic agents should be mentioned as one of the main of economic success determinants. That requires the partnership between the public authorities and business in an effective institutional environment. There is no consensus in the scientific community regarding the application of the tax regulation instruments friendly to investment. The aforementioned phenomenon is associated with rather low efficiency of the tax benefits and fiscal risks (common for the emerging economies).

F. Chittenden & M. Derregia found out that the R&D-related tax credit had no direct effect on the additional investment growth. Meanwhile, the resources released (associated inherently with the above benefits) contributed to the essential improvement in the R&D-related enterprises' condition. The above additional investment could reactive development of selected economic sectors [12].

In some countries, as an alternative to fiscal preferences, an institutional framework for attracting capital is developed. In particular, that concerns the rule of law and protection of the investors' property rights, stable and clear tax legislation, effective communication between business and authorities, etc. F. J. Contractor *et al.* (2020) determined that particular countries attracted more foreign investment than others did if they have had an effective regulatory mechanism for starting a business, guaranteed and reliable protection of the minority investors' rights, and an effective infrastructure for the international trade in addition [13]. L. Villela and A. Barreix emphasized that taxes played a secondary role in attracting foreign investment. The primary factors for investors were market size, competitive environment, access to raw materials,

availability of skilled labor, the cost of labor, macroeconomic stability, rule of law, etc. Moreover, considering the deepening economic globalization, tax incentives were an important factor for making decisions by the foreign investors. The scholars concluded that the regional economic integration created markets that have been increasingly similar in their characteristics, and since non-tax factors have been similar, the taxes' impact on the investment decision-making process have increased as well [14].

Foreign investments facilitate the transfer of the latest technologies and modern business models from advanced countries to developing ones. Moreover, the mentioned processes significantly impact the entire economy because the rules and principles of competition stimulate other business entities to be competitive in the market, focusing on the standards of the enterprises that attract foreign capital. According to R. J. Barro and J. Sala-i-Martin, technological diffusion plays a central role in promoting economic development [15].

Foreign investments made by transnational corporations are the main access channel for developing countries to high technologies. In addition, multinational corporations are traditionally flagships of R&D, while the latter fact is considered as one of the most important economic stimulation factors. To increase the positive impact of investments on economic development, the enterprises should focus on R&D. The countries with advanced economies have effectively used the tax credits for R&D implementation. The enterprises receiving those credits introduce innovations in production processes and promote new products with better characteristics than analogues on the market.

K. Akamatsu investigated the peculiarities of the growth processes in emerging market economies. The scholar formed the basis of the "wild-geese-flying pattern" paradigm, predicting that developing countries would gradually catch up with highly advanced ones in terms of economic development [16]. The scientist studied the textile industry's evolution in Japan, which at the time of the observations has been still a developing country. Subsequently, the obtained results were extrapolated for the cases of the other Asian countries: the Asian Tigers (Singapore, South Korea, and Taiwan), China, Indonesia, Malaysia, etc.

Three main stages of economic development were identified. At the first stage, consumer goods were imported into a developing country. At the second stage, to satisfy the growing demand, the new local productions of those goods, which were previously exclusively imported, were opened. In addition, at the finale stage, the surplus of manufactured goods was subsequently exported to the new markets, primarily to emerging ones. In the process of industrial development, a structural decomposition of the economy is commonly carried out. The developing countries are copying the above structure in countries that are economic flagships (with appropriate adaptation to the existing socio-

economic realities). Emerging market economies constantly try to increase the respective technological systems' levels to ensure additional competitive advantages of their economic entities on the global markets. To speed up those processes, it is relevant to remove trade barriers and create the appropriate conditions for multinational corporations. That would facilitate the adoption of decisions by the above domestic economic entities regarding the transfer of procedural knowledge.

Ukrainian scientists should investigate the post-war case of Japan in the field of economic recovery. Ukraine needs to strengthen its technology and expand its export potential to have the necessary resources to import critically needed goods under a persistent deficit in the balance of payments. In the post-war period, Japan chose a strategy to stimulate domestic demand through a policy of tax incentives, which brought the desired result [17]. Private corporate investment was chosen as the main determinant of economic growth. The government maximally contributed to the investment's intensification, forming favorable long-term economic expectations. For the development of the main branches of the national industry, Japan had successfully applied the transfer of procedural knowledge by importing technological developments from the USA and European countries. The above development policy requires public institutions' active involvement in purchasing patent rights and technologies by private enterprises.

A key factor in attracting investment, particularly foreign, is security. It combines the inviolability of private property and the payment of dividends to the shareholders and physical security as well. The satisfaction of their needs determines the economic agents' decisions. According to Abraham Maslow's hierarchy of needs, security is a fundamental need of the individual and society in general. Under conditions of full-scale military operations, regarding the empirical experience, the state is an important investor, while the private enterprises invest in areas that are closely related to military needs (e.g., the production of weapons, military equipment, cars, shells, ammunition, materials and other means highly demanded on the front). The ambassador of Ukraine to the USA noted that the weapons manufacturers and technological companies have shown the greatest American investors' interest in Ukraine. Investment surges are recorded in countries that are involved in military conflicts. The most explicit example of the above are the countries that supply weapons and equipment to battling countries. Moreover, the attraction of investments, including foreign ones, actively occurs exclusively during the post-war reconstruction period. After all, under conditions of uncertainty, there are significant risks for economic activity and the preservation of individuals and fixed assets.

According to the Cobb-Douglas functions, the relationship between GDP, capital, and the labor involved interacts with the following:

$$Y = A * K^{\alpha} * L^{\beta}, \quad (2)$$

where Y is the real GDP per capita,

A – coefficient of scientific and technological progress;

K – the amount of capital (investment);

L – the labor force;

α, β – coefficients of elasticity of GDP by capital and labor costs;

R. J. Barro substantiated the expediency of a separate study of public finance and private investment as a capital impact factor [18]. Regarding the above and based on formula 1.2, the economic controllers will be capital input (the private investment-to-GDP ratio) and the labor (the annual increase in the labor force). The model examines the impact of fiscal policy instruments on economic growth, taking their division into taxes and public expenditures into account. The model is represented below:

$$Y_{it} = a + \sum_{i=1}^{n} b_i T_{it} + \sum_{j=1}^{l} c_j Ex_{jt} + \sum_{k=1}^{m} d_k E_{kt} + \varepsilon, \quad (3)$$

where T – taxes;

Ex – public expenditure;

E – non-fiscal factors (economic controllers).

This study explored the impact of the tax burden on economic development. Furthermore, we estimated the influence of tax structure on output growth. The tax structure typically consists of distortionary and non-distortionary taxation. The first category of taxes constrains firms' and households' investment activity, causing a slowdown in the economy. That group of taxes included *taxes on labor* (personal income tax and social contributions) and *taxes on capital*. Theoretically, non-distortionary taxation, which is represented by *taxes on consumption*, has no negative impact on output growth. Public spending is defined as general government expenditure. We calculated all fiscal variables as % of GDP.

Capital and labor are the main factors of production in growth models. So, non-fiscal factors (economic controllers) include investment ratio to GDP *(In_{it})* and overall employment growth *(Em_{it})*. We apply the OLS technique and use annual observations. Thus, the following model is:

$$Y_{it} = \beta_0 + \sum_{i=1}^{n} b_i T_{it} + \beta_1 \sum_{i=1}^{m} Ex_{it} +$$

$$+ \beta_2 \sum_{i=1}^{n} In_{it} + \beta_3 \sum_{i=1}^{l} Em_{it} + \varepsilon, \quad (4)$$

According to the approach of R. J. Barro and X. Sala-i-Martin [15], to assess the factor's impact on economic growth, a homogeneous group of countries should be analyzed. The mentioned group should consist of economies with

similar quality of institutions, production functions, fiscal space, public policy formation strategies, etc. Some of the EU member-states meet those criteria. To determine further fiscal solutions for Ukraine, we studied the countries of Central Europe and the Baltic states: Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.

In the research process, a set of panel data was applied. The information sources were the World Bank, the IMF and the Eurostat data, regarding the period from 2001 to 2022. Table 1 displays a summary.

Table 1

Summary statistics

Variables	Observations	Mean	Standard deviation	Max	Min
GDP per capita growth rate, %	198	3,80	4,28	13,02	–14,27
taxes-to-GDP ratio, %	198	31,81	3,38	39,30	25,20
distortional taxes-to-GDP ratio, %	198	18,07	3,74	27,57	11,36
non-distortional taxes-to-GDP ratio, %	198	13,74	1,59	17,80	10,39
public spending-to-GDP ratio, %	198	39,86	5,36	60,27	30,79
investment-to-GDP ratio, %	198	24,73	5,02	41,59	12,66
employment growth, %	198	0,21	2,54	6,50	-14,30

Source: the authors' own calculation based on the World Bank, the IMF and the Eurostat data

Based on the results of the above analysis, it was pointed out that an increase in the investment-to-GDP ratio had a positive effect on the growth of real GDP per capita (Figure 2 represents a similar situation). An increase in the investment-to-GDP ratio by one percentage point caused the growth of real GDP per capita equaled to 0.126 % (Table 2, OLS1).

At the same time, taking the tax structure's decomposition into account, real GDP increased by 0.114 and 0.079 percentage points in the cases when *distortional* and *non-distortional taxes* were taken into account separately, respectively (Table 2; OLS2, OLS3).

The relationship between the real GDP growth rate and fiscal indicators – both tax burden and public spending – appeared to be negative. An increase in public spending by one percentage point slowed down the growth rate of real GDP per capita by 0.136 percentage points.

An increase in the taxes-to-GDP ratio by one percentage point led to a slowdown in the real GDP growth rate by 0.304 percentage points. The obtained results proved that increase in the tax burden restrained economic development. The adjusted coefficient of determination equaled 0.53. Thus, the studied model was adequate, while the relationship was quite stable.

Table 2

Regressions of economic growth on fiscal variables and control, the sample of Central European countries and the Baltic states, 2001–2022, panel data analysis

Variables	OLS1	OLS2	OLS3
public spending-to-GDP ratio, %	–0.136** (0.051)	–0.165** (0.049)	–0.223** (0.046)
investment-to-GDP ratio, %	0.126* (0.049)	0.114* (0.050)	0.079 (0.051)
employment growth, %	0.874** (0.100)	0.801** (0.098)	0.772** (0.100)
taxes-to-GDP ratio, %	–0.304** (0.079)	–	–
distortional taxes-to-GDP ratio, %	–	–0.191** (0.068)	–
non-distortional taxes-to-GDP ratio, %	–	–	–0.113 (0.152)
R^2	0.53	0.48	0.47
Observation	198	198	198

Notes: The numbers in parentheses are the standard errors of the estimated parameters.

'*' denotes significance at 5 % level; '**' denotes significance at 1 % level; R^2 is the adjusted coefficient of determination.

Source: the authors' own calculation based on the World Bank, the IMF and the Eurostat data

Regarding the impact of *distortional taxes* separately, the corresponding slowdown in GDP growth rates equaled to 0.191 percentage points. The destructive effect of *non-distortional taxes* on economic growth is lower than that of *distortional ones*. Considering the above, the transition from taxes on labor to taxes on consumption in order to smooth out the negative impact of taxation on the economy appears to be advisable. That trend is quite common in countries with advanced economies. A moderate substitution of the tax burden from labor taxes to environmental taxes seems to be a good scenario as well. Those taxes are neutral for economic growth. In addition, among the 17 Sustainable Development Goals considerable attention is paid to environmental issues.

Therefore, it is advisable to increase carbon tax rates gradually and to reduce personal income tax rates for the low-income households. Carbon pricing through a tax could significantly help to finance the budget expenditures needed to facilitate the recovery [19]. Ecological taxes could finance public spending on environmental innovation and investment in critical infrastructure. It is prudent to provide tax benefits to produce new energy-saving technologies and vehicles that meet high environmental standards.

According to the theoretical concepts and empirical observations, the category of consumption taxes is the most neutral to economic development. Taking the domestic realities into account, where value added tax (hereinafter – VAT), excise tax and customs duties generate more than a half of tax revenues, the public institutions should focus on improvements in the administration mechanism, ensure the predictability and stability of the tax environment for the taxpayers. The effectiveness of fiscal authorities' cooperation regarding development of tax legislation should be increased as well. An economic recession and a decrease in the export potential determine the enterprises' need for working capital. Thus, under modern conditions, it is critically important for the state to observe and fulfill its obligations regarding VAT refunds. By demonstrating the fulfillment of its obligations, the state could increase the level of the taxpayers' trust in implemented policy, which could be an important factor in ensuring economic development in the following budget periods.

The proper tax policy requires immediate response by the government institutions to exogenous and endogenous factors that affect the fiscal mechanisms of the budgets' tax revenue formation. Tax policy has a delayed effect on socio-economic processes. The above time lag includes a) the perception gap – the interval between the occurrence of the imbalance and its identification; b) the administrative gap – the time from the fiscal measures preparation to the start of their implementation; and c) the operational gap – the period between the start of the measures implementation and their effect in practice (obtaining a result).

The tax administration's efficiency contributes to the improvement in fiscal discipline and the tax risks elimination. Tax authorities are the key institutions in the field of public revenues mobilization. In the EU member-states, tax authorities collect 62 % of total budget revenues. According to the OECD report [20], in 2020, in a number of European countries, the aforementioned indicator exceeded 85.00 %. In particular, the indicator in Ireland equaled to 85.20 %, in Romania – to 86.27 %, in Denmark – to 86.62 %, in Estonia – to 87.12 %, in Latvia – to 87.13 %, and in Sweden – to 98.54 %. Meanwhile, for Central Europe, the highlighted indicator was significantly lower. For example, in Poland it equaled to 31.51 %, in the Czech Republic – to 36.18 %, and in Slovakia – to 37.20%.

The general structure of taxation in the EU–27 member-states, in the sample of Central European countries and in the Baltic states as well as in Ukraine is presented below (Figure 3).

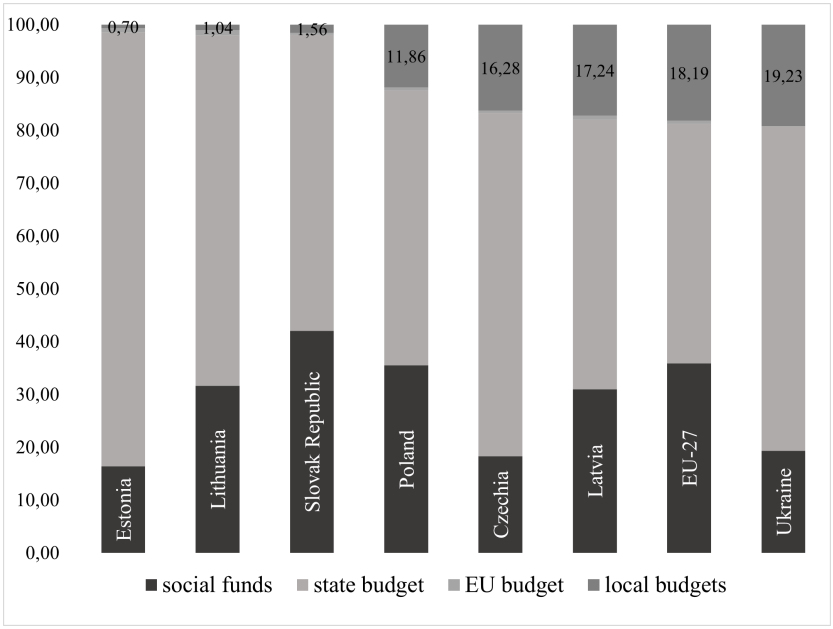

Figure 3. The structure of tax revenues by the level of their collection in the selected EU member-states and in Ukraine in 2021, percentage

Source: compiled by the authors based on data from Eurostat and the Ministry of Finance of Ukraine

The tax revenues collected to the local budget's percentage in the overall structure of taxation in Ukraine was the highest among the presented sample and equaled to 19.23 % in 2021. Ukrainian indicator exceeded the average indicator for the EU–27 by 1.04 percentage points.

The OECD conducted a study of the tax administration system in 58 countries. The sample included 40 OECD member-countries and 18 states with advanced and transition economies, e.g., Argentina, Brazil, China, Hong Kong (China), India, Indonesia, Malaysia, Peru, Singapore, Saudi Arabia, etc. It was pointed out that the tax authorities were responsible for only 45 % of the total property tax collection. In the other cases, existed either their joint responsibility with the local self-government bodies or the local authorities were exclusively responsible for paying those taxes to the budgets of municipal or sub-national level.

Conclusions

Fiscal policy affects economic development and public welfare dynamics, and its components should be characterized by compromise parameters, ensuring a stable balance between the state's interests and taxpayers' perceptions about fair distribution. Measures of influence of fiscal policy and other components of economic policy on aggregate demand should not be considered as alternatives depending on the socio-economic situation but in an inseparable unity, considering regulatory interaction and variable possibilities of combining fiscal measures, levers and tools. The main instruments of tax policy's impact on aggregate demand are the structure and level of taxation, which are characterized by tax burden indicators. The level of taxation is established by taking into account the socio-economic development model, which determines the indicator of GDP redistribution through the public finance system. The tax burden on labor and capital affects these market production factors. It is one of the reasons for the movement of human and financial capital between different regions and countries of the world.

Among the countries, there is a high level of competition in financial capital markets, which is one of the critical factors in ensuring economic growth. Potential investors are offered significant tax preferences and other special conditions to attract foreign investment. Instead of fiscal preferences, some countries are developing an institutional framework for attracting capital. This concerns the rule of law and proper protection of the property rights of investors, stable and transparent tax legislation, effective communication between businesses and authorities, etc. The study allowed us to ob tain negative relationships between real GDP growth rate and fiscal indicators. The obtained results proved that increasing the tax burden restrains economic development. The destructive effect of non-distortionary taxes on economic growth is lower than that of distortionary taxes. Considering the above, we note the possible transition from taxes on labor to taxes on consumption to smooth out taxation's adverse economic impact. That trend is quite common in advanced economies. A moderate substitution of the tax burden from labor taxes to environmental taxes seems to be a good scenario as well. Those taxes are neutral for economic growth. In addition, among the 17 Sustainable Development Goals considerable attention is paid to environmental issues.

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