

“Global economic crisis of 2020 and a new paradigm of countercyclical management”

AUTHORS

Anatolii Poruchnyk  <https://orcid.org/0000-0002-6740-796X>

 <http://www.researcherid.com/rid/j-2001-2018>

Anatoliy Kolot  <https://orcid.org/0000-0002-4393-9806>

 <https://publons.com/researcher/E-4275-2018/>

Pawel Mielcarek  <https://orcid.org/0000-0002-1997-4361>

 <http://www.researcherid.com/rid/D-5914-2019>

Yaroslava Stoliarchuk  <https://orcid.org/0000-0001-9124-6310>

Denys Ilnytskyi  <https://orcid.org/0000-0001-8528-7845>

 <http://www.researcherid.com/rid/J-8565-2015>

ARTICLE INFO

Anatolii Poruchnyk, Anatoliy Kolot , Pawel Mielcarek, Yaroslava Stoliarchuk and Denys Ilnytskyi (2021). Global economic crisis of 2020 and a new paradigm of countercyclical management. *Problems and Perspectives in Management*, 19(1), 397-415. doi:[10.21511/ppm.19\(1\).2021.34](https://doi.org/10.21511/ppm.19(1).2021.34)

DOI

[http://dx.doi.org/10.21511/ppm.19\(1\).2021.34](http://dx.doi.org/10.21511/ppm.19(1).2021.34)

RELEASED ON

Friday, 26 March 2021

RECEIVED ON

Tuesday, 02 February 2021

ACCEPTED ON

Monday, 15 March 2021

LICENSE



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

JOURNAL

"Problems and Perspectives in Management"

ISSN PRINT

1727-7051

ISSN ONLINE

1810-5467

PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

84



NUMBER OF FIGURES

5



NUMBER OF TABLES

2

© The author(s) 2025. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 2nd of February, 2021

Accepted on: 15th of March, 2021

Published on: 26th of March, 2021

© Anatolii Poruchnyk, Anatolii Kolot,
Pawel Mielcarek, Yaroslava Stoliarchuk,
Denys Ilnytskyy, 2021

Anatolii Poruchnyk, Dr., Professor,
Director of the Institute for Business
Education, Kyiv National Economic
University named after Vadym Hetman,
Ukraine.

Anatolii Kolot, Dr., Professor, Vice-
rector, Kyiv National Economic
University named after Vadym Hetman,
Ukraine. (Corresponding author)

Pawel Mielcarek, Dr., Economic
University in Poznan, Poland.

Yaroslava Stoliarchuk, Dr., Professor,
Director of the Center for Science and
Innovation, Kyiv National Economic
University named after Vadym Hetman,
Ukraine.

Denys Ilnytskyy, Dr., Professor,
Department of International
Economics, Kyiv National Economic
University named after Vadym Hetman,
Ukraine.



This is an Open Access article,
distributed under the terms of the
[Creative Commons Attribution 4.0
International license](https://creativecommons.org/licenses/by/4.0/), which permits
unrestricted re-use, distribution, and
reproduction in any medium, provided
the original work is properly cited.



Conflict of interest statement:

Author(s) reported no conflict of interest

Anatolii Poruchnyk (Ukraine), Anatolii Kolot (Ukraine), Pawel Mielcarek (Poland),
Yaroslava Stoliarchuk (Ukraine), Denys Ilnytskyy (Ukraine)

GLOBAL ECONOMIC CRISIS OF 2020 AND A NEW PARADIGM OF COUNTERCYCLICAL MANAGEMENT

Abstract

The new quality of globalization, which has emerged in the last decade and encompasses drastic changes in the economic, political and technological spheres, gives rise to a number of phenomena that violate the traditional logic of historical progress. One of them is the metamorphosis of the world economic cyclicity that emerged during the global 2020 economic crisis and led to a radical change in its nature, driving forces and regulatory mechanisms. The paper reveals the prerequisites for the crisis caused by traditional and emerging factors and proves its pandemic nature, which manifests itself, on one hand, in the synchronization of national business cycles, and on the other – in the integrative mutual influence of its political, institutional and environmental components. It has been proven that a particularly destructive role in the global regulatory mechanism was played by the “overlap” in space and time of the economic crisis and the health crisis provoked by the coronavirus pandemic. This requires an urgent systematic reform of global countercyclical management institutions based on a gestalt paradigm, which is qualitatively different in principles, goals and tools from the existing mechanisms for managing national economies and multinational enterprises. Scenario forecasts of the post-pandemic future of the world economy through overcoming the growing disintegration and deglobalization trends are outlined.

Keywords

cyclical nature, globalization, global economic crisis,
political elite, institutionalism, ecology, healthcare
system, pandemic

JEL Classification

F44, F63, I15, O11

INTRODUCTION

Humanity entered 2021 with a sense of great anxiety and uncertainty due to the unpredictability of the political, economic, and socio-humanitarian situation in the world against the background of simultaneous aggravation of environmental, institutional, demographic and information and ideological crises. Emergent factors of economic development actualize the urgent need for a thorough theoretical rethinking of the essence and driving forces of political, economic and humanitarian cycling, adaptation of the practical tools of anticyclical regulation to the transformations of world economic dynamics, the search for fundamentally new levers and mechanisms for effective cycle management in order to prevent deep social upheavals, chaotic and uncontrolled development of events.

Focusing the attention of the world’s political elites and scientific authorities on cyclicity management today is the key to saving civilization from self-destruction when humanity has reached a critical growth point (Meadows et al, 2004) – through the threat of ecosystem destruction due to over-exploitation and depletion of natural resources, and a hypertrophied and wasteful model of consumption of

public goods (Schutz, 2020). Hence, there is an urgent need to develop extraordinary adaptive concepts of economic behavior in the context of global shocks, as well as to introduce non-cyclical management of non-traditional anti-crisis stabilizers that can mitigate the effect of anthropogenic and man-made threats, ensuring an appropriate level of security protection of human life. It is extremely relevant to characterize an extreme situation that the study of economic cycles is the first step in designing an appropriate stabilization policy (Lucas, 1977).

The anti-cyclical pandemic crisis management tools implemented by national governments during the crisis were not effective enough due to the predominant use of purely monetary mechanisms by countries (debt moratorium, loan guarantee, financial assistance, interest rate reduction, tax burden easing) (Arbatli-Saxegaard & Muneer, 2020). Specific financial measures have been implemented in some countries, including reducing transaction fees, increasing balance sheet and transfer limits, reducing security requirements for using electronic money, and simplifying transaction processes. The amount of resources allocated to overcome the current pandemic crisis is unprecedented. According to OECD, developed countries have allocated significant resources to direct support measures for workers, companies and healthcare, reducing taxation, providing guarantees and loans: Germany and Japan allocated about 42%, Italy – 55%, Great Britain and France – 23% each, Canada – 17%, Korea – 14%, and Australia and the United States – 13% of GDP (OECD, 2020). Along with increased spending on national health systems, additional funding was directed to the implementation of investment projects, digitalization programs, the introduction of digital business platforms, the transfer of business activities to the Internet, research and development of a medical profile, etc. Countercyclical management is complicated by the uncertain and hard-to-predict nature of the crisis, the duration, the degree of impact on the global political and economic balance and national economies, the parameters of the world order and the ratio of country forces.

1. THEORETICAL BACKGROUND

The study of scientific publications shows that the key reason for the all-encompassing turbulence of the events of 2020 – early 2021 lies in the deep transformation of national political and business cycles and their acquisition of a global nature over 30 years (Terrones et al., 2011). The paradigm of globalization of world economic cyclicality (Shvydanenko, 2005) is based on both universal (although modified) historical patterns of social and economic development (cyclically uneven nature, disproportionality, innovation and technological renewal, intellectualization and socialization, creativity, digitalization and virtualization), and emerging non-economic factors (interstate military-political conflicts, explosive migration waves, natural disasters, climate anomalies, epidemics, information and computer sabotage, hybrid wars, etc.). The process of globalization is also cyclical, which is confirmed by its different impact on national macroeconomic indicators (Kose et al., 2012).

In economic theory, it is almost impossible to identify the theoretical discourse of studying the na-

ture and vectors of global economic development from the standpoint of one paradigm. All agricultural, environmental, technological, institutional, and social paradigms have an economic dimension (Bellu, 2011), but this is complicated by the large-scale shock factor caused by the COVID-19 global pandemic. Therefore, the most appropriate paradigm is the cyclical nature of economic development and a set of theories used to manage economic and monetary-financial shocks. The greatest contribution to the study of the cyclical nature of socio-economic development was made by Tugan-Baranovsky (1997), Haberler (2016), Grinin and Korotaev (2010), Bernarke (2008), Kolodko (2020), Clark (1934), Kondratyev (2002), Mankiv (2010), Minsky (2002), Mitchell (1946), Moore (1997), Sachs (1996), Sorensen (2010), Friedman (2012), Frisch (1997), Hansen (1997), Schumpeter (2006) and many others. Thanks to their contribution, researchers of uneven economic development have the opportunity to operate in categories such as phases and types of the economic cycle, cycle length, equilibrium and amplitude/depth, social and economic dynamics and equilibrium, as well as have a general understanding of the diversity of exogenous and endogenous factors of cyclicality,

and institutions that can be involved in their management, channels and regulatory effects, and the like. Particularly noteworthy is the contribution of John Bates Clark, who emphasized the existence of accelerators and the objective need to regulate the economic cycle, and R. Frisch, who proved the stochasticity of economic processes, explaining the low predictability of factors that provoke crises. Even the latest business cycle paradigm needs further improvement (Cerra & Saxena, 2017).

Well-known theoretical concepts cannot fully explain the phenomenon of Modern World Economic Cyclicality, although attempts to reveal the international synchronization of business cycles bring us closer to understanding global cyclicality (Mejía-Reyes, 2018). Now its nature, driving forces and vector orientation are unprecedented. It can only be comprehensively disclosed through the prism of analyzing changes in national business cycles (Bordo & Helbling, 2003). We are talking about the hysteresis of national cycles from labor market transformations, fiscal policies, and business activity (Kaihatsu et al., 2018), and that only during the fourth long wave (1950–2000) in the world there were more than 100 recessions of varying duration and degree of disruption of the economic balance (Lukyanenko & Poruchnyk, 2010). They reflected modifications of short economic cycles, namely a decrease in the depth of crises with a simultaneous increase in regularity, the priority of overproduction of fixed capital in comparison with overproduction of goods, the absence of a sharp decline in prices in the pre-crisis period, a reduction in the duration of the phases of crisis and depression (recession) against the background of lengthening the phases of recovery, increased synchronization of national business cycles, and strengthening regional asymmetry in the phases of recovery. On the one hand, these transformations were the result of the deep technological modernization of the economies of developed countries (Miyamoto & Nguyen, 2017), as well as their growing socialization and restructuring, deepening internationalization of business and the introduction of innovative management (Minárik, 2018), and on the other, the introduction of an effective policy of systemic state anticyclical regulation (OECD, 2010). Drivers of global synchronization can be found in structural differences between the economies of developed and

developing countries (Karadimitropoulou, 2018), as well as differences in the labor market (Yépez, 2019). On the other hand, even the very division of countries into groups is often called into question (Berger & Wortmann, 2020), and their policies are multidirectional (Mesea, 2013). The multi-vector impact of related indicators of economic development (wages and employment, exchange rates and consumption) on national economic cycles (Yépez, 2018) is unlikely to contribute to the synchronization of the global cycle.

The paradigm basis of the cyclical discourse reveals that the system of capitalist contradictions that caused the first World Economic Crisis in the 21st century (2007–2009) was rightly qualified as a systemic crisis of capitalism (Kotz, 2009). The dominant role belonged to the main contradiction of capitalism – between private ownership of the means of production and the social nature of labor (Lukyanenko & Poruchnyk, 2010). That led to an over-accumulation of fixed capital and a classic overproduction crisis, which was observed contrary to optimistic scenarios of long-term crisis-free development of the global economy. Therefore, the mechanism of the global economic cycle is based on modifying the cyclical form of movement of capitalist reproduction due to the emergence of qualitatively new forms of manifestation and deepening of the antagonistic contradiction of capitalism on the global scale.

Crisis lessons provide an opportunity to mitigate the impact of subsequent crises, but countries do not always take adequate measures. In particular, the expectation of the 2020 crisis was based on the following arguments:

- prolongation of systemic and structural sources of the 2007–2009 global crisis;
- continued negative impact of neoliberalism's economic policies, as well as weak regulation;
- increased depletion of natural resources at a rate imposed by global warming and environmental challenges;
- the continued escalation of socio-economic asymmetries makes long-term social unity impossible, and social protests lead to changes

in power and a decline in the effectiveness of governments due to the demand for populism;

- the aggravation of the global demographic problem, which manifests itself both in the birth rate and life expectancy, and in the masculinization of migration;
- aggravation of political contradictions, which are facilitated by the lack of mechanisms for managing the global economy and the failure to peacefully resolve transnational problems (Kolodko, 2020).

The influence of an individual country on global cyclicity is heterogeneous (and the largest is the influence of the United States) (Habib & Venditti, 2019). However, over the past 25 years, there has been a significant redistribution in the hierarchy of states on the economic map of the world, in particular, regarding their share in the formation of global GDP and other structural indicators of the world economy (PWC, 2017). These include global capital flows, macroeconomic and financial indicators, which have recovered from the 2008–2009 crisis, although there are changes in the operation of structural factors and transmission channels (Habib & Venditti, 2019). Leading states, due to deep monetary and financial integration into the world economic system, openness of foreign trade and participation in international investment processes (Inaba, 2020), usually demonstrate the highest sensitivity to cyclical fluctuations in the global environment (Aldasoro et al., 2020).

For developing countries, international capital flows are the most important channel for the impact of exogenous shocks and crisis infections on national economies and financial systems (Gong & Kim, 2018). In most cases, in response to exogenous shocks, these countries resort mainly to easing monetary policy, and the currency regime, the quality of institutions, or the level of financial openness have a much smaller impact (Anaya, 2017). At the same time, inter-country asymmetries in spending on counter-cyclical management, implementation of social programs, income of citizens, provision of social services to the population (primarily medical and educational), etc. are significantly deepening.

In highly developed countries in the era of globalization, at the beginning of the fifth major cycle (since the mid-1990s), it is possible to observe the diffusion of innovations to the most prepared states, which create endogenous growth potential for the competitiveness of national economies and the possibility of transition to a new quality (Anzoategui et al., 2019). Adaptation to the global conditions of the new economic cycle and overcoming crisis phenomena will occur in countries in different ways and in different periods (Mesea, 2013). In this study, the level of their technological potential, the creative management skills of its rapid modernization and the degree of countries' involvement in technological globalization processes are considered as determinants.

Although in general, publications on management 4.0 have become more applied in nature (Piccarozzi et al., 2018), however, there are still theoretical aspects that require further study from the point of view of cyclicity management. Currently, the leading countries are actively forming industries of the sixth high-tech way (biotechnologies, artificial intelligence systems, robotics, global information networks, integrated high – speed transport systems, distance education, network business communities, etc.). These industries are crucial in the implementation of the scientific and technological revolution 4.0 and the formation of the post-industrial technological method of production (Deloitte, 2017), and therefore will determine the international competitiveness of countries in 2020–2050. It is expected that in the coming decades these industries will form the most large-scale production savings funds in terms of cost. They will enable leading countries to increase their competitive position in the global market by the end of the 2020s, reduce energy consumption and emissions of harmful substances into the atmosphere, and increase the amount of global technology rent assigned to them (Liao, 2017). At the same time, low-income countries still lack sufficient financial and human resources to develop even the fifth, and often fourth, technological structures (Rifkin, 2011). Their technological lag, the lag in terms of labor productivity from the leading countries of the world, is constantly growing, which means that the process of modernizing the technological base will last for many decades.

A significant number of researchers specializing in the study of this problem (Focacci, 2020; Wilenius, 2014; Tuncel, 2015; Nefiodow & Nefiodow, 2014; Ferasso & Bergamaschi, 2020) consider the period 2015–2020 to be a turning point for the completion of the fifth and beginning of the sixth long Schumpeter cycle and agree that the potential of ICT as a factor of economic growth has been rapidly drying up in recent years. They will be replaced by new technologies – nano-, bio - and medical, artificial intelligence and renewable energy sources, which will determine the trajectory of the global economy in the coming decades. This corresponds to the dominant technological order and long cycles of Kondratiev, whose followers gave the aptly named last cycle – the cycle of human psychosocial health (Goldschmidt & Hilbert, 2009), which, having originated in 2020, is associated with a global pandemic, which causes a lack of high-quality anticyclical management.

The aim of the study is to reveal the systemic nature of the global economic crisis 2020–2021 and substantiate on this basis the objective need to develop a qualitatively new paradigm of anticyclical management based on the use of transdisciplinary approaches, information and cybernetic methods, scenario tools and analytical tools that can explain the philosophy of global gestalt development.

2. RESULTS

Scientists and international experts predicted the end of the next cycle after the global 2007–2009 crisis and the onset of systemic crisis phenomena by the second half of 2020, but an unexpected factor – the coronavirus epidemic – intervened in the programmed algorithm of events (Knoop, 2009; Stock, 2019; Sylvan, 2020). Having appeared in China at the end of 2019, it was declared a global pandemic by the World Health Organization on March 11, 2020. Over the past year, the global financial and economic balance has been disrupted in all respects, and expenditures of national budgets, economic unions and international investment in the fight against the virus have reached astronomical figures. The most dangerous thing for global equilibrium is the growing gap between the financial and material needs of humanity in overcoming the epidemic and the real ability of states to ensure the proper level, structure and timeliness of their satisfaction. Humanity has never faced such a situation in terms of the scale of the epidemiological outbreak, the speed of infection spread, the deep imbalance of political, economic, financial, socio-cultural and environmental systems, as well as the lack of an effective vaccine and therapeutic therapy. The key catalysts for this process are the openness of national borders and global mobility of people, which eliminate all cross-border infection barriers and significantly level the efforts of governments to self-isolate states.

Source: Compiled according to the World Bank Group (n.d.).

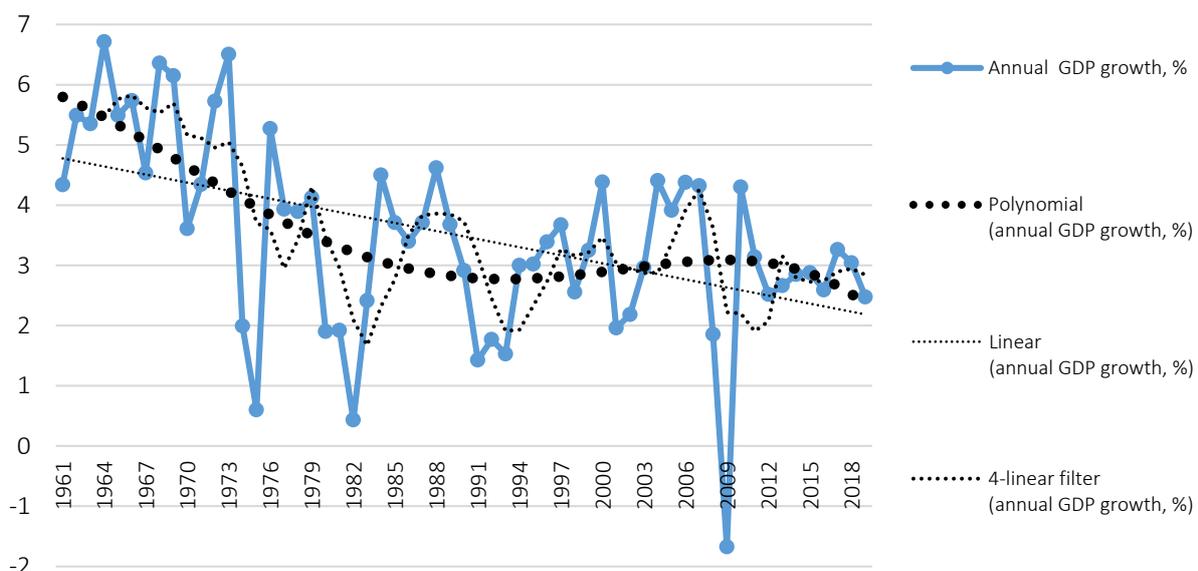


Figure 1. Global GDP cyclical dynamics

Source: Compiled according to the World Bank Group (n.d.).

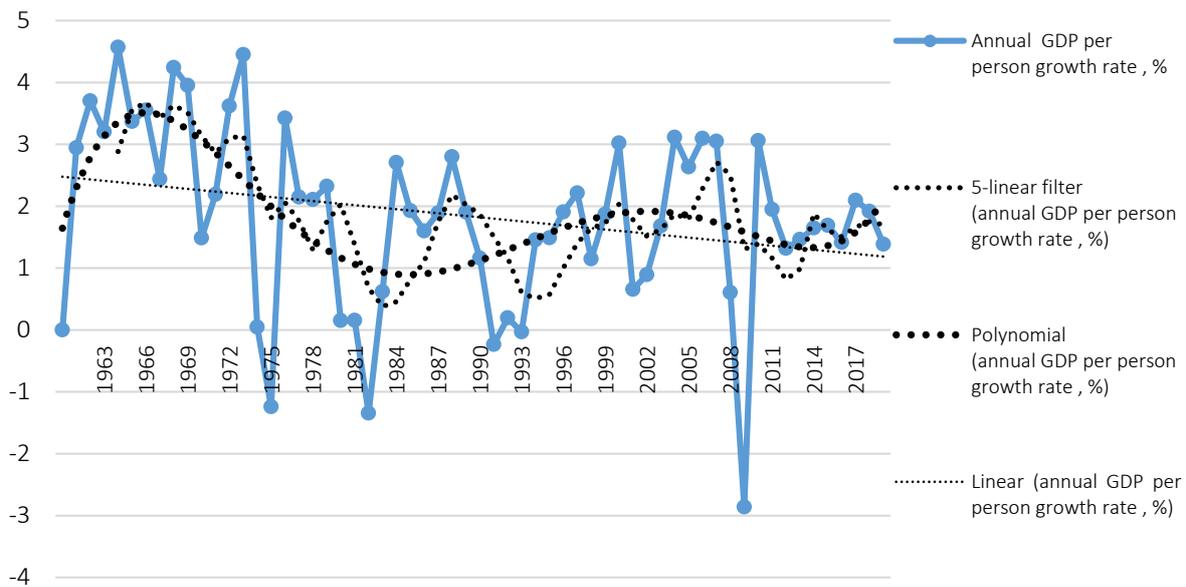


Figure 2. Cyclical dynamics of global GDP per capita

Drawing historical parallels, there is reason to assert that the current state is close by analogy with the crisis period of 1973–1975, which became the starting point for the technological and energy “reset” of the world economy, which took humanity more than 20 years to overcome (Figures 1 and 2). Using medical terminology, the economic situation in which the world plunged in 2020 can be qualified as a “global economic pandemic”. The signs of the pandemic are the rapid spread of the economic recession (an unprecedented post-war recession of the world economy); the total nature of the decline in specific physical and cost indicators of economic and financial activity; violation, often a complete break in global value chains; paralysis of business activity in areas that directly serve people’s needs; deep investment stagnation; threatening deformation of the global labour market, and so on.

2.1. Structural components of the global pandemic crisis

The global 2020 pandemic crisis clearly demonstrates the completion of the formation of a mature model of the first (truly global in nature) civilizational cycle, concentrating the entire system of contradictions and contradictions at the planetary level: political, economic, social, institutional, ecological-climatic, humanitarian, medico-biological, religious and mental. National gov-

ernments were unable to both foresee its inevitability (therefore, prevent its onset), and did not draw proper conclusions from the experience of the global 2007–2009 crisis. This has accumulated global economic asymmetries and crisis phenomena, making it impossible for the global economy to develop positively linearly. These include, in particular, the crisis of global economic governance; the rapid growth of the environmental crisis; the shortage of traditional natural resources; the growing demographic imbalance; the growing problems with food supply; the spread of health risks; a significant increase in social inequality; the spread of cross-border crime; the deformation of market structures and the crisis of investment efficiency; the crisis of the geopolitical structure of the unipolar world; and the global cultural crisis (Sidenko, 2014).

As a result of the global financial crisis of 2007–2009, the world has not yet returned to its pre-crisis state. It was overcome mainly by monetary means without significant interference in the restructuring of national economies, since it was believed that exclusively financial instruments should resolve the crisis that started with the financial sector. Another important point should be borne in mind: the main efforts to overcome the crisis were made by the United States and international institutions, which used tools that fully support their national economic interests. The ultra-high effi-

ciency of the US government’s policy compared to most countries causes the continued dominance of the dollar in the global economy, which puts the latter in close dependence on permanent fluctuations in exchange rate dynamics. In particular, the strengthening of the US dollar by 1% leads to a 0.6% drop in the volume of inter-country trade (Gopinath, 2020). Therefore, from year to year, the dependence of entire groups of countries on the effectiveness of US monetary policy increases and the growing impact of global shocks of a non-economic nature on the dynamics of exchange rates leads to a reduction in the forecasting period at the level of national economies (Raheem, 2020).

Despite urgent warnings of international institutions and reputable experts about the danger of increasing crisis prerequisites, global business and financial oligarchy defiantly ignored the warnings, continuing to implement selfish corporate strategies of capital offshorization, manipulation of tax payments, aggressive economic expansion, development of financial pyramids and speculative operations, reduction of social and environmental costs. Thus, the analysis of the dynamics of the Globalization Index of the world economy (Figure 3) revealed both its cyclical nature and the fact that the 2015–2020 period can be qualified as a nadir (lower point) of the cycle. However, the pandemic has made significant adjustments, as a result of which a significant decline in the Globalization Index is predicted and a return to the lowest level since 2000.

There was every reason to expect a slight slowdown in GDP growth in the leading economies due to cyclicity (we are talking about national and global cycles), since counter-cyclical measures are quite deeply integrated into national policies. Therefore, by managing the cyclical nature of economic development, some countries could take advantage of the situation to accelerate the transition to economic growth, and in some, previous cyclical expectations will be reinforced by the negative impact of the pandemic. The latter has brought significant uncertainty to economic development, which was already significant due to the lack of cooperation and border closures, and the strengthening of economic nationalism. The reverse consequence of this is the curtailment of foreign economic relations in favour of domestic ones, which cannot develop dynamically due to quarantine restrictions. Another argument for cyclicity is the high volatility of commodity prices, which in recent years has been particularly pronounced in world prices for oil and other energy carriers.

However, compared to the financial crisis of 2007–2009, the impact of the pandemic on global economic dynamics is much stronger. In particular, according to the calculations of IMF experts (IMF, 2020), the growth of government debt and budget deficits in the short time of the pandemic has already doubled the previous figures (18.7 vs. 10.5% of GDP for government debt and –10.0

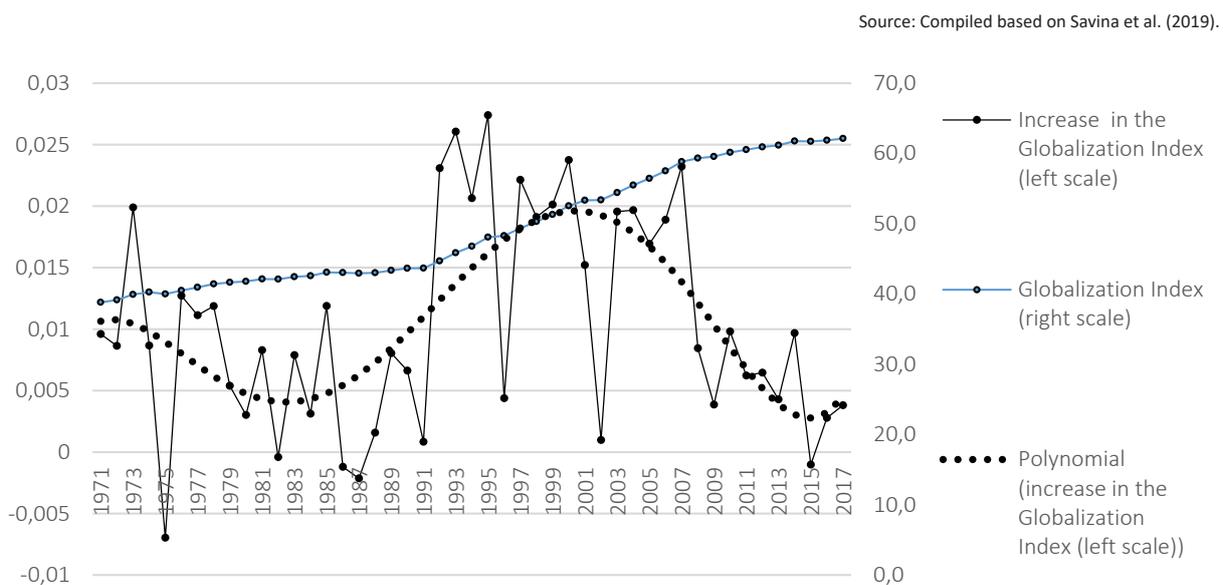


Figure 3. Cyclical development of globalization of the world economy

Table 1. Global GDP growth dynamics: actual and post-pandemic scenarios, %

Source: Compiled according to the World Bank (2020).

	Actual		Expected	Forecast			
	2017	2018		Scenario A		Scenario B	
			2019	2020	2021	2020	2021
Global economy	3.3	3.0	2.4	-5.2	4.2	-7.7	1.6
Global trade volumes	5.9	4.0	0.8	-13.4	5.3	-15.3	2.8
Groups of countries							
Developed countries	2.5	2.1	1.6	-7.0	3.9	-8.4	2.4
New markets and developing countries	4.5	4.3	3.5	-2.5	4.6	-6.6	0.3
Europe and Central Asia	4.1	3.3	2.2	-4.7	3.6	-7.3	0.7
Latin America and the Caribbean	1.9	1.7	0.8	-7.2	2.8	-9.0	0.4
East Asia and the Pacific	6.5	6.3	5.9	0.5	6.6	-5.2	1.0
Middle East and North Africa	1.1	0.9	-0.2	-4.2	2.3	-6.6	-0.4
South Asia	6.5	6.5	4.7	-2.7	2.8	-8.2	-3.1
Africa around the Sahara	2.6	2.6	2.2	-2.8	3.1	-5.8	0.0
Raw material exporting countries	2.2	2.1	1.5	-4.8	3.1	-7.4	0.2
Individual countries							
USA	2.4	2.9	2.3	-6.1	4.0	-7.9	2.3
Eurozone	2.5	1.9	1.2	-9.1	4.5	-10.1	3.2
Japan	2.2	0.3	0.7	-6.1	2.5	-6.8	1.9
China	6.8	6.6	6.1	1.0	6.9	-4.9	1.1
Russian Federation	1.8	2.5	1.3	-6.0	2.7	-7.6	0.9
Turkey	7.5	2.8	0.9	-3.8	5.0	-6.8	1.0
Poland	4.9	5.3	4.1	-4.2	2.8	-7.8	-0.5
Brazil	1.3	1.3	1.1	-8.0	2.2	-10.0	-0.3
Mexico	2.1	2.2	-0.3	-7.5	3.0	-8.7	1.2
Argentina	2.7	-2.5	-2.2	-7.3	2.1	-6.0	0.7

vs. -4.9% of GDP for budget deficits). Obviously, 250 billion US dollars, which the IMF has allocated to aid and debt relief programs, although it has provided national economies with milder changes, is a small resource. However, the economies of developed countries, which are more deeply integrated into the global economy and heavily dependent on openness, have suffered the most, and have also taken the most measures to preserve human capital. Almost the only country that managed to maintain positive GDP growth rates in 2020 is China (Table 1).

2.2. National and global dimensions of the health crisis

The coronavirus pandemic has global consequences, but the final impact depends on the effectiveness of activities to develop adequate treatment and countercyclical management of multi-level economic entities, governments and international organizations. As the experience of 19 pandemics that have claimed hundreds of millions of lives over the past 500 years shows, their duration can

vary significantly – from 1 to 24 years, and even longer are the consequences – up to 40 years, with the lowest levels of development in the first 20 years (Jordà et al., 2020). In addition to the medical consequences, pandemics have social and economic consequences that create the basis for economic shocks. The most important of these are the disintegration of markets (capital, labour) and the breakdown of trade ties, especially supply chains and production networks. Other consequences include a decrease in the resource of the labor force and consumer demand, the formation of additional precautionary savings by the population, jumps in labor productivity, a long-term drop in interest rates and investment returns, and a long-term recovery in economic activity.

Despite the variety of approaches to visualizing the life cycle of pandemics, they are identical to economic cycles (Figure 4), although they lack post-pandemic recovery. Depending on the characteristics of the pathogen, the life cycle has characteristic features, but most cycles have a long period of searching for ways to manage crisis situa-

Source: Compiled based on Holloway et al. (2014), WHO (2013).

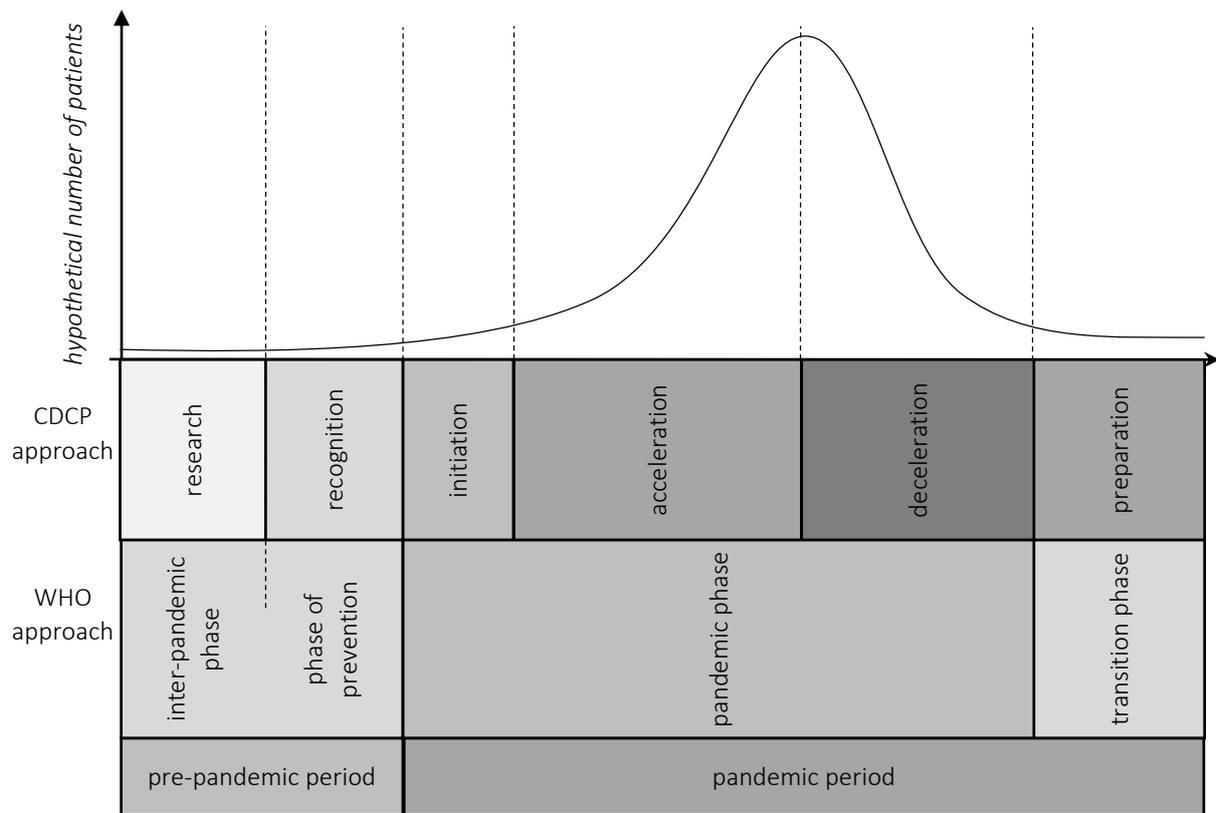


Figure 4. Pandemic lifecycle architecture

tions, overcome consequences and prevent them in the future (Table 2).

The asymmetry of development levels and polymorphism of economic models for managing national health systems, as well as the fragmentation of the global health services system at the inter-country and intra-country levels, have become

key factors in the lack of integrity of the global economy. A significant challenge to the sustainable development of the global economy was that the identified trend towards commercialization of National Health Systems did not stand the test of the COVID-19 pandemic. Deepening specialization and reducing the amount of public funding for healthcare systems have led to both a reduction

Table 2. Characteristics of the stages of the pandemic life cycle

Source: Compiled based on Holloway et al. (2014), WHO (2013).

Stages according to CDCP	Characteristics of stages according to CDCP	Stages according to WHO	Characteristics of stages according to WHO
Research	Study of new human and animal infections, determining the potential consequences for human health	Interpandemic phase	The period between pandemics
Recognition	Determination of the high potential of current transmission of the virus between people		Detection of a new type of infection, virus in humans
Initiation	The beginning of a pandemic wave, confirmation of human transmission	Warning phase	Global spread of the new virus active response to challenges
Acceleration	Acceleration of the pandemic wave, constant increase in morbidity and spread between people		
Deceleration	Slowing down the pandemic wave, reducing the incidence of diseases		
Preparation	Preparation for future pandemic waves, low incidence with individual local outbreaks	Pandemic phase	Global risk reduction, effective response and recovery

in the network of public hospital institutions and state-guaranteed beds (for example, in Ukraine three times in 10 years), and radical changes in the principles of budget financing, the transfer of part of the authority to private operators, the development of customer-oriented business models with the dominance of investment investments exclusively in sectors that can provide short-and medium - term (Povoroznyk, 2020). However, the development of telemedicine, technological innovation, in particular digitalization, as well as the development of market relations and the qualitative approach of medical services to the global public good, have made possible better opportunities to combat mass diseases and protect human capital.

2.3. Global political crisis

A vivid manifestation of the globalization of political life is a kind of universalization of key challenges and problems inherent in all countries, which are now synchronized in time and space. This causes almost simultaneous onset of the world political crisis with components such as acute shortage of political figures-intellectuals and opinion leaders, bankruptcy of traditional political institutions, loss of political sovereignty and political subjectivity by individual states, switching of national policies to solve internal problems through political autonomy and economic nationalism, acute lack of political will, the spread of populist trends in political discourse, and significant aggravation of military and political contradictions and conflicts. The most acute challenge to global political stability was the systemic crisis of the institution of the state, which crystallized in its inability to effectively perform traditional functional powers in the field of security and defense, regulate structural transformations in the economy, manage finances and banking, distancing the state from solving social problems and transferring part of the social functions of the business sector, loss of control over migration processes, inability to solve environmental problems. The concentration of government bodies on the interests of mainly marginal strata and the poorly educated part of society, which make up the main electorate, adds instability to national political systems.

The state is losing a number of levers for effective application of macroeconomic regulation tools, in particular, import barriers and export subsidies,

exchange rate formation regimes and refinancing rates of central banks. National governments are increasingly forced to use these tools in implementing macroeconomic policies, taking into account the interests of other countries and global corporations that can limit their expected impact. Even traditionally internal spheres of public administration – taxation, social policy, labour legislation, education and professional training, etc. – are actively involved in the incessant “maelstrom” of internationalization processes. Under such conditions, national governments lose the ability to effectively regulate their own economies, even if they have the resource potential to defend their own national interests. Almost for the first time in history, state sovereignty does not guarantee the ability of the government to exercise full control over the economy and other spheres of public life on its own territory, with the exception of threats to external governance. The more diverse and intense the economic, political, scientific, technical and cultural interaction of states becomes, the more the state de facto sovereignty differs from the state de jure sovereignty.

Acute contradictions in the national interests of individual states, the claim of a number of countries for the redistribution of world political and economic power, and especially the discrepancy between global goals in the policies of individual states lead to a relapse of autarkic trends in international politics. This is evident in the economic field, where the trend towards the desire of a significant part of the political class to develop autarkic economic models led by autocratic leaders is most clearly manifested. The model of economic nationalism introduced by their regimes is taking the form of an “opportunistic infection” that is spreading around the world and has consequences similar to the COVID-19 pandemic (Posen, 2020). The lack of economic success leads to the popularization of the ideas of economic nationalism both in small countries for the world economy (in particular, Hungary, Poland, the Philippines) and in large ones (Brazil, Great Britain, India). But worst of all, such waves are coming from US leaders, who have done much in recent years to disrupt or hinder the progress of international trade relations, as well as the functional failure of international institutions (the IMF, the World Bank, and the WTO). The status of a global leader imposes

an obligation to take care of the interests of a wider range of stakeholders than exclusively personal ones, which is a significant ground for destroying confidence in global economic elites, which is similar to a revolutionary situation on a global scale.

Political crisis signs are emerging at not only the country level, but also are increasingly “permeating” the policies of regional integration groups and transcontinental trade blocs. Their consequence is a pronounced trend of increasing global disintegration, which gave grounds for anti-globalists to assert the end of the globalization era (Weed, 2020) and the rollback of the world to a pre-globalization state. Eloquent confirmation of the spread of latent and crisis forms of disintegration is also the cyclical nature of integration-disintegration processes, the contradictory nature of the development of the capitalist economy and socio-democratic social structure, the competition of countries for integration leadership, the inefficiency of political elites and the redistribution of competencies between institutions, the asymmetry of sectoral and regional integration, the formation of migration waves and the development of migration centers of attraction, differentiating the effectiveness of national models of economic development, financial imbalances and crises. Drawing analogies with world wars, the modern world is experiencing not only a dynamic change in geopolitical realities, but also the processes of international economic disintegration (Obstfeld, 2020). As a result, there is a significant aggravation of contradictions between management decision-making centers at the national and supranational levels, the loss of public confidence of the population of the participating states in integration associations, and an increasing sense of “exclusivity” in making the most important political and economic decisions, and the inability to influence the activities of supranational bodies.

The most dependent state is found in small economies, whose macroeconomic dynamics, due to the relatively low level of effective domestic demand, are fully dependent on the global economic cycle and world market conditions. In particular, after the global 2007–2009 financial crisis, small countries began to respond less to fluctuations in interest rates in the Global Capital Market (Hall & McDermott, 2020). On the other hand, there

is ample evidence that developments in the US economy have a direct impact on the EU’s business cycles (Choudhry et al., 2020). National business cycles are much more dependent on the impact of specific local characteristics and behaviors than on global processes, which are actually few (Berger & Wortmann, 2020). The positive consequences are that countries have to focus more on the qualitative measurement of domestic development, in particular, increasing the degree of influence of monetary policy instruments on the stabilization of production and slowing down inflationary processes. Therefore, when global integration is restored, its next wave will be qualitatively different from the previous ones.

Large economies have a significant impact on GDP dynamics and export volumes of other countries. In particular, there are so-called overflow effects resulting from economic shocks that cause sharp changes in aggregate supply and demand volumes, the dynamics of monetary indicators or oil prices (Feldkircher & Huber, 2016). In financial markets, the flow from developed countries (especially the United States) to developing countries should encourage the latter to implement large-scale structural reforms (Beirne, 2020). However, the duration of such shocks, as a rule, does not exceed 5 quarters and depends on the structural characteristics of partner countries (the impact of economic shocks in the United States is significantly less for the EU and Japan compared, for example, with Mexico, Mongolia or Ukraine). In countries with a high level of development of foreign exchange and financial markets, the negative impact of such exogenous shocks can be compensated much faster than in less developed countries. In addition, when emerging from the crisis, we expect the transformation of key currency parities between the dollar, euro, yuan and yen.

The unusual nature of the factors that provoked the current political crisis will require unusual response and compensation measures, but the key should be to understand that all of them should be included, not just some of them. At the beginning of 2020, even China, which was the first to be affected by the pandemic, was at the stage of reducing its financial and business cycle (Liu et al., 2020). To be creative in overcoming the current state of the economy is the task of politicians who

are world leaders and whose political influence is based primarily not on economic or military capabilities, but on moral and ethical values.

Over the past decades, scientists and analysts from different countries have been trying to comprehensively assess the effectiveness of the current global governance system in order to identify ways to improve it. The creation of a global regulatory system does not always involve the formation of a global government with a single Center for managerial decision-making. The highest efficiency among institutional systems at the present stage of world economic development is demonstrated by the multivector system, which provides for the application of the network principle of power organization, when the number of power centers does not have any institutional restrictions. The key decision-making centers in the global institutional system should be states or their representative bodies, global international organizations (which have the appropriate status in the UN system), regional mega-blocks (EU, NAFTA, APEC), representatives of global business or global network structures. They are entrusted with solving key strategic issues of global economic development.

2.4. Institutional crisis

The entire post-war period of world economic development was characterized by a multi-level structuring of the international regulatory system, which covered its managerial, sectoral, territorial-geographical and functional-executive components. In recent decades, the greatest institutional capacity has been demonstrated by international specialized organizations that embody in their activities the combined public-private potential in key areas of public development (international finance, international trade, international information fields and the military complex). The construction of the new geopolitical model of the 21st century takes the form of a pyramid, at the top of which is the governing center of the states of Atlantic civilization and specialized international organizations that coordinate Interstate interaction in the field of economic and social activities. Traditional subjects of international relations are the national states and international organizations, thanks to which Atlantic civilization has not only become one of the forms of civilization-

al evolution, but also gained monopoly influence in the global institutional system, form the infrastructure of this center.

Nowadays, in the context of a permanent global financial crisis and a general global recession (which is the fifth after the recessions of 1975, 1982, 1991 and 2009 (Kose et al., 2020)), complex scientific research is becoming particularly important, which determines the directions and mechanisms of systematic restructuring of the institutional system of world economic relations and their reformatting in accordance with new realities. Thus, supranational institutions, in particular the IMF, are criticized for their failure to implement effective policies to prevent and counter pandemics within their competence (Baker, 2010). Even the tens of billions of dollars allocated by the IMF and the World Bank as a result of the Virtual Summit in October 2020 are not enough to ensure efficiency. The WTO is also unable to encourage countries to further liberalize markets and bring them closer together (US – EU, US – China, Russia – EU, etc.). At the same time, supranational institutions, such as the International Labour Organization and the International Organization for Migration, often act as observers of large migration waves, without having proper tools and mechanisms for their regulation and goal-ordering in accordance with the needs of participants in the global labour market.

The failure of individual international organizations (in particular, the WTO, WHO, IMF, etc.) and associations of countries (in particular, the G7, G20 or NATO) in modern conditions to properly exercise their powers to maintain global order leads to the expediency of revising the entire system of their organization and functioning. Developing countries are increasingly establishing themselves as active participants in international economic relations, able to shape the agenda, in particular, through the growing share in global GDP and population, the democratization of socio-economic relations and the growing influence on solving many problems of humanity. Although the positions of the United States, Great Britain, Germany, France and Japan remain decisive, the views of Egypt, Indonesia, South Korea, Nigeria, Mexico, Thailand, Russia, Turkey, and especially China and India should be taken into account. Therefore, the world is gradually moving from US

dominance to polycentricity and improving the efficiency of international organizations.

Thus, the deep institutional crisis, which has reached a critical point today, urgently actualizes the issue of developing an integral global institutional system with giving it qualitatively new functions, resources and powers. The IMF and the World Bank are in the direction of giving them functions for monitoring the processes of cross-border capital movement, channels for its transfer need to be improved and reorganized. The solidary system of global financial management is weak. The identification of systemic financial risks, the introduction of a supranational prudential policy system is imperfect. The formation of reserve, insurance and stabilization funds at the global level is inappropriate. A system of international financial responsibility of countries is required for the increase in debts, overproduction of fictitious capital, over-consumption of financial and investment resources.

2.5. Predictions of the post-pandemic future

Many scientists, researchers and practitioners wonder what the national and global economies will be like after the global pandemic crisis. When defining scenarios, it is necessary to proceed both from the depth of the crisis and from the forecast period of its duration. Today, humanity is waiting for an answer to the question of whether there will be a World War, as it did after the significant economic

crises that preceded the first and Second World Wars. The fact that publications contain scenarios in which the depth of the pandemic crisis will exceed the crisis of the Great Depression makes many recall the lessons of that time. What all of humanity is afraid of is the unwise actions of individuals who have access to nuclear weapons or individual objects of the peaceful atom, new sources of pandemics, and the transition of the “second Cold War” to the hot phase.

First of all, acute interstate conflicts in many regions, of which there are more than 100 annually, need to be resolved (let’s name the most resonant Interstate confrontations that are currently taking place: Azerbaijan – Armenia; Ukraine – Russia; Israel – Iran; India – Pakistan; China – (Taiwan – Hong Kong) – the United States; Turkey – Libya – Syria – EU; Russia – EU). The second most important thing is to contain migration waves, minimize anthropogenic impact on the environment, mitigate the consequences of global warming and eliminate the growing threats of information and cyber wars, spread propaganda and fake news.

The existence of a balanced strategy of behavior to counter and overcome the crisis should be considered as a mandatory tool for counter-cyclical management of the government, which seeks to minimize the negative impact and maximize the opportunities that the crisis opens up. Despite the exhaustion of the potential of monetary instruments for anticyclical economic stimulation, states should use them, as well as all other possible

Source: Compiled based on Krugman (2020).

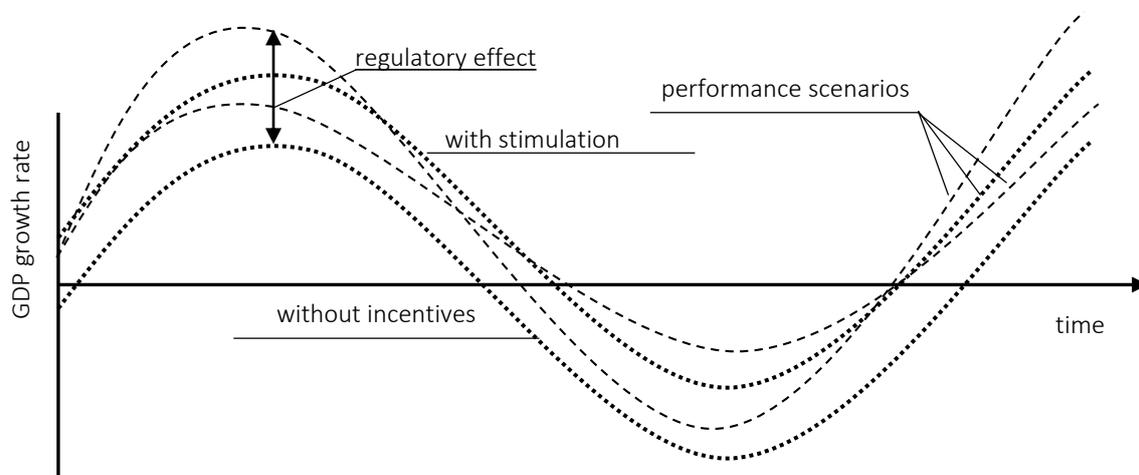


Figure 5. Conceptual model of cyclical GDP dynamics

tools, to overcome the consequences of the pandemic and the global economic crisis (Krugman, 2020). Even if medium-term inflation targets are set at zero interest rates, the economy can develop according to various scenarios (Figure 5), and differences in the scale of the regulatory effect will determine the effectiveness of government countercyclical management, national policies and strategies. Insufficient use of non-monetary instruments will affect the dynamics of GDP, which under normal conditions cannot be ultra-high, and will bring the next crisis closer.

Shrinking economies face the choice of maintaining currency stability and managing the risks of deflation or hyperinflation. Negative real interest rates, which have long been observed in Japan, can be a challenge for many countries, as well as provoke investors to trust government bonds more. Therefore, the efficiency of states' use of financial resources becomes the most important factor in the future economic development of countries. Integration groups, in particular the EU, will face a dilemma about the need to comply with the Maastricht principles of participation and preserve unity.

3. DISCUSSION

The world economic system, even after entering the globalizing phase of development, has not got rid of the immanent industrial contradictions inherent both directly in the processes of production, distribution, exchange and consumption, and between individual phases of social reproduction. Although in the framework of the global reproduction process, each of its phases is characterized by relative independence of development, however, at the beginning of the 21st century. This isolation has reached excessive proportions, which, given the stability of social production, has exposed the accumulation of territorial and sectoral-sectoral imbalances between production and consumption, which is critically dangerous for the global economic balance.

The cardinal difference between crises in the context of the formation of the global economic cycle is that they can no longer develop autonomously, but due to their interaction and interpenetration

produce powerful synergistic effects of destroying the integrity of the socio-economic space. If at the national and international levels synergy has mainly a functional orientation (economic-political crisis, social-political crisis, banking-debt-systemic crisis), then at the global level it receives qualitatively new formats of contradictions in the system "Man – nature – economy – technology – society – civilization". The global crisis has clearly defined both universal and unique political, economic, environmental and other prerequisites, although its nature is not functionally or geographically deterministic. The difference between the current stage of world economic development is the transformation of the development of new technologies from an endogenous factor to an exogenous activity, which involves a wide cohort of representatives of different countries.

The depth of the 2008–2009 crisis and the nature of its course gave grounds to conclude that the formation of a mature model of the first global economic cycle has been completed. The fact that the pandemic shock observed in the stock market did not find a clear manifestation in the foreign exchange market showed that asymmetries are observed not only between countries, but also in sectors of the economy.

The multi-vector strategy and tactics of national counter-cyclical and crisis management policies, in particular regarding the response to the pandemic, will cause differences in the consequences for each country, but it is already clear that there is a rather limited range of models of such behavior. The dynamics of further economic development will also depend on the state in which the pandemic has overtaken the country (the pace of development, the state of the budget, the debt burden, currency and monetary stability, network readiness, etc.).

In the new paradigm of managing the cyclical nature of the global economy, activities related to knowledge management are becoming extremely relevant – from research and development to their mass implementation in human life and economic practice. From the point of view of pandemic management, the following components can be distinguished that cover management decisions at all levels of social, economic, scientific, technical, ethical, and political life of society:

- assessment and management of conflict situations;
- introduction of an effective epidemiological surveillance system;
- high-tech laboratory support;
- mitigating the public climate;
- targeted medical care;
- universal vaccination;
- risk research; and
- close inter-institutional vertical and horizontal coordination.

The recovery of the global economy from the crisis will be based on growth points. They can be both sectors of the economy and the most dynamically developing economies – China and India, where about 1/3 of the world's population lives and about a quarter of global GDP is produced.

CONCLUSION

The evolution of the world economy to a new quality of globalization has led to the emergence of a new phenomenon, which is the global cyclical nature of economic development. It manifests itself both in the form of synchronization of national business cycles, and in the integrative mutual influence of political, institutional and environmental components. Its nature is characterized by the hysteresis of national cycles from transformations of the labor market, fiscal policies and business activity, as well as an increase in the frequency and amplitude of recessions, the duration of cycles, and the deepening of violations of the economic equilibrium. Modern national and global economies expect a significant addition of monetary regulatory mechanisms to those that are non-monetary in nature and can effectively increase the regulatory effect and strengthen positive development scenarios.

Emerging non-economic factors have become both an addition to the general patterns of cyclical economic development, and a vivid example of the consistency of social relationships, as well as a provocateur of the deepening of the global recession. Among the structural components of the global crisis (institutional and political failure, lack of efforts to overcome the previous crisis, global asymmetries and problems, US monetary dominance, underestimation of challenges), a special destructive place was taken by the health crisis provoked by the coronavirus pandemic, which overlapped in space and time with the economic crisis, supplemented by the cyclical nature of the deployment of pandemics and the asymmetry of national health systems. It is proposed to identify the modern economic crisis as a global pandemic crisis of a mature model of the first civilizational cycle.

Most post-pandemic scenarios of global GDP dynamics are cautiously optimistic, but the transition to a new normality and global cyclical management require improvement of global-level anticyclical management institutions, which should be facilitated by these components of pandemic management. Development in the context of a new quality of globalization should take into account both two extreme scenarios: either a qualitative renewal of the world in all its components, or global (planetary) disintegration, and the fact that the cyclical nature of mature economic and social development now covers not only political, cultural, social, environmental and financial dimensions, but also medical and technological, which ideally should be balanced both internally and collectively with each other.

The global economy has now accumulated a critical mass of conflicts and contradictions, megatrends and asymmetries, as well as aspirations for economic nationalism (as well as technological and medical), however, the development of globalization is considered an irreversible process, which will continue to determine the progressive movement of human civilization on the path to progress. Right now, the efforts that countries have made to integrate national markets, the assistance of international organizations to liberalize economic relations, the globalization of creative economy and sports markets, the gradual dissemination of sustainable development priorities and joint solutions to global problems will show the positive side.

Both large and small players in the global economy must move to a new paradigm of counter-cyclical management, since humanity is now on the verge of the emergence of a new quality of globalization. It is necessary to focus on the development scenario in which the shortcomings of capitalism and democracy will be overcome or minimized in favor of continuing globalization. That will be globalization of a new quality, when the formation of the mechanism of global government continues, the priority of which is to modernize and balance the economic, social, medical, technological and environmental development of humanity.

AUTHOR CONTRIBUTIONS

Conceptualization: Anatolii Poruchnyk, Anatoliy Kolot, Yaroslava Stoliarchuk.

Data curation: Pawel Mielcarek, Denys Ilnytskyk.

Formal analysis: Anatoliy Kolot, Yaroslava Stoliarchuk, Denys Ilnytskyk.

Funding acquisition: Anatolii Poruchnyk, Pawel Mielcarek.

Investigation: Anatolii Poruchnyk, Yaroslava Stoliarchuk, Denys Ilnytskyk.

Methodology: Anatolii Poruchnyk, Yaroslava Stoliarchuk, Denys Ilnytskyk.

Project administration: Anatoliy Kolot.

Resources: Anatolii Poruchnyk, Pawel Mielcarek.

Validation: Anatoliy Kolot, Yaroslava Stoliarchuk, Denys Ilnytskyk.

Visualization: Pawel Mielcarek, Denys Ilnytskyk.

Writing – original draft: Anatolii Poruchnyk, Pawel Mielcarek, Yaroslava Stoliarchuk, Denys Ilnytskyk.

Writing – review & editing: Anatolii Poruchnyk, Anatoliy Kolot.

REFERENCES

1. Abel, E., & Bernanke, B. (2008). *Makroekonomika [Macroeconomics]* (768 p.). St. Petersburg: Piter. (In Russian)
2. Aldasoro, I., Avdjiev, S., Borio, C., & Disyatat, P. (2020) Global and domestic financial cycles: variations on a theme (32 p.). *BIS Working Papers: Monetary and Economic Department*, 864. Retrieved from <https://www.bis.org/publ/work864.pdf>
3. Anaya, P., Hachula, M., & Offermanns, C. J. (2017). Spillovers of U.S. unconventional monetary policy to emerging markets: The role of capital flows. *Journal of International Money and Finance*, 73(PB), 275-295. <https://doi.org/10.1016/j.jimonfin.2017.02.008>
4. Anzoategui, D., Comin, D., Gertler, M., & Martinez, J. (2019). Endogenous technology adoption and R&D as sources of business cycle persistence. *American Economic Journal: Macroeconomics*, 11(3), 67-110. Retrieved from <https://www.aeaweb.org/articles?id=10.1257/mac.20170269>
5. Arbatli-Saxegaard, E. C., & Muneer, M. A. (2020). The countercyclical capital buffer: A cross-country overview of policy frameworks (47 p.). *Norges Bank: Staff Memo*, 6. Retrieved from https://static.norges-bank.no/contentassets/7358e2b744124da7a1b089cb8652b0b0/sm_2020-06-ccyb.pdf?v=08/12/2020172957&ft=.pdf
6. Baker, B. K. (2010). The impact of the international monetary fund's macroeconomic policies on the AIDS pandemic. *International Journal of Health Services*, 40(2), 347-363. Retrieved from <https://doi.org/10.2190/HS.40.2.p>
7. Beirne, J. (2020). Financial cycles in asset markets and regions. *Economic Modelling*, 92(C), 358-374. <https://doi.org/10.1016/j.econmod.2020.01.015>
8. Bellù, L. G. (2011). Development and Development Paradigms A (Reasoned) Review of Prevailing Visions. *FAO: EasyPol issue paper*, Module 102. Retrieved from http://www.fao.org/docs/up/easypol/882/defining_development_paradigms_102en.pdf
9. Berger, T., & Wortmann, M. (2020). Global vs. group-specific business cycles: the importance of defining the groups. *Macroeconomic Dynamics*, 1-23. <https://doi.org/10.1017/S1365100520000048>
10. Bjerkholt, O., & Frisch, R. (Ed.) (1997). Foundations of Modern Econometrics: The Selected Essays of Ragnar Frisch. *The Scandinavian Journal of Economics*, 99(1), 143-151.
11. Bordo, M. D., & Helbling, T. (2003). *Have national business cycles become more synchronized?* (63 p.) (NBER Working Paper, 10130). Retrieved from https://www.nber.org/system/files/working_papers/w10130/w10130.pdf
12. Burns, A. F., & Mitchell, W. C. (1946). Measuring Business Cycles. *NBER Studies in Business Cycles*, 2(3). Retrieved from <https://www.nber.org/books-and-chapters/measuring-business-cycles>

13. Cerra, V., & Saxena S. C. Booms, Crises, and Recoveries: A New Paradigm of the Business Cycle and Its Policy Implications. *IMF Working Papers*, WP/17/250, 30. Retrieved from <https://www.imf.org/~media/Files/Publications/WP/2017/wp17250.ashx>
14. Choudhry, T., Hassan, S., & Shabi, S. (2020). U.S. economic uncertainty, EU business cycles, and the global financial crisis. *International Journal of Finance & Economics*, 25(1), 28-42. <https://doi.org/10.1002/ijfe.1726>
15. Clark, J. M. (1934). *Strategic Factors in Business Cycles*. New York: National Bureau of Economic Research.
16. Deloitte (2017). *The Fourth Revolution is now: are you ready? Future of Operations* (20 p.). Deloitte. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Strategy/gx-strategy-ops-the-fourth-revolution-now.pdf>
17. Feldkircher, M., & Huber, F. (2016). The international transmission of US shocks – Evidence from Bayesian global vector autoregressions. *European Economic Review*, 81, 167-188. <https://doi.org/10.1016/j.eurocorev.2015.01.009>
18. Ferasso, M., & Bergamaschi, E. (2020). Kondratieff's Economic Waves and Future Scenarios Planning: an approach for organizations. *Technology Innovation Management Review*, 10(2), 51-61. <http://doi.org/10.22215/timreview/1327>
19. Focacci A. (2020) Wavelets for Long Waves: Was Kondratieff's Intuition Right? *Journal of Economic Structures*, Preprints. Retrieved from <https://www.researchsquare.com/article/rs-69246/v1>
20. Fridman, M. (2012). *Metodologiya normativnoy ekonomicheskoy nauki. Filosofiya ekonomiki. Antologiya [Methodology of normative economics. Philosophy of economics. Anthology]* (pp. 177-216) (Original work published 1953). Moscow: Izd. Instituta Gaydara. (In Russian)
21. Goldschmidt, A., & Hilbert, J. (2009). *Health Economy in Germany – Economical Field of the Future (Gesundheitswirtschaft in Deutschland – Die Zukunftsbranche)* (22 p.). Germany: Wikom Publishing house, Wegscheid. ISBN 978-3-9812646-0-9.
22. Gong, C., & Kim, S. (2018). Regional business cycle synchronization in emerging and developing countries: Regional or global integration? Trade or financial integration? *Journal of International Money and Finance*, 84, 42-57. <https://doi.org/10.1016/j.jimonfin.2018.02.006>
23. Gopinath, G., Boz, E., Casas, C., Díez, F. J., Gourinchas, P.-O., & Plagborg-Møller, M. (2020). Dominant Currency Paradigm. *American Economic Review*, 110(3), 677-719. Retrieved from <https://www.nber.org/papers/w22943>
24. Grinin, L. E., & Korotaev, A. V. (2010). *Glonalniy krizis v retrospektive. Kratkaya istoriya podyomov i krizisov: ot Likurga do Alana Grinspena [The global crisis in retrospect. A brief history of booms and crises: From Lycurgus to Alan Greenspan]* (336 p.). Moscow: LIBROKOM. (In Russian)
25. Haberler, G. (2016). *Protsvetaniye i depressiya [Prosperity and Depression]* (475 p.) (Original work published 1937). (In Russian)
26. Habib, M., & Venditti, F. (2019) The global capital flows cycle: structural drivers and transmission channels (54 p.). *European Central Bank Working Paper Series*, 2280. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2280~2e76974901.en.pdf>
27. Halchynskiy, A. S. (2010). *Ekonomichna metodolohiia. Lohika onovlennia [Economic methodology. Update logic]* (pp. 127-128). Kyiv: ADEF Ukaina. (In Ukrainian)
28. Hall, V. B., & McDermott J. C. (2020). The business cycle and monetary policy: what changed after the GFC? *New Zealand Economic Papers*, <https://doi.org/10.1080/00779954.2020.1817135>
29. Harrod, R., & Hansen, E. (1997). dokhid / Klasyky keinsianstva [Economic cycles and national income / Keynesian classics] (In two volumes). *Ekonomika – Economics*, Vol. 1, pp. 195-415; Vol. 2, p. 431. Moscow. (In Ukrainian)
30. Holloway, R., Rasmussen, S., Zaza, S., Cox, N., & Jernigan D. (2014). Influenza Pandemic Framework Workgroup. Updated Preparedness and Response Framework for Influenza Pandemics. *CDCP Morbidity and Mortality Weekly Report: Recommendations and Reports*, 63(RR06), 1-18.
31. IMF. (2020). *World Economic Outlook*. IMF. Retrieved from <https://www.imf.org/~media/Files/Publications/WEO/2020/Update/June/English/WEOENG202006.ashx?la=en>
32. Inaba, K.-I. (2020). A global look into stock market comovements. *Kiel Institute for the World Economy Review of World Economics*, 156(3), 517-555. <https://doi.org/10.1007/s10290-019-00370-1>
33. Jordà, O., Singh R., & Taylor, A. (2020). *Longer-Run Economic Consequences of Pandemics* (22 p.). (Federal Reserve Bank of San Francisco Working Paper, 09). <https://doi.org/10.24148/wp2020-09>
34. Kaihatsu, S., Koga, M., Sakata, T., & Hara, N. (2018). Interaction between Business Cycles and Economic Growth (40 p.). *Bank of Japan Working Paper Series*, 18-E-12. Retrieved from https://www.boj.or.jp/en/research/wps_rev/wps_2018/data/wp18e12.pdf
35. Karadimitropoulou, A. (2018). Advanced economies and emerging markets: Dissecting the drivers of business cycle synchronization. *Journal of Economic Dynamics and Control*, 93, 115-130. <https://doi.org/10.1016/j.jedc.2018.01.029>
36. Kiyotaki, N., & Moore, J. (1997). Credit Cycles. *Journal of Political Economy*, 105(2), 211-248.
37. Knoop, T. A. (2009). *Recessions and depressions: understanding business cycles: understanding business cycles*. ABC-CLIO (2nd ed.).
38. Kolodko, H. (2020). Pislia pandemii. *Ekonomika i polityka u*

- postpandemichnomy sviti [After the pandemic. Economics and politics in the post-pandemic world]. *Ekonomika Ukrainy – Economy of Ukraine*, 5, 3-24.
39. Kondratiev, N. D. (2002). *Mirovoye khoziaystvo i yego konyunktura vo vremia i posle voyny [The world economy and its conjuncture during and after the war]* (pp. 40-341) (Original work published 1922) (In Russian)
 40. Kose, M. A., Otrok, C., & Prasad, E. (2012) Global business cycles: convergence or decoupling?. *International Economic Review*, 53(2), 511-538. <https://doi.org/10.1111/j.1468-2354.2012.00690.x>
 41. Kose, M., Sugawara, N., & Terrones, M. (2020). *Global Recessions* (71 p.). (WB Policy Research Working Paper, 9172). Retrieved from <http://documents1.worldbank.org/curated/en/185391583249079464/pdf/Global-Recessions.pdf>
 42. Kotz, D. (2009). The Financial and Economic Crisis of 2008: A Systemic Crisis of Neoliberal Capitalism. *Review of Radical Political Economics*, 41(3), 305-317. <https://doi.org/10.1177/0486613409335093>
 43. Krugman, P. (2020). The case for permanent stimulus. In R. Baldwin & Weder, di Mauro B. (Eds), *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes* (227 p.). CEPR Press. London.
 44. Liao, Y., Loures, E. R., Deschamps, F., Brezinski, G., & Venâncio, A. (2017). The impact of the fourth industrial revolution: a cross-country/region comparison. *Production*, 28, 18. e20180061. <https://doi.org/10.1590/0103-6513.20180061>
 45. Liu, D., Sun, W., & Zhang, X. (2020). Is the Chinese Economy Well Positioned to Fight the COVID-19 Pandemic? the Financial Cycle Perspective. *Emerging Markets Finance and Trade*, 56, 2259-2276. <https://doi.org/10.1080/1540496X.2020.1787152>
 46. Lucas, R. E. (1977). Understanding Business Cycles / in Brunner, K. & Meltzer, A. (ed.) *Carnegie-Rochester Series on Public Policy* (36 p.). Amsterdam: North Holland.
 47. Lukianenko, D. H., & Poruchnyk, A. M. (Eds). (2010). *Antytsyklichne rehuliuвання rynkovoï ekonomiky: hlobalizatsiina perspektyva [Countercyclical regulation of a market economy: a globalization perspective]* (334 p.). Kyiv: KNEU. (In Ukrainian)
 48. Mankiw, G. N. (2010). *Macroecconomics* (598 p.). Harvard University.
 49. Meadows, D. H., Randers, J., & Meadows, D. L. (2004). *The Limits to Growth: The 30-year Update* (3rd ed.) (338 p.). Chelsea Green Publishing. Retrieved from <https://www.amazon.com/Limits-Growth-Donella-H-Meadows/dp/1-93149858X#:~:text=Limits%20to%20Growth%3A%20The%2030%20Year%20Update%20is%20a%20work,global%20resource%20consumption%20and%20production>
 50. Mejía-Reyes, P., Rendón-Rojas, L., Vergara-González, R., & Aroca, P. (2018). International synchronization of the Mexican states business cycles: Explaining factors. *North American Journal of Economics and Finance*, 44, 278-288. <https://doi.org/10.1016/j.najef.2018.01.009>
 51. Mesea, O. A. (2013) The Analysis on the Cyclical Behaviour of Fiscal Policy in the EU Member States. *Procedia Economics and Finance*, 6, 645-653. Retrieved from <https://core.ac.uk/download/pdf/82601184.pdf>
 52. Minárik, P., Vokoun, M., & Stellner F. (2018). Innovative activity and business cycle: Austria in the 19th and 20th century. *E&M Economics and Management*, 21, 2. <https://dx.doi.org/10.15240/tul/001/2018-2-004>
 53. Minsky, H. P. (1992). *The Financial Instability Hypothesis* (10 p.) (Working Paper, 74). The Jerome Levy Economics Institute of Bard College.
 54. Miyamoto, W., & Nguyen, T. L. (2017). Understanding the cross-country effects of U.S. technology shocks. *Journal of International Economics*, 106, 143-164. <https://doi.org/10.1016/j.jinteco.2017.03.008>
 55. Nefiodow, L., & Nefiodow, S. (2014) *The Sixth Kondratieff. A New Long Wave in the Global Economy*. Charleston, ISBN 978-1-4961-4038-8.
 56. Obstfeld, M. (2020). *Globalization Cycles* (CEPR Discussion Paper, DP14378). Retrieved from <https://ssrn.com/abstract=3535464>
 57. OECD (2010). Counter-cyclical economic policy, *OECD Economics Department Policy Notes, 1*. Retrieved from <http://www.oecd.org/economy/public-finance/45105376.pdf>
 58. OECD. (2020). *OECD Economic Outlook*. Paris: OECD Publishing. <https://doi.org/10.1787/0d1d1e2e-en>
 59. Piccarozzi, M., Aquilani, B., & Gatti, C. (2018) Industry 4.0 in Management Studies: A Systematic Literature Review. *Sustainability*, 10(10), 3821. <https://doi.org/10.3390/su10103821>
 60. Posen, A. (2020). Containing the economic nationalist virus through global coordination. In, R. Baldwin & Weder di Mauro B. (Eds.), *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes* (227 p.). London, UK: CEPR Press.
 61. Povoroznyk, M. Y. (2020). *Medychni posluhy u systemi hlobalnykh ekonomichnykh transformatsii [Medical services in the system of global economic transformations]* (Doctoral dissertation) (272 p.). Kyiv: KNEU named after V. Hetman. (In Ukrainian). Retrieved from https://kneu.edu.ua/science_kneu/scientific_council/doc_filos/df26006003/
 62. PWC (2017). *The World in 2050: The Long View How will the global economic order change by 2050?* (PWC Summary report, 14). Retrieved from <https://www.pwc.com/gx/en/world-2050/assets/pwc-world-in-2050-summary-report-feb-2017.pdf>
 63. Raheem, I. (2020). Global Financial Cycles and Exchange

- Rate Forecast: A Factor Analysis. *Borsa Istanbul Review*. <https://doi.org/10.1016/j.bir.2020.06.002>
64. Rifkin, J. (2011). *The third industrial revolution: how lateral power is transforming energy, the economy, and the world* (330 p.). Palgrave Macmillan. Retrieved from https://edisciplinas.usp.br/pluginfile.php/5086400/mod_label/intro/epdf/pub_the-third-industrial-revolution.pdf
65. Saks, D. D., & Larren, B. F. (1996). *Makroekonomika. Globalnyi podkhod [Macroeconomics. Global approach]* (848 p.). Moscow: Delo. (In Russian)
66. Savina, G., Haelg, F., Potrafke, N., & Sturm, J.-E. (2019). The KOF Globalisation Index – Revisited. *Review of International Organizations*, 14(3), 543-574 <https://doi.org/10.1007/s11558-019-09344-2>
67. Schumpeter, J. A. (2006). *Business cycles: a theoretical, historical, and statistical analysis of the capitalist process*. Mansfield Centre, Connecticut: Martino Pub. ISBN 9781578985562. (Original work published 1939).
68. Schutz, E. A. (2020) Planetary Eco-Collapse and Capitalism: A Contemporary Marxist Perspective. *Forum for Social Economics*, 49(3), 257-280. <https://doi.org/10.1080/07360932.2018.1556177>
69. Shvydanenko, O. (2005). A New Globalization Paradigm: World Unity or Alternatives for Development? *The International Economic Policy*, 2(3), 5-29. Retrieved from https://www.researchgate.net/publication/242463036_A_New_Globalization_Paradigm_World_Unity_or_Alternatives_for_Development/fulltext/028b2d090cf2efd12df7779f/A-New-Globalization-Paradigm-World-Unity-or-Alternatives-for-Development.pdf
70. Sidenko, V. (2014). Novi hlobalni vyklyky ta yikh vplyv na formuvannia suspilnykh tsinnosti [New global challenges and their impact on the formation of social values]. *Ukrainskyi sotsium – Ukrainian society*, 1, 7-21. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Usoc_2014_1_3
71. Sørensen, P. B., & Whitta-Jacobsen, H. J. (2010). *Introducing advanced macroeconomics: Growth and business cycles* (848 p.). McGraw-Hill Education. ISBN 978-0077117863.
72. Stock, J. H. (2019) The business cycle is alive and well. *Business Economics*, 54, 79-84. <https://doi.org/10.1057/s11369-018-00110-7>;
73. Sylvan, A. M. (n.d.). The Great Lockdown: What to expect when you are expecting an economic crisis. *Revista Latinoamericana de Investigación Social*, 3(3), 80-93. Retrieved from <http://revistasinvestigacion.lasalle.mx/index.php/relais/article/download/2839/2709/>)
74. Terrones, M. M., Aruoba, S. B., Diebold, M. F. X., & Kose, M. A. (2011). *Globalization, the Business Cycle, and Macroeconomic Monitoring* (IMF WP/11/25, 53).
75. Tugan-Baranovskii, M. I. (1997). *Periodicheskiye promyshlennyye krizisy, Izbrannoye [Periodic industrial crises. Selection]* (576 p.) (Original work published 1897). (In Russian)
76. Tuncel, C. (2015). Neo-Schumpeterian Long Wave Theory and Nanotechnology: Assessing the Future of Manufacturing Industry. *Journal of Economics and Development Studies*, 3(1), 57-81. Retrieved from http://jedsnet.com/journals/jeds/Vol_3_No_1_March_2015/5.pdf
77. Weede, E. (2020). Geopolitics, Economic Freedom and Economic Performance. *The Economists' Voice*, 17(1). <https://doi.org/10.1515/ev-2019-0036>
78. WHO (2013). *Pandemic influenza risk management: WHO interim guidance*. Geneva, Switzerland. Retrieved from http://www.who.int/influenza/preparedness/pandemic/influenza_risk_management/en
79. Wilenius, M. (2014). Leadership in the sixth wave – excursions into the new paradigm of the Kondratieff cycle 2010–2050. *European Journal of Futures Research*, 2, 36. <https://doi.org/10.1007/s40309-014-0036-7>
80. World Bank (2020). *The Global Economic Outlook During the COVID-19 Pandemic: A Changed World*. Retrieved from <https://www.worldbank.org/en/news/feature/2020/06/08/the-global-economic-outlook-during-the-covid-19-pandemic-a-changed-world>
81. World Bank Group. (n.d.). *GDP growth & GDP per capita growth. World Bank and OECD National Accounts. DataBank* (Accessed on December 1st, 2020). Retrieved from <https://data.worldbank.org/>
82. WTO. (2020). *Trade shows signs of rebound from COVID-19, recovery still uncertain*. Retrieved from https://www.wto.org/english/news_e/pres20_e/pr862_e.htm
83. Yépez, C. A. (2018). Cyclical wage movements in emerging markets compared to developed economies: a general equilibrium comment. *Journal of International Trade and Economic Development*, 27(6), 655-666. <https://doi.org/10.1080/09638199.2017.1416661>
84. Yépez, C. A. (2019). Informality and international business cycles. *Journal of International Financial Markets, Institutions and Money*, 62, 252-263. <https://doi.org/10.1016/j.intfin.2019.08.001>