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The Genesis and Mechanisms to Overcome Systemic Economic Crises

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Abstract. The paper aims to look into the origin and nature of global economic crises, the least studied phenomena of the global economic life – the phenomena, the nature of which still has not received a generally accepted explanation in economic science. Market economy has its own laws, the spontaneous nature of which is revealed in times of crises. However, the analysis of global "crisis experience" draws attention to an important feature in the implementation of various forms of crises that remains at all the stages of economic development. Some economic shocks, despite their urgency and scale, gradually give way to recovery and then – to complete recovery. Other end up with weak revival and depression, gradually turning into a new recession. Such crises, depressions, and periods of sluggish economic recovery form the "waves of crisis development" that hold the economy in a depressed condition for a long time. The impact and the consequences of these "waves" of economic shocks that are sequential or overlapping in time go beyond the medium-term economic dynamics. They occur within a long-term (Kondratiev) cycle and coincide with its descending phase, when, according to empirically confirmed ideas of the great Russian economist Nikolai Kondratiev, the economy is undergoing a difficult stage of the crisis-depression development that shapes the parameters of future economic growth. The present paper unites the economic events of this stage in the concept of "systemic economic crisis". This concept is introduced for the purpose of structuring in the single economic process the diverse phenomena occurring at the downward phase of the long-term cycle. Each of them may be due to special causes and have a separate history, but initially, all these events are subordinated to the decision of general systemic problems, and for this reason can be considered as part of the single systemic crisis, the overcoming of which provides the rise of the society

to qualitatively new frontiers of economic development. The present paper is an attempt to understand the causes and consequences of systemic economic crises as a fundamental phenomenon of the long-term economic cycle.

Key words: economic development, long-term economic cycle, recession, depression, systemic economic crisis, systemic problem, innovative upgrading, economic modernization.

The occurrence of crises as a periodic economic phenomenon, the conditions and the time of their appearance remain a controversial and unresolved issue of economic theory. Most researchers are of the opinion that recurring crises happened long before the formation of the industrial production system. So, one of the most prominent representatives of the American economic science W. Mitchell states the presence of economic crises in the last decades of the 18th century, although then they were less significant for economic development than in the 20th century [25, p. 88]. Some researchers try to find recurrence in the series of economic events of earlier periods, erroneously including quite different economic shocks in the unified process of cyclic development, such as the tulip mania in the Netherlands (the 1620–1630s), the 1696 monetary crisis in England, the fall of John law (France, 1716–1720.), the collapse of the South Sea Company (England, 1720–1721), etc.

L.A. Mendelson, by contrast, believes that only gradually economic shocks acquired a character of cyclical crises and discloses a methodological error in the approach of "bourgeois experts", when the nature of crises is interpreted metaphysically and the development process is ignored [13, p. 238]. Presenting the traditional approach of the Soviet economic science, the scientist tries to link the occurrence of periodic crises with the formation of capitalist economy and, consequently, the prospects for alignment of economic development – with the elimination of the main source of "turbulence" in the economy – a capitalist economic system.

The identification of the time of occurrence of economic crises as a recurrent phenomenon is of theoretical interest; however, the determination of sources and nature of this crisis, which is the purpose of this article, also has a practical value. It is possible to form a set of tools and methods to influence the nature of cyclic processes.

Even in the pre-industrial period the economic dynamics was characterized by considerable inconsistency: the periods of economic activity activization interchanged with the periods of economic stagnation. At the same time, the recurring economic crises were usually represented as financial shocks and their causes were out of the reproductive process. The main factors that provoke worsening of the balance of payments and cause crises were the following: mass epidemics that took away millions of lives; bloody and destructive wars; serious crop failures and epizootic, involving galloping prices for essential food and commodities [18, p. 8].

The successive crises were of entirely different nature; they were generated by internal conditions, occurred in time of peace and were provoked by quite sudden phenomena: bankruptcies, poverty, unemployment, etc. These events were recorded in the 2nd quarter of the 19th century, when with the strengthening of market relations and development of industrial society the national economies experienced imbalance between industrial production and solvent demand. The economic crises that became severe and painful elements of market dynamics started to fulfil, according to Yu.V. Yakovets, three key functions: 1) "eliminate obsolete, inefficient and non-competitive economic systems (destruction function)"; 2) "clear the way for strengthening shoots of the future system, already born, but still weak and suppressed by outdated elements (creative, "obstetric" function)"; 3) "clear and transmit a genetic core of the system, a hereditary to future generations (hereditary function)" [22, pp. 216-217].

The analysis of the world "crisis experience" draws attention to an important feature in the various crises forms that persists at all stages of economic development since the early industrial period. Some economic shocks, despite the urgency and great scale, gradually gave way to revival and then to full-fledged economic recovery (1825–1826, 1857–1858, 1866–1867, 1890–1894, 1900–1903, 1907–1908, 1920–1922 , etc.), others led to weak recovery or depression, gradually turning into new recessions. Such crises and periods of sluggish economic recovery together formed waves of crisis development, leaving the economy in a depressed condition for a long time. For example, the 1857–1872 period was marked by 2 great economic revivals lasting for 7 and 6 years, preceded by the severe crises of 1857–1858 and 1866–1867, However, the subsequent period of 1873–1886 witnessed depressive development, called as "Long depression" by contemporaries [23, p. 10]. Such depressive periods were also observed in 1836–1842, 1929–1938 and 1967–1982 [20; 21]. The long period of depressed global economy, which started with the 2008–2009 global crisis and included a number of other economic shocks of regional and country scale, suggests the unfolding of another wave of depressive development, which can last until the end of the 5th Kondratiev's "big cycle", i.e. presumably until 2018–2020.

Relying on the ideas of N.D. Kondratiev, considering economic dynamics as a "continuous and diverse stream of qualitative and quantitative changes" [10, p. 24], we can assume that the above differences in the crises realization are caused by quantitative and qualitative processes in the economy. According to the Russian scientist, in the situation when the economic system elements undergo transformation, not reduced to the change in their number and volume, it is necessary to speak about the presence of qualitative changes (for example, a change in organizational principles, technologies, content and nature of social needs, etc.). In other cases (e.g., for prices, rates, rent, etc.)

the movement of quantitative indicators plays the leading role. "The value of quality changes is only important when the nature of these elements changes, for example, when the price changes from free to fixed or from market to monopoly" [10, pp. 20, 24].

This approach (further not developed by Kondratiev) allows us to create and scientifically justify a prospective "method of quantitative and qualitative decomposition", aimed at disclosing the substance of the phenomena observed in economic reality. The division of economic dynamics into two fundamentally different (although connected by feedback channels) types of processes: 1) quantitative (streaming, market) and 2) qualitative (cumulative- transformative) is a powerful way to study the nature of economic phenomena that enables us to understand the essence of events included in the overall cyclic process.

Both quantitative and qualitative processes form negative phenomena, which, in the first case, are expressed in the violation of economic proportions (imbalance of supply and demand, price disparities, etc.) and, in the second, – in the violation of internal connections (internal harmony) of the economic system. G.B. Kleiner rightly points to the differences in terms of "disproportionality" and "disharmony", which are often incorrectly presented as identical. In fact, disharmony is a condition of more serious distortion of the economic system than disproportionality. It is caused by the quality problems of the economic system and "hinders the improvement of imbalances within the economy" [8, p. 73]. Accordingly, disharmony as a result of negative processes of qualitative order requires fundamentally different solutions for elimination of its consequences, than disproportionality.

So, the quantitative violations of internal balance of the economic environment (disproportionality), formed in the phase of economic growth, give rise to common (in the "traditional" sense) cyclical economic crises. So, the crisis is "a painful process to liquidate inconsistencies and disproportionality of production and distribution, supply and demand, created under the influence of certain conditions" [11, p. 208]. The crisis processes occurring within the economic system are, in this case, of streaming nature and, generally, realized within the medium-term economic cycle. The crisis is overcome due to the restoration of old or establishment of new quantitative proportions, providing further development for the medium term. In turn, the corresponding change in spatial configuration of the system does not entail changes in its properties and functional content. Such an understanding of the economic crisis allows us to consider it as an *economic phenomenon, caused by the violation of quantitative proportions (internal balance) of the economic system in the phase of economic growth, overcome by the restoration of old or establishment of new quantitative proportions, providing further development in the medium-term economic cycle*.

At the same time, in the economic system there arise contradictions of qualitative nature (disharmony), which are a "reaction against abnormal changes, growths and inconsistencies in the relationship of economic elements and conditions of their development" [11, p. 254]. These contradictions reveal the necessity of institutional changes, management model replacement, new technological base creation, etc. The scale and acuteness of these contradictions do not give an opportunity to eliminate them within the medium-term cyclical process, thus involving the accumulation and transfer of emerging dysfunctions for the next cycle. The accumulation of crisis potential (unresolved problems of economic system development) provokes the system or, as defined by G.B. Kleiner, mega-economic crisis [7], which determines the need to implement drastic changes in the quality of system relations between structural entities in space and in time. In this case, the crisis processes, which are a "consequence of accumulative conditions during the previous time" [10, p. 397], have a cumulative-transformative nature and require modifications of intra-system relations, carried out within long-term (Kondratiev's) cycles.

The term "systemic crisis" in economic literature is often used to indicate the depth and scope of crisis shocks, the scale and destructiveness of a certain economic phenomenon. In such a context this concept is used associatively and practically does not bear any methodological content. However, when used correctly, it can quite aptly reflect the content of crisis processes taking place in the format of long-term economic dynamics.

There are terms alternative to a "systemic crisis" in scientific literature. For example, C. Perez [17] writes about a "turning point". G. Mensch introduced into scientific circulation the concept "technological stalemate" [24]. At the descending stage of the Kondratiev's economic cycle the founder of the innovation theory I. Shumpeter singles out an economic event, calls it as "depression" and treats as an "unmanageable" condition amid falling business profits. "The economic essence of the depression process is to promote – through the mechanism of the pursuance of balance – technical achievements in all national economy", – considers the Austrian economist [19, p. 427]. The author of the theory of long-term economic development S.Yu. Glazyev uses the concept "depression" to describe the economic environment, characterized by the decline in production of the current technological structure and maturing of the key innovations of a new stage of economic development [3, p. 41]. However, in the recent works the academician Glazyev also writes about a "turbulent mode" and "systemic crisis" using these concepts as well-established for identification of crisis events of long-term cycle [4, pp. 7, 57]. It appears that the term "systemic economic crisis" summarizes controversial and multifactorial events of the descending stage of the Kondratiev's cycle, where the

economy is undergoing a difficult stage of crisis and depression development, forming the parameters of future economic growth.

In this study the systemic (mega-economic) crisis is *a set of phenomena conjugate in a single economic process that arise due to the formation of internal contradictions of qualitative nature in the economic system related to the need for fundamental transformations in the institutional environment, the change in a management model, the qualitative renewal of a technological base, etc. Overcoming the systemic economic crisis requires a radical change in the quality of intra-system connections and relationships between structural entities, carried out within long-term cycles.*

The systemic economic crisis is not an isolated economic event, but is an economic process – a target-oriented process system, which in the form of functional elements includes a variety of economic phenomena, ensuring the achievement of the fundamental objective – qualitative transformation of the economy. Systemic economic crises (process systems) differ from normal cyclical crises, representing certain economic events (event systems). Each event performs its function and has a separate goal – elimination of quantitative imbalances and restoration of economic balance. This separation based on fundamental categories of the system economy [see: 7; 5, pp. 66-68] helps avoid equating the concept "systematicity" with the acuteness and severity of crisis consequences and, consequently, the erroneous inclusion of usual cyclical shocks (events) in the category of "systemic crises" (processes) (for example, crises of 1857–1858 and 1907–1908 in the works [12, pp. 169-170; 2, p. 39]). The first ones occur and reach their goal during a medium-term cycle, while the latter – systemic economic crises – during a long-term (Kondratiev's) cycle (i.e., period, exceeding a medium-term one by 4-5 times by its duration). They are realized in "waves" of sequential or coincident in time economic shocks of different intensity and duration, separated by brief periods of depression or weak economic recovery. Each can be caused by certain reasons and have a separate history; however, initially all these events try to solve common systemic problems, and for this reason can be considered as parts of a systemic crisis. Its overcoming lets the society achieve a qualitatively new level of economic development.

The attempt to structure diverse phenomena occurring at the descending stage of a long-term cycle in a single economic process was undertaken in the late 1980s by S.M. Menshikov. He stated that these phenomena "are often studied in isolation, they are considered as autonomous, only coinciding with the phase of a long crisis", whereas "they should be viewed as part of the general structural crisis of the economy" [15, p. 88]. The mentioned thesis lays foundations for comprehensive research in multifaceted and heterogeneous processes of the descending stage of the Kondratiev's cycle, which includes not only periods of economic stagnation, general recessions of

the economy, sectoral shocks of the crisis (industrial, financial, resource, etc.), but also brief periods of weak economic growth. However, the applied term "structural crisis" significantly narrows possibilities of the qualitative characteristics of crisis processes of a long-term cycle, which in addition to direct technological aspects should assess institutional, behavioral, ideological and other changes required for the implementation of growth potential laid down in the economic system [16, p. 104].

At the descending stage of a long-term cycle the economy approaches a so-called "acceleration threshold", which is *a set of economic circumstances formed in the process of previous development that limit prospects for further economic growth due to the exhaustion of possibilities to satisfy social needs at the achieved level of economic development and under the current structure of consumption*. In general, we can distinguish 3 kinds of constraints that could form a basis for the next acceleration threshold: 1) resource (in particular, energy1) threshold; 2) environmental threshold; 3) technological threshold.

The first constraint (resource) was observed during the 1967–1982 systemic economic crisis (waves of the energy crises of 1973–1974 and 1979–1982). The second constraint (environmental) includes contradiction between the rapid development of a modern technocratic civilization, accompanied by explosive growth in the global consumption of natural resources, and the environment's capacity to address growing anthropogenic pressure. The third limitation (technological) is not of natural character and relates only to the level of society's scientific and technological development and its ability to present new innovative solutions ensuring further progressive growth of the world economy in the process of overcoming the acceleration threshold. To date, the challenges of technological limitations prevailed in the long-term economic development. However, the influence of natural factors will increase and the technological solutions will be focused not so much on boosting economic growth as on reducing pressure from the natural limitations of economic activities. In this case the most popular solutions will be the innovative ones aimed at mitigating tensions caused by the negative anthropogenic impact on the environment in the process of people's life support.

Today the most studied forms to curb long-term economic development are as such: insufficient level of technological equipment, dysfunction of technological innovation processes in the system that are in conflict with the progressive nature and pace of external environment elements development. According to this understanding, there can the following solutions: radical update of a technological base, introduction of the latest

[1] The concept "energy threshold" is introduced by G.M. Krzhizhanovskii (1872–1959), who in 1920 was a chairman of the Commission for Electrification, in 1921–1923 and 1925–1930 a chairman of the State Planning Committee, in 1930–1932 – a chairman of the Main Directorate of Energy Resources, since 1930 – Director of the Power Engineering Institute of the USSR (now – named after Krzhizhanovskii).

scientific and technological developments, earlier unrequired by the economic mechanism. Even N.D. Kondratiev noted a pattern (the first "empirical correctness") that "before the beginning of each upward wave of a big cycle, and sometimes at its very beginning, there are significant changes in the conditions of economic life of the society", manifesting themselves in important discoveries, inventions, etc. [9, pp. 47-48]. Using modern terms we are talking about the process to introduce innovation that will determine a technological shape of the next great cycle. Thus, Kondratiev laid the foundations of the innovative theory of long waves at the time when its future founder I. Schumpeter referred innovation to the medium-term fluctuations. According to the scientist, they are first and foremost capital expenditures on the introduction of new products [15, p. 181]. Unfortunately, N.D. Kondratiev did not present a deeper analysis of the impact of technical innovation on the economic dynamics process. J.J. Van Duijn notes in this regard: "the irony is that the ingredients necessary for the endogenous theory of long waves were in his (Kondratiev's) hands. He recognized the importance of technological innovations and specified them for the relevant phases of rise and fall; he also knew that the rise in the long wave is associated with the growth in basic capital goods. However, he could not tie them together: did not see that innovations create new industrial sectors and, therefore, require their own infrastructure" [26, p. 67].

However, invention itself does not automatically become an economic event: it requires a certain incentive to be adapted by the market. We can mention a stimulus, such as a sum of circumstances, together forming systemic economic crises, which, therefore, can be regarded as innovative – not only in terms of technological and institutional renewal, but also in terms of emergence of new industries, economical sectors, a new generation of managers, a new type of consumption, etc.

In any of the above cases, overcoming a systemic economic crisis is connected with qualitative reconfiguration of inner ties between elements of the system itself, fundamental changes in the system profile. Paraphrasing A. Einstein, believing that no problem can be solved at the level of consciousness it was created [6], we can argue that a systemic problem can not be solved at the level of system development it emerged. Resolved systemic problems involve not only the update of technological bases, but also the change (or correction) of organizational principles and governing structures responsible for maintaining quality parameters of the system.

We take into account that in practice the synergy effect from the set of innovations, introduced in the result of overcoming a system crisis, is achievable only in the leading economies, while the geo-economic periphery is often in a depressed state and participates in economic recovery solely as a supplier of raw materials and low-paid workforce,

as well as a market for developed countries [3, pp. 39-40]. This can be illustrated by the unprecedented recovery of Western economies, carried out on the wave of overcoming the systemic economic crisis of 1967–1982. For almost two decades the advanced economies witnessed powerful long-term processes of an ascending stage of the cycle (with the rate of economic growth over 25% per year in its core complex of information and communication technologies), while the so-called "transitive economies" (former Soviet Union countries and the CMEA) were in a state of deep decline.

However, at the turn of two long-term cycles for the countries of economic periphery, created necessary capacities in the form of promising scientific and technical developments, there is a possibility of technological breakthrough on the crest of a new long wave [3, p. 8]. There is a bright example: the US made a "breakthrough" to the subsequent dominance in the world economy through the introduction of European technologies at the ascending stage of the 3rd Kondratiev's cycle (1890–1896 – 1914–1920). At the same time, the same breakthrough was recorded in Germany, where, however, the rapid economic recovery was interrupted by the World War I [1]. It is noteworthy that both countries did not copy a development model of the industrial leader of the world economic system of that period – England and primarily developed heavy industry [14, p. 134]. The chosen strategy played an important role in narrowing the lag from the UK and further outrunning it in terms of industrial development. After the World War II the same way was chosen by Japan that on the basis of active implementation of a number of Western key technological innovations of that period (textile, steel, automobiles, petrochemicals, electronics, microelectronics) implemented a "catch-up" development strategy and at the ascending stage of the 4th cycle (1939–1950 – 1968–1974) reached an economic level of the developed Western countries [1].

We should add to the described above that missing an "acceleration threshold" involves inertial development of the economy, leading to economic stagnation in the framework of the obsolete and ineffective type of social reproduction. To illustrate this thesis, we can refer to a local systemic crisis of the Soviet (Russian) economy in the late 1980s – 1990s caused by the coincidence of some critical and interrelated circumstances, such as decline in oil prices in 1986 and subsequent deterioration of foreign trade conditions for Soviet export, violation of established economic ties due to dissolution of the CMEA and collapse of the USSR in 1991, sharp change in the country's economic course from the planned paternalism to the ill-conceived liberalism, "shock therapy" of the early 1990s, etc.

The analysis of works conducted in the sphere of long-term economic dynamics demonstrates a significant neglect of researchers, focused on identifying the causes for long wave emergence in stead of studying the environment, creating conditions for periodic

updating of the economic system. However, it is the severity and scale of contradictions exposed in the wave of economic shocks of the long (Kondratiev's) cycle prepares a depressed economy for undertaking radical measures for its renewal, and the transformation of an economic system genome occurring in the depths of the crisis turmoil becomes a driving force of quality development. For this reason, the content side of events at the descending stage of the long-term cycle requires a deeper understanding, a thorough description and a greater attention on the part of the scientific community.

References

1. Akaev A.A. Sovremennyi finansovo-ekonomicheskii krizis v svete teorii innovatsionno-tekhnologicheskogo razvitiya ekonomiki i upravleniya innovatsionnym protsessom [Modern Financial-Economic Crisis in the Light of the Theory of Innovative-Technological Development of Economy and Management of Innovation Process]. *Sistemnyi monitoring. Global'noe i regional'noe razvitie* [System Monitoring. Global and Regional Development]. Ed. by D.A. Khalturin, A.V. Korotaev. Moscow: URSS, 2009. Pp. 141-162.
2. Alekseeva M.B. *Sistemnyi podkhod i sistemnyi analiz v ekonomike* [System Approach and System Analysis in Economics]. Murmansk: MAEU, 2012. 276 p.
3. Glazyev S.Yu. Sovremennaya teoriya dlinnykh voln v razvitii ekonomiki [The Modern Theory of Long Waves in Economic Development]. *Ekonomicheskaya nauka sovremennoi Rossii* [Economics of Contemporary Russia], 2012, vol. 57, no. 2, pp. 27-42.
4. Glazyev S.Yu. O neotlozhnykh merakh po ukrepleniyu ekonomicheskoi bezopasnosti Rossii i vyvodu rossiiskoi ekonomiki na traektoriyu operezhayushchego razvitiya (analiticheskaya versiya doklada) [Concerning Urgent Measures for Strengthening Economic Security of Russia and Placing Russia's Economy in Rapid Development Trajectory (Academic Version of the Presentation)]. *Rossiiskii ekonomicheskii zhurnal* [Russian Economic Journal], 2015, no. 5, pp. 3-62.
5. Drogobytskii I.N. *Sistemnyi analiz v ekonomike* [System Analysis in Economics]. 2nd edition, revised and supplemented. Moscow: YuNITI-DANA, 2011. 423 p.
6. *Zhemchuzhiny mysli* [Pearls of Thought]. Available at: http://www.inpearls.ru/autor/121/2 (accessed April 10, 2014).
7. Kleiner G.B. *Sistemnyi krizis, sistemnyi analiz, sistemnyi menedzhment* [System Crisis, System Analysis, System Management]. Available at: http://www.kleiner.ru/arpab/siskriz.html (accessed January 10, 2014).
8. Kleiner G.B. Strategiya sistemnoi garmonizatsii ekonomiki Rossii [Strategy for the System Harmonization of Russia's Economy]. *Ekonomicheskie strategii* [Economic Strategies], 2008, no. 5-6, pp. 72-79.
9. Kondratiev N.D. Bol'shie tsikly kon»yunktury [The Big Cycles of Conjuncture]. *Voprosy kon"yunktury* [Issues of Conjuncture], 1925, vol. 1, no. 1, pp. 28-79.
10. Kondratiev N.D. *Bol'shie tsikly kon"yunktury i teoriya predvideniya: izbrannye trudy* [The Big Cycles of Conjuncture and the Theory of Insight: Selected Works]. Moscow: Ekonomika, 2002. 767 p.
11. Kondratiev N.D. *Mirovoe khozyaistvo i ego kon"yunktury vo vremya i posle voiny* [The World Economy and its Conjuncture During and After the War]. Vologda: Obl. otd-nie Gos. izd-va, 1922. 258 p.

12. Mau V.A. *Krizisy i uroki. Ekonomika Rossii v epokhu turbulentnosti* [Crises and Lessons. Russia's Economy in an Era of Turbulence]. Moscow: Institut Gaidara, 2016. 488 p.

13. Mendel'son L.A. *Teoriya i istoriya ekonomicheskikh krizisov i tsiklov: v 3-kh tomakh* [Theory and History of Economic Crises and Cycles: in 3 Volumes]. Moscow: Sotsekgiz, 1959. Volume 1. 691 p.

14. Mendel'son L.A. *Teoriya i istoriya ekonomicheskikh krizisov i tsiklov: v 3-kh tomakh* [Theory and History of Economic Crises and Cycles: in 3 Volumes]. Moscow: Sotsekgiz, 1959. Volume 2. 767 p.

15. Men'shikov S.M., Klimenko L.A. *Dlinnye volny v ekonomike. Kogda obshchestvo menyaet kozhu* [Long Waves in the Economy. When Society Changes Its Skin]. Moscow: Mezhdunar. otnosheniya, 1989. 272 p.

16. *Nobelevskie laureaty po ekonomike: vzglyad iz Rossii* [Nobel Laureates in Economics: a View from Russia]. Ed. by Yu.V. Yakovets. Saint Petersburg: Gumanistika, 2003. 996 p.

17. Perez C. *Tekhnologicheskie revolyutsii i finansovyi kapital. Dinamika puzyrei i periodov protsvetaniya* [Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages]. Moscow: Delo ANKh, 2011. 232 p.

18. *Finansovyi krizis v Rossii i v mire* [The Financial Crisis in Russia and in the World]. Ed. by E.T. Gaidar. Moscow: Prospekt, 2009. 256 p.

19. Shumpeter I. *Teoriya ekonomicheskogo razvitiya: (Issledovanie predprinimatel'skoi pribyli, kapitala, kredita, protsenta i tsikla kon"yunktury)* [The Theory of Economic. Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle]. Translated from German by V.S. Avtonomov et al. Moscow: Progress, 1982. 455 p.

20. Shcherbakov G.A. Zavisimost' prirody ekonomicheskikh yavlenii ot istochnikov khozyaistvennogo rosta. Periodicheskie i sistemnye ekonomicheskie krizisy [The Dependence of the Nature of Economic Phenomena on the Sources of Economic Growth. Periodic and System Economic Crises]. *Ekonomicheskaya kibernetika i sistemnaya ekonomika: sb. materialov kruglogo stola XVII Mezhdunarodnoi konferentsii po myagkim vychisleniyam SCM'2014 (g. Moskva, Finuniversitet, 4 iyunya 2014 g.)* [Economic Cybernetics and System Economy: Materials of the Round Table at the 17th International Conference on Soft Computing SCM'2014 (Moscow, Financial University, June 4, 2014)]. Saint Petersburg: LETI, 2014. Pp. 113-117.

21. Shcherbakov G.A. Retrospektivnyi obzor prichin i posledstvii makroekonomicheskoi nestabil'nosti [Retrospective Review of the Reasons and Consequences of Macroeconomic Instability]. *Ekonomika i predprinimatel'stvo* [Journal of Economy and Entrepreneurship], 2013, no. 2, pp. 11-18.

22. Yakovets Yu.V. *Epokhal'nye innovatsii XXI veka* [Epochal Innovations of the 21st Century]. Moscow: Ekonomika, 2004. 444 p.

23. *Depression of Trade and Industry. Final Report of the Royal Commission appointed to inquire into the Depression of Trade and Industry.* London: Eyre and Spottiswoode, etc., 1886. 139 + LXVII p.

24. Mensch G. *Das Technologische Patt: Innovationen* übervinden *die Depression*. Frankfurt-am-Main: Umschau-Verlag, 1975. 287 p.

25. Thorp W. *Business Annals*. With an introductory Chapter by W. Mitchell. New York: National Bureau of Economic Research, Inc., 1926. 380 p.

26. Van Duijn J.J. *The Long Wave in Economic Life*. London: Allen & Unwin, 1983. 239 p.

Cited Works

1. Akaev A.A. Modern Financial-Economic Crisis in the Light of the Theory of Innovative-Technological Development of Economy and Management of Innovation Process. *System Monitoring. Global and Regional Development*. Ed. by D.A. Khalturin, A.V. Korotaev. Moscow: URSS, 2009. Pp. 141-162.
2. Alekseeva M.B. *System Approach and System Analysis in Economics*. Murmansk: MAEU, 2012. 276 p.
3. Glazyev S.Yu. The Modern Theory of Long Waves in Economic Development. *Economics of Contemporary Russia*, 2012, vol. 57, no. 2, pp. 27-42.
4. Glazyev S.Yu. Concerning Urgent Measures for Strengthening Economic Security of Russia and Placing Russia's Economy in Rapid Development Trajectory (Academic Version of the Presentation). *Russian Economic Journal*, 2015, no. 5, pp. 3-62.
5. Drogobytskii I.N. *System Analysis in Economics*. 2nd edition, revised and supplemented. Moscow: YuNITI-DANA, 2011. 423 p.
6. *Pearls of Thought*. Available at: http://www.inpearls.ru/autor/121/2 (accessed April 10, 2014).
7. Kleiner G.B. *System Crisis, System Analysis, System Management*. Available at: http://www.kleiner.ru/arpab/siskriz.html (accessed January 10, 2014).
8. Kleiner G.B. Strategy for the System Harmonization of Russia's Economy. *Economic Strategies*, 2008, no. 5-6, pp. 72-79.
9. Kondratiev N.D. The Big Cycles of Conjuncture. *Issues of Conjuncture*, 1925, vol. 1, no. 1, pp. 28-79.
10. Kondratiev N.D. *The Big Cycles of Conjuncture and the Theory of Insight: Selected Works*. Moscow: Ekonomika, 2002. 767 p.
11. Kondratiev N.D. *The World Economy and its Conjuncture During and After the War*. Vologda: Obl. otd-nie Gos. izd-va, 1922. 258 p.
12. Mau V.A. *Crises and Lessons. Russia's Economy in an Era of Turbulence*. Moscow: Institut Gaidara, 2016. 488 p.
13. Mendel'son L.A. *Theory and History of Economic Crises and Cycles: in 3 Volumes*. Moscow: Sotsekgiz, 1959. Volume 1. 691 p.
14. Mendel'son L.A. *Theory and History of Economic Crises and Cycles: in 3 Volumes*. Moscow: Sotsekgiz, 1959. Volume 2. 767 p.
15. Men'shikov S.M., Klimenko L.A. *Long Waves in the Economy. When Society Changes Its Skin*. Moscow: Mezhdunar. otnosheniya, 1989. 272 p.
16. *Nobel Laureates in Economics: a View from Russia*. Ed. by Yu.V. Yakovets. Saint Petersburg: Gumanistika, 2003. 996 p.
17. Perez C. *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. Moscow: Delo ANKh, 2011. 232 p.
18. *The Financial Crisis in Russia and in the World.* Ed. by E.T. Gaidar. Moscow: Prospekt, 2009. 256 p.
19. Shumpeter I. *The Theory of Economic. Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*. Translated from German by V.S. Avtonomov et al. Moscow: Progress, 1982. 455 p.
20. Shcherbakov G.A. The Dependence of the Nature of Economic Phenomena on the Sources of Economic Growth. Periodic and System Economic Crises. *Economic Cybernetics and System Economy: Materials of the Round Table at the 17th International Conference on Soft Computing SCM'2014 (Moscow, Financial University, June 4, 2014)*. Saint Petersburg: LETI, 2014. Pp. 113-117.

21. Shcherbakov G.A. Retrospective Review of the Reasons and Consequences of Macroeconomic Instability. *Journal of Economy and Entrepreneurship*, 2013, no. 2, pp. 11-18.

22. Yakovets Yu.V. *Epochal Innovations of the 21st Century*. Moscow: Ekonomika, 2004. 444 p.

23. *Depression of Trade and Industry. Final Report of the Royal Commission appointed to inquire into the Depression of Trade and Industry.* London: Eyre and Spottiswoode, etc., 1886. 139 + LXVII p.

24. Mensch G. *Das Technologische Patt: Innovationen* übervinden *die Depression.* Frankfurt-am-Main: Umschau-Verlag, 1975. 287 p.

25. Thorp W. *Business Annals*. With an introductory Chapter by W. Mitchell. New York: National Bureau of Economic Research, Inc., 1926. 380 p.

26. Van Duijn J.J. *The Long Wave in Economic Life*. London: Allen & Unwin, 1983. 239 p.

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