

Influence of COVID-19 on the Functional Device of State Governance of Economic Growth of Countries in the Context of Ensuring Security



Myroslav Kryshchanovych^{1*}, Liudmyla Antonova², Viktoriia Filippova³, Svitlana Dombrovska⁴, Tetiana Pidlisna⁵

¹ Department of Pedagogy and Innovative Education, Lviv Polytechnic National University, Lviv 79000, Ukraine

² Department of Accounting and Audit, Petro Mohyla Black Sea National University, Mykolaiv 54000, Ukraine

³ Department of Public Administration and Local Self-Government, Kherson National Technical University, Kherson 73008, Ukraine

⁴ National University of Civil Defense of Ukraine, Kharkiv 61023, Ukraine

⁵ Leonid Yuzkov University of Management and Law, Khmelnytskyi 69001, Ukraine

Corresponding Author Email: myroslav.f.kryshchanovych@lpnu.ua

<https://doi.org/10.18280/ijssse.120207>

ABSTRACT

Received: 8 January 2022

Accepted: 5 March 2022

Keywords:

pandemic, economic growth, security, COVID-19, global economy, strategy

The purpose of the paper is to analyze the negative impact of pandemic on the economic growth of the world and the choice of strategy for the functioning of the apparatus of public administration using the chosen methodological approach in the context of ensuring security. The research methodology includes both general scientific methods, such as analysis and synthesis to assess the negative impact of pandemic on economic development and growth, and comparison methods to demonstrate growth rates in the context of ensuring security. IDEFO methodology was also used to present a methodological approach to the implementation of the proposed strategies. Research has several limitations and they are primarily related to the fact that economic growth strategies have been presented for one country. The proposed methodological approach to the implementation of the strategy can be applied in practice in the apparatus of public administration. The value of the study includes the use of IDEFO methodology for the formation and implementation of economic growth strategies.

1. INTRODUCTION

At the end of 2019, the world was shaken by the news of the emergence of the most dangerous virus today - COVID-19. It caused such a level of pandemic that it led to significant shifts in the economy that can no longer be covered. Today it is extremely difficult to predict how this will all end, but it still remains the number one threat to the global economy. But already today, new economic strategies should be formed and built in the face of the negative impact of the COVID-19 virus.

It is impossible not to notice that today the pandemic has spread so quickly that quarantine measures are in place in all corners of the world. All this has affected the borders, transport communications, entrepreneurial activity. We see a significant decrease in the volume of sales of goods and services in various sectors of the economy.

Since March 2020, the COVID-19 pandemic has become an official threat, although it has already been on the rise since December 2019. During this even a short period, it has significantly influenced the global economy, not to mention the current state. The greatest influence was exerted by the application and implementation of quarantine measures, which provided for the closure of shopping centers, a ban on mass events, a reduction in production, etc. It should be noted that global companies such as Apple, Toyota, Starbucks, McDonald's, and Volkswagen have suspended production or sales in China due to the spread of coronavirus disease. The world's supply chains, from electronics and automobiles to chicken, are under threat. The world's airlines have

temporarily cancelled flights to China, as an example. Also as an example to assess the state of affairs, in his commentary to the electronic portal "Word and Business", the economic expert Barberis [1] noted that some leading institutions as of the beginning of March 2020 noted a decrease in economic growth rates from an average of 2.5% to 0.6%.

The purpose of the article is to analyze the impact of COVID-19 on the economic growth of the countries of the world and the choice of a strategy for the functioning of the state administration apparatus using the selected methodological approach.

2. LITERATURE REVIEW

Reviewing the literature, we note that, as noted by Rowe and Frewer [2] in the field of public government reform, the introduction of the latest management practices into the general system of the state can withstand challenges, risks, and threats is of key importance. And in 2020 and today, such a threat is a pandemic.

In general, there is a large number of scientific works about to the system of state management of economic growth in the country. And as McSwite and Fredrickson [3, 4] have noted, for example, they will only grow. Identifying the essence of the system of public management of economic growth, we have the definition of Howlett et al. [5] and Bovaird and Loefer [6], which describes the key aspects of the structure of the state and the implementation of the main tools for forming a close

relationship between it and society in order to achieve the desired economic growth.

There is another vision of the essence of public administration [7, 8], which describes and highlights the main lines of government and an important role, while it seems that the formation of public policy and the political process in particular.

We agree with the thesis that the subject of state management of economic growth is the element of obtaining and achieving key state goals and interests by organizing the effective work of state structures [9, 10].

But not only the features of the public administration system are studied by scientists, but also the features of the influence of certain factors on it and economic growth. For example, Piattoni and others are devoted to the formation of the study of the main factors influencing social aspects of the public administration system [11-13]. Scientists such as Borrás, and Adejare et al. have discussed how various factors affect the economic growth of countries around the world [14, 15].

But many scientists have paid attention to studying the impact of COVID-19 and the pandemic in general. So, according to Capano et al. [16-19], precisely because of the pandemic, the governments of many countries need to revise their strategies for the public administration system.

Some scientists made forecasts of the impact of COVID-19 and the global trade system and GDP in general [20]. Saif et al. [21] also investigated the features of how in 2020 the pandemic changed the system of the world's economy and how difficult it was to achieve the much-desired economic growth.

With due respect, all studies in the field of the characteristics of the negative impact of COVID-19 and the consequences of the pandemic on the world economy, today, there is a need for a comparative analysis of its beginning and the use of the IDEF0 methodology for the formation and implementation of an economic growth strategy in the context of the ensuring security.

3. METHODOLOGY

The research methodology has both general scientific methods, such as analysis to assess the impact of COVID-19 on economic growth, and comparison methods to demonstrate the growth rate. Also, the IDEF0 methodology was applied to form a methodological approach to the implementation of the proposed strategies.

As for the general scientific methods, they were applied during the general theoretical analysis and the formation of the basic model of strategies, which became the initial stage for the formation of the research results as such. General methods such as analysis and comparison have been used to assess and investigate the growth or decline aspects of economic growth, etc.

As a result, the presentation of the main strategies for a particular country, and the IDEF0 methodology were applied to form a methodological approach to the implementation of the proposed strategies. The methodology of graphical display and functional modeling IDEF0 is not new, however, in our case, namely for the formation and implementation of a strategy for the economic growth of a single country, one of the first will be applied. It is a methodology that is simple and easy to use. We set the main goal (the so-called starting point A_0 and a number of its subsystems A_1, A_2 , etc.) and represent

how it is achieved and what it can potentially lead to.

As a result, the IDEF0 methodology makes it possible to form the decomposition of the first level of the model, where the stages and subsystems are displayed according to the set goal in the context of ensuring security. There may be several such levels, and thanks to them, it is possible to detail individual stages or subsystems. The whole IDEF0 methodology is divided into certain stages. The first step is to identify the key goal and the main elements to achieve it. Based on this, a hierarchy of blocks is formed, which indicates the main stages of achieving the key goal. In the second stage, the main mechanisms, inputs, outputs, mechanisms, and resources necessary to achieve the set goals are determined. After that, in the third stage, decompositions are formed, in which the entire process of achieving goal A_0 is demonstrated in detail.

The hierarchically functional IDEF0 model is divided into the main model, which presents the key stages in achieving the key goal, and also includes decompositions of the lower levels at the lower levels, which in turn allow you to depict more detailed stages in the implementation of each of the stages of the main model.

For a better demonstration of the work of the decomposition of the IDEF0 model, we selected one of the proposed strategies for economic growth in a pandemic and quarantine.

The vector nature of these strategies is aimed at stabilizing economic growth during a pandemic. They concern such critical and vulnerable areas of the economy as the banking system, exports and imports, and support for businesses.

4. RESEARCH MODEL

The process of public administration in the field of economic growth, in its essence, is a practical element of the activity. At the same time, attention is focused on society and everything around it. Thanks to the state administration apparatus, self-preservation, the existence and development of society are ensured. Even, you can talk about the creative aspect of this activity. All of this has changed significantly in the dramatic global pandemic turn.

To better analyze the impact of the pandemic on economic growth, we conducted a study of a number of theoretical and practical works and made certain conclusions on this. Already today we can say that Europe has received a number of economic shocks, which can be safely compared with the 2008 financial crisis. We can talk about the twofold influence of China on the United States on the part of the consumer of goods from the United States and the global manufacturer. We can expect a negative effect on the Chinese economy. We see China itself reporting that there are many problems with manufacturing performance in 2020, and they are already worse than during the 2008 crisis [22].

In 2020, there was a significant deterioration, which indicates problems with economic growth (Figure 1).

The so-called decline in oil prices can also be traced (Figure 2), which is accompanied by a decrease in the demand for oil from China, which was the main importer, as example.

In order to avoid problems with the bankruptcy of enterprises, China has already spent more than \$ 200 billion on the country's financial system. The International Monetary Fund has already mobilized more than \$ 1 trillion to aid countries.

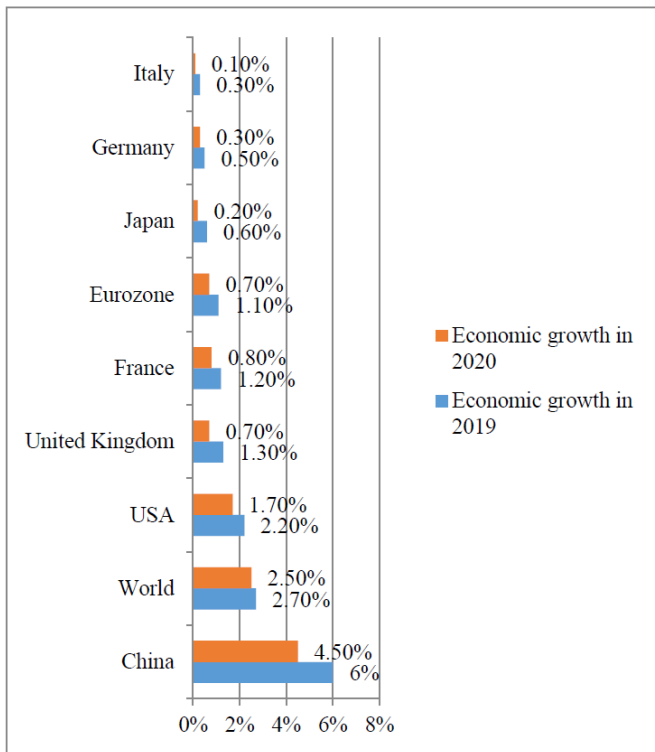


Figure 1. The economic development and growth of the world in 2019–2020

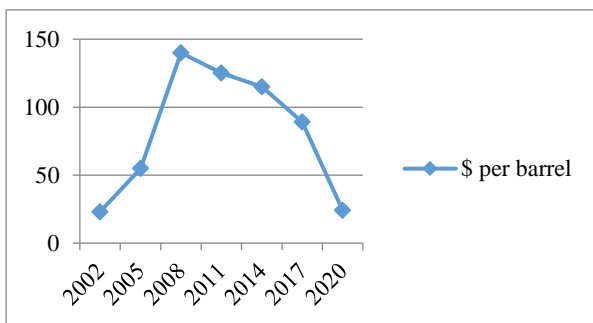


Figure 2. Dynamics of oil prices in 2002–2020

For countries such as Germany, Italy, France, and the United States, the state provides assistance to preserve jobs. For example, the French government compensated the unemployed up to 85% of the lost earnings, in addition, the salary was increased up to 50% for people who worked under the regime. In many countries, the number of new job opportunities is still very low. Jobs in Australia have returned to their previous 2019 level, but they are lagging in France, Spain, the UK, and several other countries [22].

To form possible strategies for economic growth in the context of a pandemic, we will choose Ukraine, a country that is not advanced in the global economy with limited resources and must confront the new problems caused by the pandemic.

The first lockdown, in 2020, greatly reduced business activity. The movement of people fell somewhere between 20–40 percent, depending on the places where they went. The retail turnover has decreased. Incomes of enterprises in the sphere of trade and entertainment decreased. Industries such as air travel and hospitality were feeling terrible. It suffered a lot - these are the industries that, due to the global pandemic, could not recover within a year. These are passenger transport - they are still at a very low level. This is tourism, which has

also dropped significantly.

It should be noted that there are significant changes in exports and imports. Yes, exports have become more raw materials, but there is a so-called "uncertainty". It consists in the fact that they are waiting for the reaction of the government and therefore investments have decreased during such waiting. A number of investors were very cautious about the situation with the pandemic, and therefore there were not so many investments in Ukraine. The fact that investments were stopped is, of course, very bad for the economy: it slows it down.

How much the economic situation in Ukraine was affected by government payments of 8 thousand UAH, no economist will answer you. That is, so, people were given money, those who needed it were able to hold out for a period. This is such an image-positive step on the part of the authorities. But no one will appreciate the economic effect.

To better understand the problems faced by Ukrainian businesses and their response to them, it is necessary to analyze how the Ukrainian economy as a whole reacted to the COVID-19 pandemic. Indeed, without understanding the big picture, it is difficult to assess individual aspects of the impact of the pandemic in different dimensions, because the corresponding economic trends form the environment in which individual economic agents operate. In turn, general economic trends are a generalizing result of their (agents) functioning. It should also be noted separately that an adequate understanding of the general economic context is an important prerequisite for developing a policy to support individual industries and economic agents. In general, the economic situation in 2020 looked like this. During 2020, nominal and real wages increased, but at the same time, wage arrears increased compared to the same period in 2019. Growth (albeit to varying degrees) was demonstrated by industry, agricultural production, construction, and retail trade. This is due to the fact that these industries had the largest volumes of domestic investment. And before the manifestation of the pandemic, a number of agrarian reforms were carried out in these areas. At the same time, the volumes of freight and passenger traffic, exports and imports, and capital investments were lower compared to the previous year.

The COVID-19 pandemic has become a challenge that has never been faced by either the central or local authorities in Ukraine. And it was the local authorities that were at the forefront of the fight against the pandemic. The unprecedented complexity of the situation is explained by the need to solve two problems: to mobilize significant human, material, and financial resources for the treatment of patients within a short time (an absolute priority) and to take measures aimed at minimizing the socio-economic consequences caused by the pandemic. Obviously, in practice, solving the second problem means, first of all, maintaining economic activity. As the world experience of economic crises shows, a drop in economic activity has two interrelated consequences, namely, a decrease in income and an increase in unemployment. At the same time, among other economic agents, it is micro and small enterprises that are the first to suffer losses and have a smaller margin of safety.

The decision on the appropriateness of other business support activities will be based on common sense and not based on economic assessments or simulations, as such models are very complex. Decisions based on economic evaluations are formed only as a result of rigorous and meticulous economic analysis.

You can make some assumptions. For example, we assume that the budgetary resource is limited (and in Ukraine, it is really limited, because there is a state budget deficit), and this budgetary resource can be targeted, that is, directed to someone specific. And who has suffered the most? Probably, these are families with children, these are small entrepreneurs who work in institutions, have been quarantined, and the like.

Ukraine will have another effect from the pandemic, crisis, and lockdowns - this is stratification. Poorer families with children received far fewer opportunities than wealthy families. Therefore, the problem for vulnerable families is that the mother has to quit her job, stay with her child at home, and the child does not have a laptop or other device to access distance learning.

Therefore, such a very difficult school year for children from vulnerable families can further deepen inequality in society.

Under such conditions, we propose a strategy for the system of public administration of economic growth in a pandemic (Table 1). Each of these stages, designed to achieve A0, was chosen solely for the purpose of achieving the set goal and taking into account the current conditions for the development of the economic system in times of a pandemic. Changes can be made to the system of these stages if necessary.

Table 1. Strategy for the public administration system of economic growth in a pandemic (developed by authors)

Mathematical notation	Stage of formation and implementation
A0	Ensuring economic growth amid a pandemic
A1	Support for small and medium-sized businesses in quarantine conditions
A2	Establishing export and import
A3	Banking system stabilization

The process of its modeling and presentation of a number of decompositions will be presented in the section and becomes the main application of our methodology.

5. RESULTS AND DISCUSSIONS

We will apply the proposed IDEF0 methodology to demonstrate its effectiveness in developing and implementing a strategy for public management of economic growth in a pandemic.

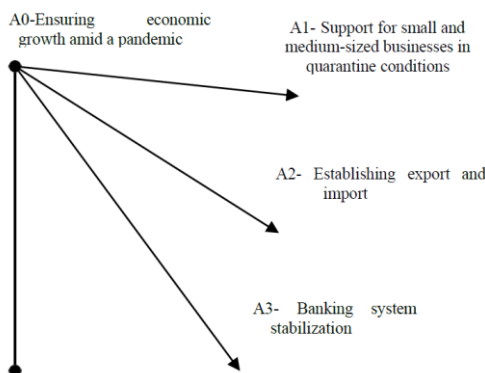


Figure 3. The blocks of the IDEF0 model for the implementation of the strategy of public administration of economic growth in a pandemic

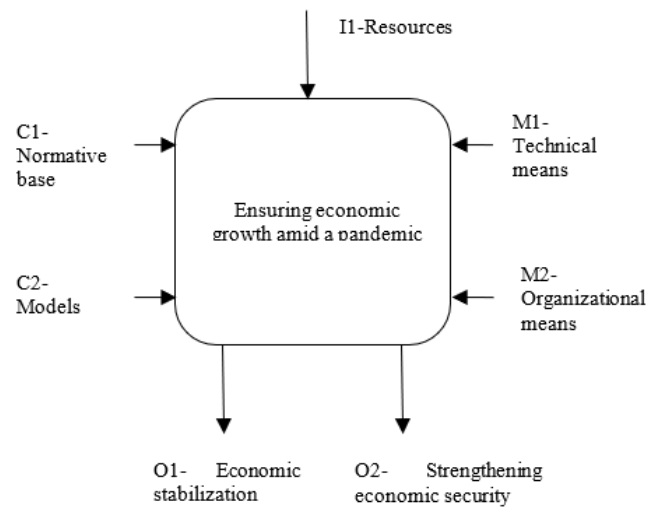


Figure 4. The diagram of our model for the implementation of a public administration strategy for economic growth in a pandemic

The first stage will be the formation of a blocks of the IDEF0 model for implementing the strategy of public administration of economic growth in a pandemic (Figure 3).

The next step will be the formation of a context diagram of our IDEF0 model for the implementation of the strategy of public management of economic growth in a pandemic (Figure 4).

As can be seen from Figure 2, in order to achieve this goal, namely, to ensure economic growth in a pandemic, a number of elements are needed that will contribute to this: input - I, control - C, output - O, mechanism - M.

We form the decomposition of the first level of the IDEF0 model for the implementation of the strategy of state management of economic growth in a pandemic (Figure 5).

A1 - Support for small and medium-sized businesses in quarantine conditions. It should be introduced for small and medium-sized businesses in the context of a pandemic and introduce quarantine, assistance, and availability of credit. This can be done in several stages, presented in the decomposition of the second level of the IDEF0 model for the implementation of the strategy of state management of economic growth in a pandemic, which precisely details the strategy for supporting small and medium-sized businesses in quarantine conditions (Figure 6).

A2 - Setting up export and import. Since the beginning of the year, Ukraine has recorded an excess of exports over imports - the so-called trade deficit. In the first half of 2020, the difference was \$ 1.27 billion. For comparison, last year the figure was almost three times higher. The reduction in imports is bad news for the government because the most filler of the state treasury is the value-added tax paid on goods imported into the territory of Ukraine (VAT on imports brings every third hryvnia of budget revenues). So, the less there is volume of imports, the less money is collected in the budget. A detailed strategy for establishing exports and imports under quarantine conditions is presented on the decomposition of the third level of the IDEF0 functional model for the implementation of the strategy of state management of economic growth in a pandemic (Figure 7). The presented decomposition is based on the formed final goal A0 and the stages of achieving the final goal A1-A3. In addition, the existing mechanisms, resources, inputs, and outputs can be considered an important element of decomposition.

A3 - Stabilization of the banking system under quarantine conditions. In order to stabilize the banking system as much as possible, it is necessary to introduce a sanitary hour and additional disinfection of workplaces, branch premises, counting offices, and cash-in-transit vehicles. Decide on a partial transition to the remote operation mode while maintaining the continuity of all operational processes. Most of the personnel of the bank's support departments should be transferred to remote work. Cancel the postoperative work of the departments. A detailed strategy for stabilizing the banking system under conditions of quarantine is presented on the decomposition of the fourth level of the IDEF0 functional

model for implementing the strategy of state management of economic growth in a pandemic (Figure 8).

When discussing the results, studies should note that the IDEF0 methodology is not new. For example, Sylkin et al. [23] used it to map aspects of financial security. Kryshtanovych et al. [24, 25] used it to demonstrate aspects of a social safety net. However, in our study, we determined how COVID-19 influenced economic growth in the world and proposed several strategies for a single European country. And the IDEF0 methodology itself was used to form and implement an economic growth strategy in the context of the COVID-19 pandemic.

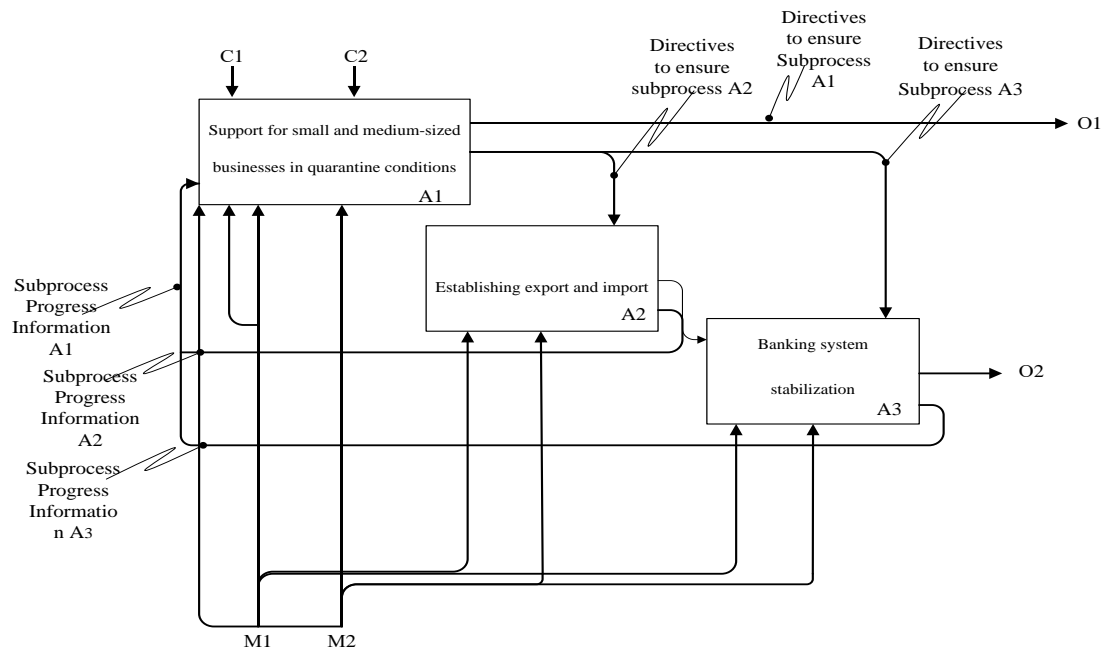


Figure 5. Decomposition of the first level of the IDEF0 model for the implementation of the strategy of public administration of economic growth in a pandemic

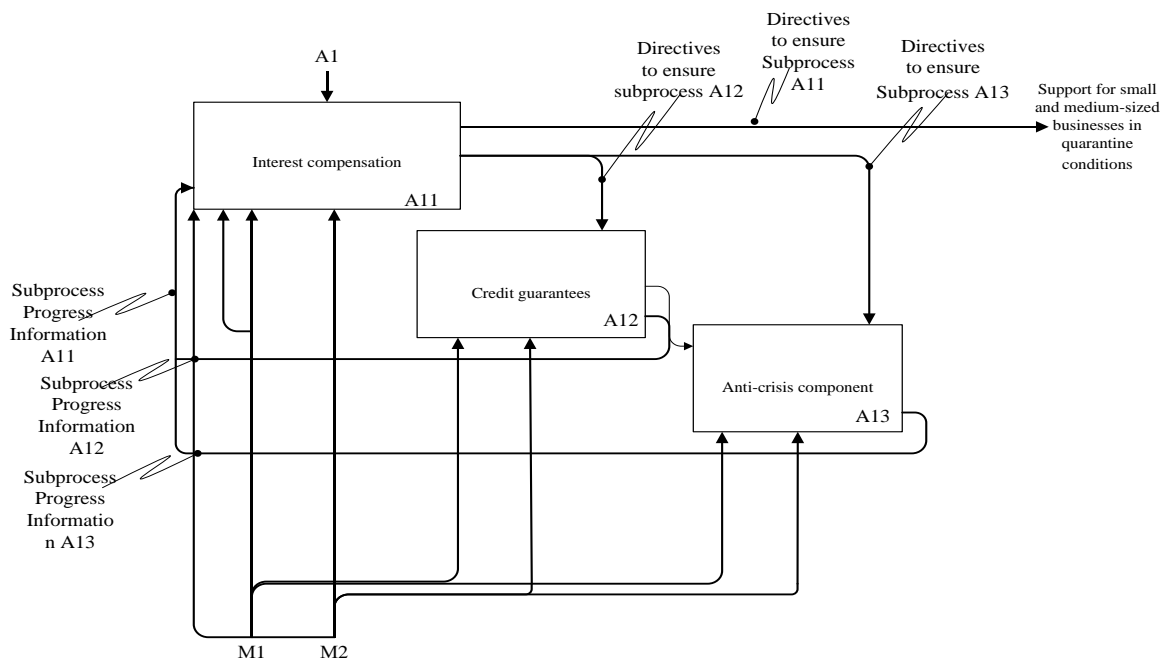


Figure 6. Decomposition of the second level of the IDEF0 model for the implementation of the strategy of public administration of economic growth in a pandemic

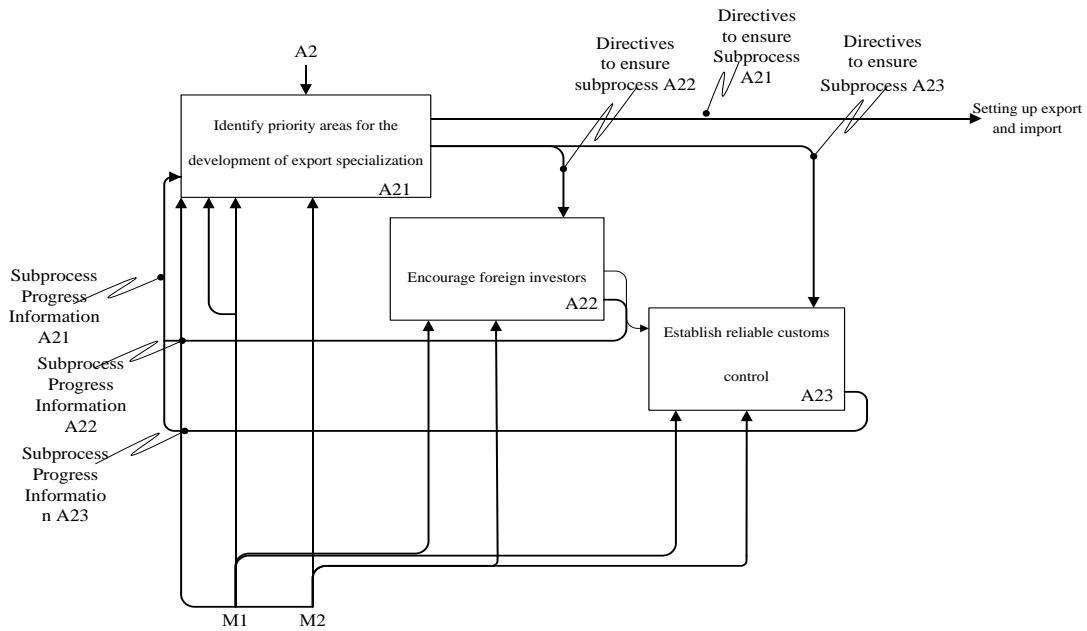


Figure 7. Decomposition of the third level of the IDEF0 model for the implementation of the strategy of public administration of economic growth in a pandemic

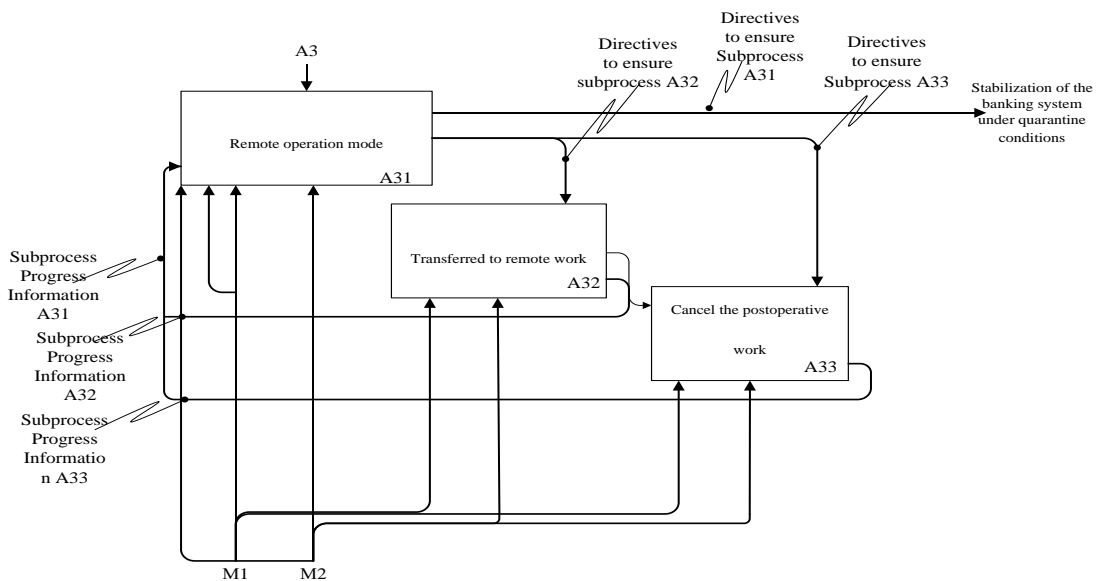


Figure 8. Decomposition of the fourth level of the IDEF0 model for the implementation of the strategy of public administration of economic growth

6. CONCLUSIONS

As a result of the presented study, it can be concluded that today the economic crisis caused by pandemic consequences and restrictions has had a significant impact on the entire global economy. Every country in the world, one way or another, has experienced a significant direct or indirect impact of the coronavirus crisis on its own financial and economic system. It should be noted that the emergence of COVID-19 and the onset of the pandemic have greatly slowed down the global economy, although we note that even without the pandemic, economic growth in many countries of the world was at a low level (Ukraine is an example of this). Therefore, given the fact that without financial reserves to overcome the

negative consequences during 2020 in the economies of many Eastern European countries, there is a decrease in the level of GDP, the growth rate of industrial production; closure of small businesses; decrease in the level of income of the consolidated budget.

The value of the study includes the use of the IDEF0 methodology for the formation and implementation of an economic development and growth strategy in the context of the COVID-19 pandemic. The study has a number of limitations and they are primarily related to the fact that economic growth strategies were presented for one country in the context of ensuring security. Further, in future studies, it is necessary to wait until the end of 2021 and make a similar comparison with 2020.

REFERENCES

- [1] Barberis, P. (2012). Thinking about the state, talking bureaucracy, teaching public administration. *Teaching Public Administration*, 30(2): 76-91. <https://doi.org/10.1177/0144739412462232>
- [2] Rowe, G., Frewer, L.J. (2004). Evaluating public-participation exercises: A research agenda. *Science, Technology, & Human Values*, 29(4): 512-556. <https://doi.org/10.1177/0162243903259197>
- [3] McSwite, O.C. (2005). Taking public administration seriously: Beyond humanism and bureaucrat bashing. *Administration & Society*, 37(1): 116-125. <https://doi.org/10.1177/0095399704272402>
- [4] Fredrickson, G. (2007). Whatever Happened to Public Administration? Governance, Governance Everywhere. In: Ferlie, E., Lynn, Jr, L. and Pollitt, C. (eds) *The Oxford Handbook of Public Management*. Oxford: Oxford University Press, pp. 284-304. <https://doi.org/10.1093/oxfordhb/9780199226443.003.0013>
- [5] Howlett, M., Mukherjee, I., Woo, J. (2015). The new design orientation in policy formulation research: From tools to toolkits in policy instrument studies. *Policy and Politics*, 43(2): 291-311.
- [6] Bovaird, T., Loeffler, E. (2018). From participation to co-production. In: Ongaro E and van Thiel S (eds) *The Palgrave Handbook of Public Administration and Management in Europe*. London: Palgrave, pp. 403-424. https://doi.org/10.1057/978-1-137-55269-3_21
- [7] Bryson, J.M., Quick, K.S., Slotterback, C.S., Crosby, B.C. (2013). Designing public participation processes. *Public Administration Review*, 73(1): 23-24. <https://doi.org/10.1111/j.1540-6210.2012.02678.x>
- [8] Hafer, J., Ran, B. (2016). Developing a citizen perspective of public participation: Identity construction as citizen motivation to participate. *Administrative Theory & Praxis*, 38(3): 206-222. <https://doi.org/10.1080/10841806.2016.1202080>
- [9] Talbot, C., Talbot, C. (2018). Usable knowledge: Discipline-oriented versus problem-oriented social science in public policy. In: Ongaro, E., Van Thiel, S. (eds) *The Palgrave Handbook of Public Administration and Management in Europe*. Palgrave Macmillan, London. https://doi.org/10.1057/978-1-137-55269-3_62
- [10] Ongaro, E., van Thiel, S. (2018). Languages and public administration in Europe. In: Ongaro, E., Van Thiel, S. (eds) *The Palgrave Handbook of Public Administration and Management in Europe*. Palgrave Macmillan, London. https://doi.org/10.1057/978-1-137-55269-3_4
- [11] Piattoni, S. (2009). Multi-level governance: A historical and conceptual analysis. *Journal of European Integration*, 31(2): 163-180. <https://doi.org/10.1080/07036330802642755>
- [12] Cooper, T., Bryer, T., Meek, J. (2006). Citizen-centered collaborative public management. *Public Administration Review*, 66(s1): 76-88. <https://doi.org/10.1111/j.1540-6210.2006.00668.x>
- [13] Drechsler, W. (2013). Three paradigms of governance and administration: Chinese, Western and Islamic. *Society and Economy*, 35(3): 319-342.
- [14] Adejare, A., Olla, J., Oluwafemi, J. (2014). Towards a theoretical definition of public administration. *Journal of Management*, 16(3): 65-70. <https://doi.org/10.9790/487X-16356570>
- [15] Borrás, S. (2011). Policy learning and organizational capacities in innovation policies. *Science and Public Policy*, 38(9): 725-734. <https://doi.org/10.3152/030234211X13070021633323>
- [16] Capano, G., Howlett, M. (2020). The knowns and unknowns of policy instrument analysis: Policy tools and the current research agenda on policy mixes. *SAGE Open*, 10(1). <https://doi.org/10.1177/2158244019900568>
- [17] Porter, S., Hook, D. (2020). *How COVID-19 is Changing Research Culture*. London: Digital Science.
- [18] Spanou, C. (2020). External influence on structural reform: Did policy conditionality strengthen reform capacity in Greece? *Public Policy and Administration*, 35(2): 135-157. <https://doi.org/10.1177/0952076718772008>
- [19] Dunlop, C., Ongaro, E., Baker, K. (2020). Researching COVID-19: A research agenda for public policy and administration scholars. *Public Policy and Administration*, 35(4): 365-383. <https://doi.org/10.1177/0952076720939631>
- [20] Maliszewska, M., Mattoo, A., van der Mensbrugghe, D. (2020). The potential impact of COVID-19 on GDP and trade: A preliminary assessment. *Policy Research Working Paper; No. 9211*. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/33605>
- [21] Saif, N.M.A., Ruan, J., Obrenovic, B. (2021). Sustaining trade during COVID-19 pandemic: Establishing a conceptual model including COVID-19 impact. *Sustainability*, 13(10): 5418. <https://doi.org/10.3390/su13105418>
- [22] Center for foreign policy studies. (2020). *National Institute for Strategic Studies*. URL: <https://niss.gov.ua/sites/default/files/2021-05/eu-usa-china.pdf>, accessed on 1 March 2022.
- [23] Sylkin, O., Kryshtanovych, M., Zachepa, A., Bilous, S., Krasko, A. (2019). Modeling the process of applying anti-crisis management in the system of ensuring financial security of the enterprise. *Business: Theory and Practice*, 20: 446-455. <https://doi.org/10.3846/btp.2019.41>
- [24] Kryshtanovych, M., Petrovskiy, P., Khomyshyn, I., Bezena, I., Serdechna, I. (2020). Peculiarities of implementing governance in the system of social security. *Business, Management and Economics Engineering*, 18(1): 142-156. <https://doi.org/10.3846/bme.2020.12177>
- [25] Kryshtanovych M., Kapitanets S., Filina S., Oleksiuk N., Prodius O. (2019). Assessment of the effectiveness of strategic personnel management of the company. *Academy of Strategic Management Journal*, 18(1). URL: <https://www.abacademies.org/articles/assessment-of-the-effectiveness-of-strategic-personnel-management-of-the-company-8622.html>.