Tax Policy for Economic Recovery and Sustainable Development After COVID-19

Polityka podatkowa na rzecz odbudowy gospodarki i zrównoważonego rozwoju po pandemii COVID-19

Tetiana Kaneva*, Igor Chugunov**, Mykola Pasichnyi***, Andriy Nikitishin****, Nataliia Husarevych*****

*State University of Trade and Economics, Department of Finance, Ukraine ORCID: 0000-0002-3302-9593 **State University of Trade and Economics, Department of Finance, Ukraine ORCID: 0000-0003-4915-1267 ***State University of Trade and Economics, Department of Finance, Ukraine E-mail (Corresponding Author): m.pasichnyi@knute.edu.ua, ORCID: 0000-0001-7663-776X ****State University of Trade and Economics, Institute of Trade and Economics, Department of Finance, Vinnytsia, Ukraine ORCID: 0000-0002-7951-4017 ***** State University of Trade and Economics, Department of Finance, Ukraine ORCID: 0000-0002-8266-8498

Abstract

The optimal taxation level and tax structure depend on numerous factors and enormously differ from country to country. However, the two mentioned tax policy instruments could ensure economic recovery and sustainable economic growth. This article aims to examine the effects of tax policy on economic development and evaluate the role of appropriate tax instruments in speeding up recovery. The results showed that tax level harms the GDP per capita growth rate in Central Europe and Baltic states over the 2000-2021 period. Another vital finding is the increase in both overall employment and investment to GDP ratio positively affected the real GDP per capita growth rates. In order to foster economic growth government might use tax cuts and other stimuli both for distortionary and non-distortionary taxes. The tax policy's institutional potential should be improved to neutralize the adverse effects of COVID-19 impact and enhance macroeconomic sustainability.

Key words: taxes, fiscal stimulus, COVID-19, employment, economic development **JEL Classification:** H20, H21, O23 **Słowa kluczowe:** podatki, bodźce fiskalne, COVID-19, zatrudnienie, rozwój gospodarczy

Introduction

The world economy's performance since the COVID-19 pandemic's start has been extraordinary: global output growth was at -4.4 percent in 2020, including advanced economies at -7.6 percent, emerging market and developing economies at -2.7 percent. All countries tackle problems with temporary lockdowns and economic agent's activity constraints. The nondiscretionary decline in tax revenues and an increase in public expenditures (*e. g., unemployment benefits*) are forecasted to account for 2.5 percent of GDP, even for the most developed countries. Lawmakers intended to accelerate the economic recovery from the last recession. There is a comprehensive discussion of tax policy's impact on economic development, especially during an economic crisis or recession. Using

different fiscal instruments and levers, the government plays a vital role in spurring consumption, investments, and labor supply. Tax structure and the taxation level (tax revenues to GDP ratio) are the fundamental factors in evaluating the output growth's tax effects. Theoretically, taxes on labor and capital negatively influence corporate and household income. Government stimulus packages often included tax cuts to boost aggregate demand and stimulate work effort, production, and investment by lowering applicable tax rates. However, fiscal stimuli have short-term effects on investment and output growth. Tax responses to the current economic downturn aim to preserve and create new jobs at the market, encourage investment activity, and prompt technology development in medicine. To ensure sustainable economic development and provide long-term advantages for the economy, the government has to focus on forming the optimal tax-mix. The crucial task is to ensure significant fiscal changes toward a high-tech and green economy and intensify investments and innovations. Policymakers should formulate tax policy over the business cycle, considering traditional criteria like efficiency, equity, and simplicity. Fiscal policy should not undermine the confidence of economic agents and focus on harmonizing tax relations. The tax structure strongly depends on the social and economic model and institutions' quality. Developing countries can expand the tax base and use moderate tax rates, guarantee better fiscal conditions for sustainable economic growth compared with advanced economies. Governments should concentrate on efficient revenue resources, which have a neutral or slightly negative influence on growth, such as taxes on consumption, environmental taxation, and on inefficient tax expenditures' elimination. In emerging market economies, public authorities have a limited capacity to conduct countercyclical fiscal policy with a massive stimulus package and less access to borrowing. The efficiency of tax incentives is also lower compared with high-income countries. Nowadays, tax responses to the recession mainly consist of deadline extensions, tax payment deferrals, and reduced social security contributions to support the most vulnerable economic agents.

Literature Review

Economists and scientists have long asked about the tax policy effects on economic development (Tanzi, 1969; Engen & Skinner, 1992). The answer is central to countercyclical tax policy design while policymakers often use tax-based incentives to foster economic growth over economic weakness and recessions. Romer & Romer (2010) found main reasons for tax changes over time – a) countercyclical changes; b) response for public spending; c) additional sources to finance deficit; d) long-run considerations. The results also indicate that tax policy has an enormous impact on the economy: an endogenous tax increase of 1 percent of GDP decreased real GDP by roughly 2 percent. Based on empirical research, Vegh & Vuletin (2015) concluded that less procyclical tax policy was more common for the economies with significantly better institutional environment and profoundly integration into the global financial markets. Tax and public spending policies are ordinarily conducted in a symmetric way over the business cycle. Mountford & Uhlig (2009) found evidence that a deficit-financed tax cut was the best fiscal policy to stimulate output growth in the short-term. Alesina & Ardagna (2010) identified significant changes in fiscal policy, either expansionary or contractionary. They examined the financial data from the OECD countries over the 1970-2007 period. Using an original approach, they found that fiscal stimuli based on tax cuts were more likely to increase growth than those based on public spending expansion.

The discussion on the tax structure's contribution to economic development is mainly focused on the advantages of direct *vs.* indirect taxes. From the theory, a shift from direct to indirect taxation is associated with the higher long-run economic growth. Arnold et al. (2011) examined how to formulate and conduct tax policy that prompts economic recovery and contributes to the long-run growth. Gradually shift in the tax base towards consumption and immovable property, and improvement in individual taxes' design positively impacts real output growth. The study highlighted that any necessary revenue increases after recovery would be least harmful to growth if they were based on growing recurrent taxes on immovable property and consumption taxes. Ojede & Yamarik (2012) assessed the impact of tax policy on state-level growth in the USA from 1968 to 2008 and found out that property and sales tax rates adversely affected the long-run income growth, while income tax rates did not influence growth dynamics. Fiscal policy could positively affect economic development by harmonizing the tax level and structure, taking the country's income level into account (Pasichnyi, 2017).

Stoilova (2017) investigated the impact of the tax structure on economic growth in the EU-28 member-states from 1996 to 2013. She used descriptive analysis and regressions on pooled panel data. The result disclosed that the tax structure based on consumption taxes, the taxes on income, and the property was more supportive of economic growth. McNabb (2018) used econometric analysis in order to estimate the relationship between tax structures and economic growth in a panel of 100 countries. He found that increases in domestic consumption taxes appeared to be growth-friendly for lower-middle-income countries. Personal income taxes and social contributions appeared the most harmful for the long-run GDP growth rates. The results also suggested that increases in property taxes were good for real output growth for high-income countries. At the same time, Bernardi (2013) outlined the possible risk that, in the short-term, tax shift from direct to indirect taxes could extend the economic weaknesses spreading across the European Union, particularly as an effect of the general adoption of restrictive fiscal policies by almost all the member-countries. Baiardi et al. (2019) investigated the interrelation between economic growth

and tax burden on the OECD's 34 members from 1970 to 2014. The paper's result confirmed the negative relationship between tax revenues and economic growth, while the tax structure was no longer related to sustainable economic development.

This paper aims to examine the effects of tax policy on economic development and evaluate the role of appropriate tax instruments in speeding up recovery.

Methods and data

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

$$Y = A * K^{\alpha} * L^{\beta}$$

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;

Endogenous growth models incorporate channels through which fiscal policy impacts economic development in the long-run (Barro, 1995; Benos, 2009). Moreover, those models classify the fiscal policy instruments into taxes and expenditures. Traditionally it takes the form:

$$Y_{it} = a + \sum_{i=1}^{n} b_i T_{it} + \sum_{j=1}^{l} c_j E x_{jt} + \sum_{k=1}^{m} d_k E_{kt} + \varepsilon$$
(2),

where T - taxes;

Ex – public expenditure;

E – non-fiscal factors (economic controllers);

 b_{it} , c_{jt} , d_{kt} – coefficient of the relevant variable impact on economic growth in country t.

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 defines 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_{ii}) and overall employment growth (Em_{it}). We apply the OLS technique and use annual observations. Thus, the following model is:

$$Y_{it} = \beta_0 + \sum_{i=1}^{n} b_i T_{it} + \beta_1 \sum_{i=1}^{m} E x_{it} + \beta_2 \sum_{i=1}^{n} I n_{it} + \beta_3 \sum_{i=1}^{l} E m_{it} + \varepsilon$$
(3),

There is a necessity to analyze a homogenous group of countries, according to Barro and Sala-i-Martin (1995) approach to estimate the factor's impact on output growth. The mentioned group consists of economies with a similar quality of institutions, production functions, fiscal space, etc. The European Union countries meet those criteria. This paper investigated the group of Central Europe and Baltic states; all these countries are the EU members – Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Romania, Poland, Slovakia, and Slovenia.

All analysis in this study uses a panel data set. The primary research sources are the World Bank's, the IMF's International Financial Statistics, and the Eurostat database. The period of analysis covers 22 years from 2000 to 2021. Table 1 displays the basic statistics for the variables used in the research.

Variables	Observations	Mean	Standard deviation	Max	Min
GDP per capita growth	198	3.79	4.28	13.02	-14.27
tax revenues	198	31.73	3.38	39.30	25.20
distortionary taxes	198	18.61	3.74	27.57	11.36
non-distortionary taxes	198	13.12	1.59	17.80	10.39
general government expenditures	198	39.78	5.36	60.27	30.79
investment ratio to GDP	198	24.87	5.02	41.59	12.66
overall employment growth	198	0.22	2.54	6.50	-14.30

Table 1. Descriptive statistics, the authors' calculation based on World Bank, IMF and Eurostat data

Results

In the current conditions of the coronavirus pandemic it is crucial to create a fundamental basis for ensuring sustainable positive economic dynamics. Tax policy is an effective tool for influencing investment and consumer demand and has a long-term effect. Changes in tax policy should ensure additional investment in the real economy

(1),

and boost employment. Moreover, financial globalization leads to the unification of tax systems, simplifying tax administration mechanisms, and expanding cooperation in combating tax fraud.

From 2000 to 2021, the sampled countries were characterized by uneven economic growth. While the Estonian real GDP per capita was reduced by 14.27 percent in 2009, the Latvian real output growth rate in the pre-crisis 2006 was equal to 13.02 percent. In the last two decades, European countries have faced two major economic crises - the Great Recession and the economic downturn caused by the COVID-19. Therefore, we compared the average GDP per capita growth during the Great Recession (GR), which included 2008–2009 and the coronavirus pandemic (2020–2021). For Bulgaria, Poland, Romania and Slovakia, the pandemic influence on the economy was more substantial than the impact of GR (figure 2). Simultaneously, the tax to GDP ratio in all sample countries except Slovenia was higher during the pandemic than during the Great Recession. For instance, in Slovakia, the tax level over 2020-2021 is higher than over 2008-2010 by 6.8 percentage points, in Latvia by 4.0 percentage points, in Czech Republic by 2.8 percentage points, in Poland by 2.7 percentage points. The main reasons for the mentioned situation are the gradual increase in the taxation level in the EU and a more extensive package of tax incentives from 2008-to 2010. Regardless recession, in 2020 compared to 2019, the tax ratio to GDP increased in all analyzed countries – from 0.3 percentage points in Slovenia to 1.3 percentage points in Estonia. As a result, the average value of growth is 0.68 percentage points. In the last crisis among policymakers existed a fear that tax reductions and deferrals could damage medium-term budget revenue-raising capacity. Instead, public spending on social support and economic affairs increased significantly over the pandemic.



coronavirus pandemic

Over two decades, the observed countries with the lowest average tax burden – Romania (27.77%), Bulgaria (29.13%), Latvia (29.31%), and Lithuania (29.36%) – were characterized by the highest average economic growth rates (that had been exceeding 4.10% annually). Meanwhile, Slovenia – with its average tax share in GDP equaled to 37.94% – had the lowest average real output growth rate (2.15%). Given the above, the empirical dependency should be properly proven statistically. All the sampled countries have unique profiles, yet they tackled at least two common tasks. The first is the constant need to dismantle uncommon for the *old* EU elements of fiscal space. The second is the optional requirement to counteract unfavorable shifts in the economic environment. That's why their experience in the field of tax policy should be adequately investigated.

The investigated Eastern European counties and the Baltic States have successfully passed the uneven yet fundamental financial transformations of the XXth century's last decade. The rethinking of the taxation model accomplished the transition from the old-fashioned paradigm to rational economic freedom. Tax revenues are a source to finance socially necessary government functions, its size depends on the country's socio-economic system. The tax revenues to GDP ratio in Central Europe and the Baltic States increased slightly from 32.30% in 2000 to 33.21% in 2021. However, we observed a substitution of growth and reduction of taxation trends during the analyzed period due to the economic cycles. The lowest tax level was observed over 2009-2012 (30.43-30.67%) when the tax incentives to restore sustainable economic growth were purposefully applied. In the taxation structure of the observed sample, the highest share belonged to taxes on labor -46.67%, taxes on consumption -39.14%, taxes on capital -4.19%. Taxes on labor predominated in all countries except Bulgaria, where consumption taxes took 1st place. We assessed the impact of employment on economic growth and found out that this factor was the most supportive development. If overall employment was enhanced by one percentage point, an increase in real output equaled 0.874 percentage points. A high employment rate is a significant factor in fostering economic development. The vital goal of Sustainable Development (SD) is decent work and economic growth. This goal is highly correlated with labor taxation. In the EU, the fiscal policy choices influence the allocation of a mobile tax base: the labor force. The significant difference in wages in the EU (in Western Europe and Scandinavia, it is much higher than in Central Europe) necessitates lower taxes on labor for the analyzed sample. Figure 2 shows that over recessions, unemployment rises and, conversely, stimulating employment accelerates economic growth. The highest unemployment and economic decline level were during the Great Recession and 2020, resulting from lockdowns to counter COVID-19. In 2009-2010, we observed the highest employment rate shrink for Baltic states, in 2020 for Bulgaria and Slovakia. Government should address tax policy to stimulate employment, especially for youth. The creation of new jobs and maintaining employment is entirely under the goals of SD - 1) no poverty and 10) reduced inequalities.



Figure 2. GDP growth and employment growth in the Central Europe and Baltic States from 2000 to 2021, %

The total labor cost, including personal income tax and social contributions, is essential in achieving a competitive advantage for the business. Policymakers might use targeted tax incentives and decrease the tax burden to boost employment and attract additional investments. We assessed the annual change (2020/2019) of the indicator tax wedge (as a% of labor costs) in Central Europe and the Baltic States. The result demonstrated a reduction in its value in 6 out of 9 countries: Poland by 0.9, Latvia by 0.9, Lithuania by 0.8, Slovakia by 0.7, Slovenia by 0.1, and Estonia by 0.1 percentage points, respectively. That decline was caused primarily by a decreasing in income tax. Income tax cuts deliver significant output stimuli, particularly in the long run (Faia et al., 2013). One possible scenario is to reduce the tax burden on low-paid workers in order to promote job-intensive growth and use a progressive tax scale. At the same time, it is more appropriate to use a flat rate for income tax in emerging-market economies. The flat rate of 10% operates in Bulgaria and Romania; until 2021, it operated in the Czech Republic at 15% and Estonia at 20%. In the analyzed sample of Central Europe and the Baltics, the top income tax rates are significantly lower compared to other European Union countries. At the same time, Latvia cut the top tax rate from 31.4 percent to 31.0 percent in 2021. The Czech Republic reintroduced progressive tax are also applied in Poland and Lithuania.

The increase in investment to GDP ratio positively affected the real GDP per capita growth. Generally, if the investment ratio to GDP rose by one percentage point, an increase in the real GDP per capita growth rate was equal to 0.118 percentage points (Table 2, OLS1). Meanwhile, considering the exact tax structure was highlighted, real output enriched by 0.109 and 0.087 percentage points in cases if distortionary and non-distortionary taxes were taken into account, respectively (Table 2; OLS2, OLS3).

In the case of fiscal factors, we obtained the adverse interrelations between real output growth rates and public spending and revenues indicators. An increase in general government expenditures equaled one percentage point reduced the real GDP per capita growth rates by 0.136 percentage points. An increase in total tax revenues to GDP ratio by one percentage point diminished real output by 0.304 percentage points. Obtained results proved that enhanced tax burden generally slowed economic development. The adjusted coefficient of determination equaled 0.47. Thus, the model under investigation was adequate, while the interconnection was quite robust.

Variables	OLS1	OLS2	OLS3
general government expenditures	-0.136** (0.051)	-0.165** (0.049)	-0.223** (0.046)
investment ratio to GDP	0.118* (0.049)	0.109* (0.050)	0.087 (0.051)
overall employment growth	0.874** (0.100)	0.801** (0.098)	0.772** (0.100)
tax revenues	-0.304** (0.079)	-	-
distortionary taxes	-	-0.191** (0.068)	-
non-distortionary taxes	-	-	-0.113 (0.152)
R ² Observations	0.47 198	0.46 198	0.43 198

Table 2. Regressions of economic growth on taxation and controls, the sample of Central Europe and Baltic states, 2000-2021

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

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

When we take distortionary taxes' impact exceptionally, the respective decline equaled 0.191 percentage points. Even though an increase in the non-distortionary taxes was interconnected with the decline equaling 0.113 percentage points, the interconnection between the variables appeared to be statistically insignificant. It is possible to shift from labor to consumption taxes in order to smooth the negative impact of taxation on the economy. Good scenario is to substitute moderately the tax burden from labor to environmental taxes. This category of taxes is neutral to economic growth. In addition, among the 17 SD goals, considerable attention is paid to environmental issues. Therefore, it is appropriate to gradually increase carbon tax and reduce personal income taxes for low-income households. Pricing carbon through a tax can help enormously pay for the public spending required for greening the recovery (Barbier, 2020). Environmental taxes could finance public spending for green innovation and critical infrastructure investments. The priority is to provide tax incentives to produce new energy-saving technologies and vehicles that correspond to high environmental standards.

Governments provided tax incentives for both distortionary and non-distortionary taxes. That measures aimed to help restore economic growth and maintain social development. An optimal anti-pandemic fiscal policy combines traditional growth-friendly tax incentives and special direct financial measures. The authorities' fiscal response to the COVID-19 challenge primarily included tax cuts, revised tax rates, prolonged deadlines for filing the tax returns, and other special benefits. In particular countries, the role of local authorities as fiscal policymakers has remarkably increased.

In Bulgaria, responding to the COVID-19, the discretionary fiscal policy measures included: a) a reduced VAT rate of 9% for the restaurant and catering services, books and textbooks, baby food and hygiene items from the 1st of July through the 31st of December 2020; b) the extended deadlines for filing the tax returns and the annual payments of corporate tax, personal income tax, and the other taxes traditionally associated with private entrepreneurship until the 30th of June 2020; c) the 5% deduction for the persons who have filed their tax returns and remitted the tax payment by the 31st of May 2020.

In the Czech Republic, the measures to neutralize the effects of the coronavirus pandemic and to stimulate the growth processes included: a) the prolonged terms for filing the income tax returns; b) the suspended penalties for the late payment of the income tax; c) the canceled interest on the amount of the deferred income tax; d) in some cases, the abolished penalties for the late submission of VAT and property tax returns; e) the additional benefits for taxpayers involved in the field of retail trade and services that were forced to close production facilities; g) the exempt from VAT on the supply of certain medical devices for diagnosis, testing, and vaccinations against COVID-19.

In Estonia, an extended cut in excise tax on particular fuels (e. g., diesel), the introduction of tax benefits through 2022, and the postponement for 18 months of the tax debt interest payments should be named primarily among the tax policy features. An essential package of tax incentives was aimed to support the family as a social institute. Special attention was paid to low-income families and the ones with children. Such measures included increased income tax benefits for households with children and simplified requirements for gaining those benefits. The excise taxes on gasoline, natural gas, and electricity have been reduced as well.

From the 1st of April 2020, the introduction of accelerated VAT refunds has supported the business vitally in Latvia. Furthermore, the government has promptly adopted efficient measures to stimulate tax policy: a) for the most affected by the COVID-19 pandemic companies, both current and overdue tax payments have been postponed; b) the municipalities were allowed to extend the real estate tax payments; c) the advance payments of personal income tax for self-employed persons were abolished. Additionally, the tax rate on natural gas used as

propellant has been temporarily reduced.

In Lithuania, the fiscal incentives package for economic development included changes in the taxation mechanisms of legal entities. In particular, the deadline for advance payment of corporate was postponed. The respected taxpayers were allowed to choose the most convenient method for calculating their payments. The possibility to defer the unpaid tax without accrual of the interest has occurred and the mitigation of the penalties in case of late payment or underpayments. For individual taxpayers, the deadline for filing and paying their annual income tax has been prolonged from the 4th of May to the 1st of July 2020. The most affected by the COVID-19 economic agents in Lithuania have been *listed* by the government. The aforementioned taxpayers have been released from the obligation to pay the penalties for the late payment of the liabilities from the 16th of March to the 31st of December 2020. The temporarily reduced VAT rate on certain activities (e. g., catering services, cultural and sports events) from the 1st of July 2021 through the 31st of December 2022 supported domestic business.

In Poland, the main growth-friendly fiscal measures involved: a) the particular tax incentives for the health care providers' charity if their donations have been made responding to the coronavirus pandemic from the 1st of January to the 30th of September 2020; b) the possibility of a one-time tax depreciation write-off from the initial value of fixed assets purchased to produce goods used to combat the COVID-19; c) the exemption – under the certain conditions – from the social insurance contributions' payment; d) the postponed until the 1st of January 2021 payment of retail tax. Poland has approved the extension of the deadlines for the tax returns filing. The advance payments of personal tax transfer terms have been suspended for the subsequent tax periods. According to the IMF, the opportunity to defer social security contributions and other taxes has occurred.

In Romania, the tax stimuli package included: a) until the 25th of October 2020, the exemption from paying the late payment interest and other financial penalties on tax obligations that arose after the 21st of March 2020; b) postponement of the deadlines for paying the taxes on buildings, land and on vehicles from the 31st of March to the 30th of June 2020; c) granting a discount to income taxpayers subject to the advance payments (for the large taxpayers -5%, for small and medium-sized -10%). The additional fiscal incentives involved: a) the 3-months deferral for the real estate tax payment; b) accelerated VAT refund; c) temporary suspension of tax control measures.

The deadlines for filing the 2019 personal income tax returns have been prolonged in Slovakia. For other taxpayers, the above period has been extended from the 31st of March to the 30th of June 2020. The supportive fiscal measures included: a) temporary exemption from the late payment penalties on tax obligations; b) from May 2020, the abolition of the advance income tax payments' obligation for the taxpayers whose income has been decreased significantly; c) suspension in some cases of tax control procedures, including those that were initiated by the taxpayer's application.

In Slovenia, the operative tax stimuli package included: a) from the 1st of May 2020, the introduction of additional tax benefits on the amount of donations have been made to eliminate the COVID-19 pandemic's impact; b) from the 3rd of April 2020, the abolition of import duties on goods needed to combat the disease; c) the tax filing dead-lines' postponement for the self-employed individuals and legal entities; d) the tax liabilities payments' deferral for up to 2 years; e) the temporary VAT exemption of protective and medical equipment supplies and acquisition.

Conclusions

Since the economic recession caused by COVID-19, EU member-states have tackled the challenges of budget consolidation. However, at the same time, governments need to boost aggregate demand and stimulate work effort, production, and investment. Tax policy is one of the most effective instruments to help economic recovery and ensure sustainable economic development. Our study provides evidence and estimation for growth-conductive taxation.

An increase in total tax revenues to GDP ratio by one percentage point crucially diminished real output by 0.304 percentage points in the sample of Central Europe and Baltic states. Both distortional and non-distortionary taxes harm the economy. The empirical research also proved that general government expenditures do not contribute to GDP per capita growth rate and negatively impact it. In this line, it is crucial to reduce the taxation level using target tax incentives and decrease all non-productive public spending. In addition, our results showed that the increase in overall employment and investment to GDP ratio positively affected economic growth. Labor taxation highly corresponds with three goals of SD: no poverty; reduced inequalities; decent work and economic growth. For Bulgaria, Poland, Romania, and Slovakia, the pandemic influence on the economy was more substantial than the Great Recession's impact. The global pandemic has affected tax policy in the short-run and changed its goals for all countries under study. Hence, the current taxation model needs to be promptly adjusted regarding its stabilizing and stimulating functions to increase the fiscal mechanism's efficiency and stimulate economic growth.

References

- 1. ALESINA A., ARDAGNA S., 2010, Large changes in fiscal policy: taxes versus spending, *Tax policy and the economy*, 24(1): 35-68.
- 2. ARNOLD J. M., BRYS B., HEADY C., JOHANSSON Å., SCHWELLNUS C., VARTIA L., 2011, Tax policy for economic recovery and growth, *The Economic Journal*, 121(550): F59-F80, DOI: 10.1111/j.1468-0297.2010.02415.x.

- 3. BAIRADI D., PROFETA P., PUGLISHI R., SCABROSETTI S., 2019, Tax policy and economic growth: does it really matter?, *International tax and public finance*, 26(2): 282-316.
- 4. BARBIER E. B., 2020, Greening the post-pandemic recovery in the G20, *Environmental and Resource Economics*, 76(4): 685-703, DOI: 10.1007/s10640-020-00437-w.
- 5. BARRO R. J., SALA-i-MARTIN X., 1995, Technolgical Diffusion Convergence and Growth, *NBER Working Papers*, 5151, National Bureau of Economic Research.
- 6. BERNARDI L., 2013, Recent findings regarding the shift from direct to indirect taxation in the EA-17, *Rivista di diritto finanziario e scienza delle finanze*, 4: 233-256.
- 7. BENOS N., 2009, Fiscal policy and economic growth: empirical evidence from EU countries, *MPRA Paper*, 19174, University Library of Munich, Germany.
- 8. CASADO M. G., GLENNON B., LANE J., MCQUOWN D., RICH D., WEINBERG B. A., 2020, *The aggregate effects of fiscal stimulus: Evidence from the Covid-19 unemployment supplement* (No. w27576), National Bureau of Economic Research.
- 9. CHEN S., IGAN D. O., PIERRI N., PRESBITERO A. F., SOLEDAD M., PERIA M., 2020, Tracking the economic impact of COVID-19 and mitigation policies in Europe and the United States, *IMF Working Papers*, 125.
- CHUGUNOV I., PASICHNYJ, M., KOROVIY V., KANEVA T., NIKITISHIN A., 2021, Fiscal and Monetary Policy of Economic Development, *European Journal of Sustainable Development*, 10(1): 42-52, DOI: 10.14207/ejsd.2021. v10n1p42.
- 11. DEMERTZIS M., SAPIR A., TAGLIAPIETRA S., WOLFF G. B., 2020, An effective economic response to the coronavirus in Europe, 2020/06, Bruegel Policy Contribution.
- 12. ENGEN E. M., SKINNER J., 1992, Fiscal policy and economic growth, w4223, National Bureau of Economic Research.
- 13. EASTERLY W., LEVIENE R., 2016, The European origins of economic development. Journal of Economic Growth, 21(3): 225-257.
- 14. FAIA E., LECHTAHLER W., MERKL C., 2013, Fiscal stimulus and labor market policies in Europe, *Journal of Economic Dynamics and Control*, 37(3): 483-499.
- 15. GHAZINOORY S., HASHEMI Z., 2021, Do tax incentives and direct funding enhance innovation input and output in high-tech firms?, *The Journal of High Technology Management Research*, 32(1): 100394, DOI: 10.1016/j.Hitech.2020. 100394.
- KAWA P., WAJDA-LICHY M., FIJOREK K., DENKOWSKA S., 2020, Do finance and trade foster economic growth in the new EU member states: Granger panel bootstrap causality approach, *Eastern European Economics*, 58(6): 458-477, DOI: 10.1080/00128775.2020.1762497.
- 17. KRAJEWSKI P., MACKIEWICZ M., 2019, The role of capital and labour in shaping the environmental effects of fiscal stimulus, *Journal of Cleaner Production*, 216: 323-332, DOI: 10.1016/j.jclepro.2019.01.190.
- 18. MOUNTFORD A., Uhlig, H. (2009). What are the effects of fiscal policy shocks?. *Journal of applied econometrics*, 24(6): 960-992.
- 19. MCNABB K., 2018, Tax structures and economic growth: new evidence from the government revenue dataset, *Journal of International Development*, 30(2): 173-205.
- 20. OJEDE A., YAMARIK S., 2012, Tax policy and state economic growth: The long-run and short-run of it, *Economics Letters*, 116(2): 161-165, DOI: 10.1016/j.econlet.2012.02.023.
- OHRN E., 2019, The effect of tax incentives on US manufacturing: Evidence from state accelerated depreciation policies, *Journal of Public Economics*, 180: 104084, DOI: 10.1016/j.jpubeco.2019.104084.
- 22. PASICHNYI M., 2017, Empirical study of the fiscal policy impact on economic growth, *Problems and Perspectives in Management*, 15(3): 316-322, DOI: 10.21511/ppm.15(3-2).2017.01.
- 23. PASICHNYI M., NEPTYALIUK A., 2021, The Contributions of Demographic Factors to Economic Growth, *Problemy Ekorozwoju/ Problems of Sustainable Development*, 16(1): 219-229, DOI: 10.35784/pe.2021.1.24.
- 24. PESTEL N., SOMMER E., 2017, Shifting taxes from labor to consumption: More employment and more inequality?, *Review of Income and Wealth*, 63(3): 542-563.
- ROMER C. D., ROMER D. H., 2010, The macroeconomic effects of tax changes: estimates based on a new measure of fiscal shocks, *American Economic Review*, 100(3): 763-801.
- SHULLA K., VOIGT B. F., CIBIAN S., SSANDONE G., MMARTINEZ E., NELKOVSKI F., SALEHI P., 2021, Effects of COVID-19 on the sustainable development goals (SDGs), *Discover Sustainability*, 2(1): 1-19, DOI: 10.1007/s43621-021-00026-x.
- 27. TANZI V., 1969, Tax incentives and economic development: the Ecuadorian experience, *FinanzArchiv/Public Finance Analysis*, H. 2: 226-235.
- STOILOVA D., 2017, Tax structure and economic growth: Evidence from the European Union, Contaduría y Administración, 62(3): 1041-1057.
- 29. VEGH C. A., VULETIN G., 2015, How is tax policy conducted over the business cycle?, *American Economic Journal: Economic Policy*, 7(3): 327-370.
- 30. WANG S. L., 2021, Fiscal stimulus in a high-debt economy? A DSGE analysis, *Economic Modelling*, 98: 118-135, DOI: 10.1016/j.econmod.2021.02.009.