

ADJUSTING THE GLOBAL ECONOMY INNOVATION DEVELOPMENT TO THE SLUGGISH CRISIS: HOW LONG "INNOVATION PAUSE" LASTS?

Igor E. Frolov

Institute of Economic Forecasting, Russian Academy of Sciences,
117418 Moscow, Nakhimov avenue, 47, Russia

Abstract

The author puts forward the hypothesis that in last few decades, the social mechanisms that reproduce economic cycles has grown complicated and that, in particular, led to a significant decrease of innovation efficiency as a growth boosting mechanism, and has resulted in an "innovation pause". The current development of the world economy is moving to a new stage under deep transformation process. In the long term, the innovative processes would not be developed on the base of traditional technological innovations, but rather on a new type of financial innovation that is Impact investments.

Key words: societal objectivization, financial crisis, economic cycles, non-market economy, reproduction, innovation

1. INTRODUCTION AND THE RESEARCH PROBLEM

In the years after the financial crisis of 2007-2009, many researchers and analysts described, one way or another, the causes and conditions of crisis occurrence in the world and in Russia [Allison, 2012; Blinder, 2013; Wolff, 2016; Stiglitz, 2010; Koshovets and Frolov, 2014; Фролов, Ципко, Кошовец, Ганичев, 2011]. However, the methods of conceptualization and economists' views on measures and conditions for sustainable economic development are diametrically opposed in many ways: from recognizing the impossibility of Russia's economy rapid growth in the near future¹ to estimating the country's annual growth rate at 4-5% in the medium term². There is a quite strong viewpoint that Russia is establishing new macroeconomic and institutional models of growth, changing the role of certain sectors of the economy, giving rise to a new type of globalization, and revising the role of inequality in the economic and social development of the leading countries [May, Улюкаев, 2014].

But are modern macroeconomic models capable of describing the real economic dynamics correctly? By summarizing and applying some simplicity, it is possible to say that macroeconomic models are based on the unproven, although largely accepted theses: economic growth is caused by endogenous factors (e.g., investment, labor, innovation), and the recession – by exogenous factors (e.g., external "shocks"). There is a theoretical alternative - the concept of long cycles (or "long waves"), which appeared in the late XIX - early XX century, when researchers from many countries (and, first of all, specialists in the history and theory of economic crises) drew attention to the existence of long-term waves in the dynamics of certain economic indicators (for example, W. Jevons (England), M. Tugan-Baranovsky (Russia), K. Kautsky (Germany), J. Lescure (France), K. Wicksell (Sweden), V. Pareto (Italy)). At that time, long waves were registered only in the development of prices and interest rates, and considered as a complement to "standard" business cycles (for example, see the review [Barr, 1979]). A more fundamental development of this concept happened in the 1920-40s. Among the

¹ See reports "Прогноз социально-экономического развития Российской Федерации на 2016 г. и на плановый период 2017 и 2018 гг." - Минэкономразвития РФ, октябрь 2015 (The forecast of socio-economic development of the Russian Federation for 2016 and the planning period of 2017 and 2018. - Ministry of Economic Development, October 2015). URL: <http://economy.gov.ru/minrec/about/structure/depmacro/20151026> and "Российская экономика в 2015 г. Тенденции и перспективы". (Выпуск 37) – М.: Институт Гайдара, 2016. (Russia's economy in 2015. Trends and Prospects. (Issue 37) - Moscow: Institute Gaidar, 2016). URL: <http://iep.ru/ru/publikacii/7902/publication.html>

² See report "Восстановление экономического роста в России". Научный доклад. М., ИНИ РАН, 2016. - 32 с. (In Russian). URL: <http://www.ecfor.ru/pdf.php?id=dokklad>

corresponding economy-related works, we should mention, in the first place, the works of the outstanding Russian economist N. Kondratiev [Kondratieff and Stolper, 1935]. The theory of "long waves" by N. Kondratiev ("K-waves") has been sufficiently updated and adapted to today's realities [Полетаев, Савельева, 1993; Гринин, Коротаев, 2012]; many economists and experts are inclined to believe that the global economy has entered the Vth "K-wave", which may well be interpreted as a new stage of transformation of the global economy [Koshovets and Frolov, 2015].

Unfortunately, during the development of this theoretical construct, the proponents finally focused their main efforts on the improvement of mathematical tools - to the detriment of explaining the nature of cycle-like variations and recurring crises [Фролов, Ципко, Кошовец, Ганичев, 2011, p. 13-21]. In other words, there are many theories and models that somehow explain the social mechanisms of economic growth, but in practice, there are virtually no models to explain the question - what is that social mechanism, which helps economic recession turn into growth.

Therefore, the *key question* to be answered in the paper is the following one: by what means (i.e. theoretical, methodological and mathematical tools) can we describe the *transformation* of the mechanism of social growth to the mechanism of recession, and vice versa?

Prior moving to the solution of this problem, we should answer an interim question - whether modern macroeconomic models forecast the economic dynamics correctly. To do this, let us compare the expected and the actual dynamics of the global economy. As a representative example, let us consider the predictive modeling results of the macroeconomic models developed by the International Monetary Fund (IMF).

The generalized dynamics for a number of countries, including Russia, and the global economy is given in Table 1.

Table 1. Forecast and Final Estimates of Growth Rates for some countries and Global Economy throughout 2008–2017, provided by the IMF (PPP - purchasing power parity, Annual per cent change)³

Region/country	2008		2009		2010		2011		2012	
Date forecast/Fact	Oct. 2007	Fact	Oct. 2008	Fact	Sep. 2009	Fact	Oct. 2010	Fact	Sep. 2011	Fact
World	4.8	3.02	3.0	-0.51	3.1	5.41	4.2	4.22	4.0	3.46
Advanced Economies	2.2	0.16	0.5	-3.41	1.3	3.08	2.2	1.73	1.9	1.20
USA	2.3	-0.29	0.1	-2.78	1.5	2.53	2.3	1.60	1.8	2.22
Euro Area	2.1	0.47	0.2	-4.54	0.3	2.06	1.5	1.60	1.1	-0.88
EU	2.5	0.69	0.6	-4.29	0.5	2.02	1.7	1.83	1.4	-0.40
United Kingdom	1.9	-0.47	-0.1	-4.19	0.9	1.54	2.0	1.97	1.6	1.18
Italy	1.3	-1.05	-0.2	-5.48	0.2	1.69	1.0	0.58	0.3	-2.82
France	2.0	0.20	0.2	-2.94	0.9	1.97	1.6	2.08	1.4	0.18
Germany	2.0	0.81	0.0	-5.57	0.3	3.95	2.0	3.72	1.3	0.61
Japan	1.7	-1.04	0.5	-5.53	1.7	4.71	1.5	-0.45	2.3	1.74
Developing Economies	7.4	5.76	6.1	2.97	5.1	7.42	6.4	6.29	6.1	5.27

³ Methodological commentary. Relative forecasting and final GDP value coincidences are marked yellow. Criteria of relative forecasting accuracy: 1. Within the frames of a short-term forecasting (1 year): a) for statistic units ("World" and "Developing Economies") - a mistake up to 0.6% of GDP growth, for a statistic unit "Advanced Economies" - 0.4%; b) for separate advanced countries - 0.2%, for separate developing countries - 0.7%. 2. Within the frames of a middle-term forecasting (up to 4-5 years): a) for statistic units ("World" and "Developing Economies") - mistake up to 1.2%, for a statistic unit "Advanced Economies" - 0.8%; b) for separate advanced countries - 0.5%, for separate developing countries - 1.4%.

Russia	6.5	5.25	5.5	-7.82	1.5	4.50	4.3	4.26	4.1	3.51
Brazil	4.0	5.09	3.5	-0.13	3.5	7.53	4.1	3.91	3.6	1.92
India	8.4	3.89	6.9	8.48	6.4	10.26	8.4	6.64	7.5	5.62
China	10.0	9.60	9.3	9.20	9.0	10.61	9.6	9.46	9.0	7.70
South Africa	4.2	3.19	3.3	-1.54	1.7	3.04	3.5	3.21	3.6	2.22

Regions/years	2013			2014		2015		2016 (Forecast)		2017 (Forecast)	
Date forecast/Fact	Oct. 2008	Oct. 2012	Fact	Oct. 2013	Fact	Oct. 2014	Fact	Oct. 2015	Apr. 2016	Oct. 2015	Apr. 2016
World	4.7	3.6	3.28	3.6	3.41	3.8	3.09	3.6	3.2	3.8	3.5
Advanced Economies	2.5	1.5	1.16	2.0	1.83	2.4	1.88	2.2	1.9	2.2	2.0
USA	2.3	2.1	1.49	2.6	2.43	3.1	2.43	2.8	2.4	2.8	2.5
Euro Area	2.2	0.2	-0.3	1.0	0.89	1.4	1.64	1.6	1.5	1.7	1.6
EU	2.8	0.5	0.28	1.3	1.45	1.8	1.99	1.9	1.8	2.0	1.9
United Kingdom	3.1	1.1	2.16	1.9	2.85	2.7	2.25	2.2	1.9	2.2	2.2
Italy	1.3	-0.7	-1.75	0.7	-0.34	0.9	0.76	1.3	1.0	1.2	1.2
France	2.8	0.4	0.66	1.0	0.18	1.0	1.14	1.5	1.1	1.7	1.3
Germany	1.7	0.9	0.41	1.4	1.52	1.5	1.45	1.6	1.5	1.5	1.6
Japan	1.7	1.2	1.36	1.2	-0.03	0.8	0.47	1.0	0.5	0.5	0.0
Developing Economies	6.9	5.6	4.91	5.1	4.60	5.0	3.98	4.5	4.1	4.9	4.6
Russia	5.5	3.8	1.28	3.0	0.71	0.5	-3.73	-0.6	-1.9	1.0	0.8
Brazil	4.0	3.9	3.02	2.5	0.10	1.4	-3.85	-1.0	-3.8	2.3	0.0
India	8.0	6.0	6.64	5.1	7.24	6.4	7.34	7.5	7.5	7.5	7.5
China	10.0	8.2	7.7	7.3	7.3	7.1	6.9	6.3	6.5	6.0	6.2
South Africa	5.0	3.0	2.21	2.9	1.55	2.3	1.28	1.3	0.6	2.1	1.2

Source: World Economic Outlook Database. IMF: 2007-2016/
<http://www.imf.org/external/ns/cs.aspx?id=28>

As it is seen table 1 shows that before the last global crisis (October 2007), when it was just beginning in the financial sphere and economists hardly expected that it would escalate into an economic form in the autumn of 2008, the IMF forecasting model presented a cloudless future. Even in autumn 2008, when the crisis already started, the expectations of the IMF forecasters were still too optimistic: it was assumed that the developed countries and the global economy in general would have a *positive dynamics* in 2009. A declining trend was predicted only for several developed countries - the United Kingdom and Italy, and the decline in these countries was supposed to be *insignificant*.

However, the reality turned out to be *exactly the opposite*: for the first time in the postwar period, the global economy experienced a strong, albeit *short-term drop in production*, and the decline was surprisingly *significant*. Moreover, for 2013 (after moving out of the assumed recession), they predicted another round of fairly high global economic growth (4.7%). This suggests that in autumn 2008, the IMF experts expected, at best, a standard cyclical crisis of the global economy.

With regard to 2010, the projections for the recovery of national economies (even after considering the preliminary data on the results of the first half of 2010) also contain significant deviations from the actual data, but at a more pessimistic side. Moreover, it is clear from the example of 2012 that in the autumn of 2011, the IMF experts *did not notice any signs of incipient crisis* in some leading countries of Europe and the EU in general. As an exception, we can give an example of a quite exact match of the forecasted dynamics in the economy of China (it "did not notice" the global crisis) with the actual results. It should still be noted that the Chinese economy is very different from the economies of other countries and, by its name, is defined as a "market socialism with Chinese characteristics", i.e. a partly planned economy. Acceptable accuracy of short-term forecasting was temporarily restored in 2011-2014. However, already in 2015 and, more explicitly, in 2016, forecast estimates again contained too optimistic hypothetical assumptions about sustainable post-crisis growth.

Summing up, we can conclude that standard macroeconomic models for forecasting the dynamics of the global economy are quite efficient in the periods of sustained growth, but they are *of little use* for correct prediction *during a crisis period* and require introduction of hypotheses that are external in relation to these models. In the author's view, in the current situation (the situation of the year 2016), extrapolation of already existing trends also *looks unjustified*, since such forecast estimations implicitly assume that the nature of the present crisis is understandable and the global economy will successfully develop till a new cyclical crisis. This is clearly seen from the IMF forecast estimates for 2016-2017, which suggest another increase in the rate of economic growth.

On the contrary, the author's opinion is built on the basic hypothesis [5, p. 102-109] that the global economy is *at the stage of global system restructuring*, which is comparable to the Great Depression of the 1930s (and partly to the sequence of crises of the 1970s) in terms of its consequences (including the new historical realities); in turn, it must be accompanied by "a series" of renewed crisis waves eliminating the accumulated imbalances. It is important that actual systemic *global economy restructuring is not reduced to crisis events* but involves formation of new types of capital, technological progress, including new types of innovations, etc. [Koshovets and Frolov, 2015].

To clarify the core hypothesis of this work, it is expedient to problematize the bases of traditional economic theories. To begin with, our study proceeds from dissimilarity of such spheres of activity as *economy* and *household* (the Russian term "народное хозяйство" is virtually a loan translation of the German term "Volkswirtschaft"). In modern literature, "Volkswirtschaft" and "national economy" are used interchangeably, but they are not convertible in terms of the history of some scientific traditions. As long ago as in the XIX century, the German concepts of "Oekonomie" and "Wirtschaft" existed as complementary. That is why in the works of some German and Austrian authors (for example, the German historical school of political economy, the works of K. Marx, etc.), there was sometimes a relatively fine line between the theory of economy (Ger. - "Wirtschaftstheorie"), which implied analysis of "production for themselves", and political economy (Ger. - "politische Oekonomie"), which generally considered the problems of the relations of production primarily through the prism of *the commodity economy and market exchange*. The tradition of French and Italian economic schools is not the same, although some prominent French and Italian researchers also sought to identify differences between "Wirtschaft" and "Oekonomie". In particular, Fernand Braudel, a well-known researcher of the history of economic development, repeatedly emphasized the diversities of "material life" (Fr. – "vie matérielle") and the associated "primary economy" (Fr. - "économie très élémentaire"), as a "non-economy" different from the "economy" in its usual sense for the French reader [Braudel, 1986, p. 7]; G. Arrighi, an Italian economist and sociologist, definitely links the development of bourgeois economy with expansion of economic elements, calling pre-capitalist production system "non-economic" [Arrighi, 1994, p. 10].

Unfortunately, the British and American tradition of theoretical study of economics is not adapted to distinguish these entities. While the German-speaking political economists of the XIX century differentiated the system of social production as a set of economic and technological relations (Ger. - "Volkswirtschaft") and the national economy as a given phenomenon opposing other existing economies of the world (Ger. - "Nationaloekonomie"), the English-language authors apply the concept of "economy" *to refer to any economic activity*, which is reflected, for example, in the term

"household economy". Absence of a notion, which might be complementary to "economy" and discern its limited meaning in the English language, leads to the fact that doubts about the *immutability and eternity* of the social *phenomenon* referred to as "economy" are almost unknown to English-speaking economists and sociologists. It is fair to say that several prominent English-speaking authors, specialists in the history of economic relations, are still trying to trace these differences (e.g., K. Polanyi [Polanyi, 1994]). Unfortunately, it is rather an exception, and most contemporary German authors have long switched to the understanding accepted in *the mainstream*.

However, the subject of our research requires distinguishing *economy* and *household* as spheres of activity that constitute different "volumes" of social reproduction. Thus, when K. Marx speaks of the category of "household", he considers, first of all, *the reproduction of the material conditions* of human beings inside a group (in a family, community, at an enterprise). One of the key features of the household sphere is to ensure *recreation* of human capital production (production of man) not only as a subject, but as an independent object of activity, i.e. restoration of the human forces and capabilities, which are *consumed* in the sphere of social production (i.e. in *economy*) in terms of labor force. It is clear that today's production of man is enhanced in comparison with subsistence production and includes consumption of purchased goods and services generated by the modern economy. But, in historical perspective, the overwhelming proportion of the products was created within a community, and only some part was acquired by barter.

Taking into account this theoretical position, let us take **household** as a certain integration of production and consumption *within* an economic social entity (enterprise, family, etc.) and *outside* market relations.

Let us now look at it from another angle. The dominant neoclassical economic theory is implicitly built on the premise that all economic processes are *homogeneous* from the viewpoint of a unified type of wealth - *value*. But, this statement was not regarded equivocally in historical perspective - initially wealth had subsistence forms and was *non-homogeneous*, for example, land, livestock, weapons, slaves, precious metals, etc. The basic type of relationship is historically called "household" (in particular, a subsistence one, but almost always an exchange one historically). Household reproduces the material conditions of society (products and services), *appropriating* the objects of nature, but *does reproduce value*; the reproduction of *exchange value* (Ger. - "Tauschwert") in the exchange household is of local and subordinate nature associated with the appropriation of labor (slaves) from the outside world. The modern economy is formed as a dynamics of social production (i.e. as expanded reproduction of value) Only after the appearance of such a complex social objectivization as *productive capital* (the first historical form is manufacturing industry). In other words, economy is originated via *separation of* monetary household and starts extensive reproduction of *value* during the formation and objectivization of productive capital. In addition, capital creates a new type of appropriation - *the appropriation of technological mode of production*, which generates new *heterogeneity* of the global economy – **technological heterogeneity**.

Here capital is considered not as money, means of production or property (assets) - but as the moments of its cycle flow. In other words, capital in the framework of cyclic production changes its form: production form, commodity form and monetary form. This means that **capital** is *the kind of social integration* (a higher level of interaction), which unites local manufacturers and markets. Thus, local production and markets turn into subordinate moments of capital reproduction (functioning). (Analogy: cells in the organism have some independence, but they possess a less and reduced set of functions compared to independently existing bacteria).

To summarize the results above, we should answer the question: how is it possible to briefly distinguish economic and non-economic notions? Distinction is possible through determining the reproduction of *value* as one of the *types of wealth*:

1. **Household** (the case where wealth exists in a subsistence form and *inhomogeneous*) is a reproduction of the material conditions of social subjects' "lifestyle" (communities, families, companies, etc.). Household *appropriates* objects of nature and organizes food production and consumption *for itself*, i.e. it does not reproduce *value*. In addition, households ensure integrity of

"short" (or topologically "close") social ties between the members *inside* this local household. Developing on the base of exchange household historically, there emerges and segregates an independent social objectification - the *market*, which generates *monetary relations* in line with the development of the state.

Thus, household systems (such as those of Antiquity, for example) is *a complex synthesis* of household as a parent (primary) reality and the market economy, i.e. *proto-economy*, which arranges a new type of integrity of "long" (and "prolonged" in time) social links *between local households* (communities, companies, etc.).

2. **Economy** appears as a *separation* of monetary household (and becomes autonomous from the complex synthesis of the household as a "basis" and proto-economy as a "superstructure") on the base of reproduction of capital relations and starts extensive reproduction of *production-for-others* ("social production"), i.e. *extensive reproduction of value*.

Thus, household is production and consumption of products *within* a complexly organized social entity (enterprise, community, family), and economy is an additional level of interaction and integration *between* local economic agents through market relations. Exchange household is primarily a production and consumption for itself, but there are surplus products that are exchanged between communities and, in some cases, within the complexly organized public entity. Historically, in the process of exchange household monetization, the generated level of prices was substantially *lower* than the price of a developed market. Archaic forms of households are a part of today's global economy. Researchers, including Fernand Braudel, note that they are present not only on the periphery, but also, for example, as subordinate inclusions in compound economies of corporations. Such economic relations, which are closely connected with the relations of exchange household, may be termed "primary economy" (already mentioned above) that allows, for example, introducing so-called funds transfer pricing. Economy as such fundamentally changes the definition of objectives and the results of social reproduction: *production-for-others* (not for itself) turns out to be dominant and the market becomes a necessary and organic condition for reproduction of economic relations.

This paper also suggests that **a new type of wealth** is being established now – the one based on expanded reproduction of *financial assets*. Reproduction of financial assets creates additional type of appropriation - *appropriation of surplus capital in monetary terms*.

Now we need to move from abstract definitions to an analysis of recent developments in the global and Russian economy.

2. DEVELOPMENT TRENDS OF THE GLOBAL AND RUSSIAN ECONOMY

2.1. Global trends

From the analysis of Table 1 and a number of other sources [Global trade watch: trade developments in 2015; International Debt Statistics 2016; Trade and development report, 2015], we can determine the following:

1. After the so-called "post-crisis rebound" of 2010, in 2011-2016, the rates of global economic growth have been steadily reducing - from 4.2% in 2011 to, most likely, less than 3.0% this year. Meanwhile, after the conjunctural increase in 2014-2015, the developed countries are again falling into a recession - slowly, but consistently, and economic growth in developing countries slowed down almost 1.6 times in the analyzed period.

2. Preliminary estimates of world trade show that the volume of imported goods and services in 2015 grew by only 1.7% compared to 2.8% in 2014 [Global trade watch: trade developments in 2015, p. 3]. According to OECD statistics, the world exports increased by 2.6% in 2015, but already in the 1st quarter of 2016, it decreased by 0.2% in annual terms. All this is considerably lower than the average annual growth rates of 5.1% in 1990-2000 [Trade and development report, 2015]. Weak, although positive, growth of the world trade in goods in 2015 is an increase in its natural volume; the international trade indicators of value, according to preliminary estimates, significantly reduced - from

19 to 16.5 trillion dollars. This is an effect of significant currency exchange rate fluctuations and *the fall in commodity prices* caused by the deployment of the crisis. According to the World Bank's reports "Commodity Markets Outlook", there was a decrease in nine price indexes for core commodities in 2015.

3. According to the World Bank, private investment in infrastructure projects in the energy sector for 2015 *declined by one third*, amounting to only 111.6 billion USD.

4. After the financial crisis of 2007-2009, the central banks of Denmark and Sweden (in 2012), the Swiss National Bank and European Central Bank (in 2014), and the Bank of Japan (on February 1, 2016) introduced *a negative interest rate on deposits*. This means that banks have limited opportunities to place their assets profitably; consequently, the sources for payment of interest on passive operations have disappeared.

5. According to the World Bank, the total inflow of capital in the countries with low and middle income amounted to 1 132 billion USD in 2014, including 667 billion USD of direct and portfolio investments and 464 billion USD of loans and credits [International Debt Statistics 2016, p. 19]. Taking new loans and credits by developing countries becomes a source of constant growth of their external debt. Here is the dynamics of the external debt of these countries in recent years: 2000 – 1 743 trillion USD, 2005 – 2 091, 2010 – 3 631, 2012 – 4 564, 2014 – 5 392 trillion USD. Thus, the amount of external debt at current prices has increased by 3.1 times for about fifteen years. The debt situation in developed countries is even worse: over the five-year period (2010-2014), the gross external debt of economically developed countries increased by 6 trillion USD, or 8.5%, and reached 70 trillion USD. According to the World Bank, the ratio of the gross external debt in economically developed countries to their GDP indicator was equal to about 140% in 2014. This is 6.3 times higher than the ratio of countries with low and middle income. In Canada, this indicator is 83%, in Germany - 145%, while in the UK it is 313% [International Debt Statistics 2016].

6. The ratio of the world trade growth rate and the growth of the world output changed in the opposite way in 2012-2015. For nearly a decade before the financial crisis of 2007-2009, international trade had growth rates that exceeded the growth rates of the world gross domestic product approximately twice. In 2012 the situation was reversed and the growth rates of the world trade *fell behind* the world economy growth rates calculated according to PPP [Global trade watch: trade developments in 2015, p. 5, 20].

2.2. The USA and European Union

The latest trends of the US economic development in 2016 are as follows⁴:

1. According to preliminary data for the 2nd quarter of 2016 from the Ministry of Commerce, the US GDP has increased by 1.2% vs. the similar period of the previous year, which is twice *lower than expected* growth rates. The indicators were poor because of investments, the volume of which decreased by 3.2% in April-June. In the 1st quarter of 2016, the GDP increased by 0.8%. Such a weak growth occurs despite the fact that the model for the calculation of the US GDP was changed in 2015 – so that the beginning of the year should have looked better. Without such "adjustments", the statistics would have probably showed negative growth at the beginning of 2016.

2. The volume of industrial production has been constantly falling down in the current year. It decreased by 0.7% in June, by 1.1% in April and May, by 2.0, 1.0 and 0.7% - in March, February and January, respectively (vs. the similar period of the previous year). It is clear that the growth of the US economy in 2016 will be complicated by the weakness of the industrial sector. The decline in production volumes continues because of oil and gas production from unconventional sources.

3. In June 2016, the unemployment rate increased up to 4.9% of the economically active population, the rate of job creation in the 2nd quarter of this year was the lowest since 2012.

⁴ See data on Bureau of Economic Analysis U.S. Department of Commerce. URL: <http://www.bea.gov/>

4. The total sales in business have been falling for almost two years, and now they are about 15% lower than they were at the end of 2014. The profit of companies from the S&P 500 list lowered by 7.1% in the 1st quarter of 2016 compared to the same period one year ago. Corporate income decreased in the last four quarters. In April, the US railway communication shrank by 11% compared to April 2015 [Durden, 2016].

Incomes differentiation is growing. The recent data of the US Internal Revenue Service (IRS) show that in 2015, the income of 99% of families increased by 3.9% compared to 2014. However, the income of families in the top 1% of the population grew even faster; it increased by 7.7% over the same period. After a sharp decline by 11.6% from 2007 to 2009, the real income of 99% of families showed a small increase of 1.1% in the period from 2009 to 2013, followed by another increase of 6% from 2013 to 2015. Thus, six years after the end of the crisis of 2007-2009, these families regained only about 60% of income losses, in contrast to the families who are at the top of the "income scale".

Income disparity in the USA has reached very high levels. Fig. 1 demonstrates that income (adjusted for inflation) of 1% of families increased from 990 thousand USD in 2009 to 1.36 million USD in 2015 (37%). The income of 99% of families grew by only 7.6% - from 45.3 thousand dollars in 2009 to 48.8 thousand dollars in 2015. Consequently, 1% of families earn 52% of the total real income growth per family from 2009, and 99% - only 48% of the total growth in real income.

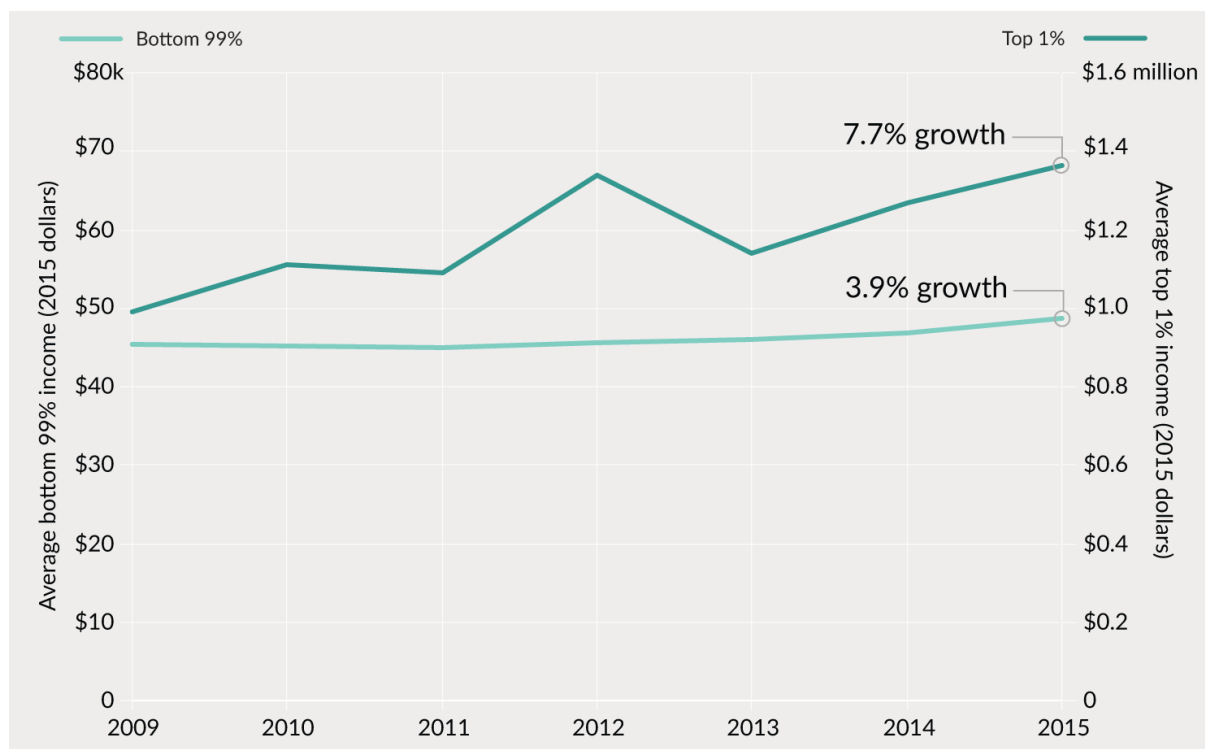


Fig. 1. Dynamics of income for the top 1% of the US population in 2009-2015

Uneven recovery of income has proceeded along with the long-term expansion of disparity since 1980, when 1% of families began to take a disproportionate share of the economic growth. The recent trends in the economic development of the European Union in 2016 are as follows⁵:

1. The EU GDP of the 2nd quarter of 2016, according to preliminary data, has increased by 1.8% vs. the 2nd quarter of 2015, or by 1.8% - in the 1st quarter of 2016 (the GDP of the Eurozone - by 1.6 and 1.7%, respectively). In particular, the German economy grew by 1.7% in the 2nd quarter and 1.8% in

⁵ Eurostat. URL: <http://ec.europa.eu/eurostat>

the 1st quarter; France's GDP rose by 1.4% in the 2nd quarter and 1.3% in the 1st quarter. The best result on the continent is Romania's (5.9% in the 2nd quarter and 4.2% - in the 1st), Slovakia's (3.75 in both periods) and Spain's (3.2% and 3.4%, respectively). Greece is at the other end of the pole: its GDP in the 2nd quarter of this year has decreased by 0.7% in comparison with the similar period of 2015 and by 0.85 – in the 1st quarter.

2. The rate of unemployment in the euro area continues declining. It amounted to 10.1% of the economically active population in May and June, after 10.2% in April; it is the lowest level since 2011.

3. The Eurozone industrial production in May 2016 decreased by 1.2% for the month and increased by 0.5% for the year (in April it was +1.4% and + 2.2%). The EU industrial production in general is - 1.1% and +1.1%; in April it was +2.0% after 0.2% in March; growth was observed in all commodity groups.

2.3. Russia

The Russian economy is at the stage of a protracted recession. The current crisis has evolved in several stages⁶:

The first stage (the 4th quarter. of 2014 – the 1st quarter of 2015) is characterized by:

- A sharp drop in the ruble exchange rate;
- Deferred turnover decline, after its conjectural jump at the end of 2014 (on expectations of further ruble devaluation);
- Growing load on company incomes from foreign debt payments, reducing opportunities for debt refinancing;
- A tight monetary policy by the Central Bank of Russia (high interest rates) that was designed to discourage the pressure on the ruble exchange rate;
- Rapid decline in investment due to a combination of negative factors (reduced availability of investment resources, reduced motivation to invest because of the disparity between the yields on financial assets and business profitability);
- A significant drop in imports in the domestic market (the share of imports in the retail market decreased from 43-44% in 2010- 2013 to 38% in 2015).

The main content of the state anti-crisis policy at the end of 2014 - the first half of 2015 was an attempt of pointwise prevention / suppression of the most severe crisis manifestations. Major efforts were made to exclude a wave of companies' bankruptcies (mostly large ones, with foreign currency credits) under the ruble weakening and limited refinancing opportunities, especially in terms of external debt refinancing.

The extremely tough refinancing rate policy that was conducted by the Bank of Russia at the end of 2014 (increase in the key rate from 9.5% to 17% per annum) caused credit market contraction and a sharp jump in defaults on bank loans, including corporate loans, which form the base of the loan portfolio of the banking system. At the same time, this increase led to a large-scale increase in banks' interest expenses on borrowed funds, which banks were not able to compensate by producing higher interest income. In total, this led to banking sector losses, which, in turn, resulted in banking system decapitalization.

At this stage, the Russian government expected that the situation would stabilize soon and that after the completion of the corrective decline in final demand and production, it would be possible to expect

⁶ See report "Итоги 2015 года и прогноз экономического развития на среднесрочную перспективу". - ЦМАКП, апрель 2016. (Results of 2015 and forecast of economic development for the medium term. CMASF. April 2016). URL: <http://www.forecast.ru/>

macroeconomic stabilization and, eventually, return to growth - by the beginning of 2016. This did not happen in reality, although in the 2nd and 3^d quarter of 2015 there was a brief macroeconomic stabilization.

The second stage (the 4th quarter of 2015 – 1st half of 2016):

In the 4th quarter of 2015, after a drop in oil prices, *the second wave of the crisis* begins. The decline in world prices was an important signal for the Russian companies that the crisis got prolonged. This additionally coincided with another peak of payments of the foreign debt and the seasonal maximal demand for imports. The result was a new wave of the ruble devaluation and the crisis of confidence in macroeconomic stability. Simultaneously, there remained the tendency to a decrease in investments in fixed assets (a drop of more than 15% compared to the summer of 2013), due to the contraction of financial resources, and a disparity in commercial profitability and interest rates.

According to the RF Ministry of Economic Development, the decline in the Russian economy in the 1st quarter of 2016 amounted to -1.2% to the corresponding period of 2015, and in the 2nd quarter - approximately -0.6%. The slowdown in the economic downturn of the 2nd quarter occurred mainly under the influence of industrial production, transportation, agriculture. Construction and retail trade continue to provide a negative impact. The average unemployment rate for the 1st half of the year is 5.7%⁷.

According to Russia's Federal State Statistics Service, the industrial production index has been increasing steadily since the 2nd quarter (from 100.5% in April to 100.7% in May and 101.7% in June), but this is due solely to the "base effect" – a decrease in production during the 2nd quarter of 2015. The estimates of the Center for Macroeconomic Analysis and Short-term Forecasting (CMASF) are more correct as it possesses a more accurate algorithm of registration of calendar and seasonal factors and elimination of counting errors. The estimates show that since the winter of 2016, the Russian industry has experienced a sluggish stagnation with the minus sign. In the 1st quarter of 2016, the decline in industrial production vs. the corresponding period of 2015 amounted to -1.4%, and in the 2nd quarter of 2016 - -0.9%⁸.

What are the results of the crisis?

The crisis resulted in the formation of a "new poor" population layer. The level of food consumption fell to the level of the beginning of 2008. It is important to note that the consumption of non-food items, "dipped" much less - just to the level of mid-2011, which is a sign of a sharp growth of the population differentiation by income. During 2015, the share of the poorest became more than double (from 4% to 9%), while the share of the poor increased from 18% to 30%.

Contraction of incomes in the budget system in unfavorable external economic conditions (there was a reduction of oil and budgets - from 9.5% of GDP in 2014 to 7.3% of Russia's GDP by the end of 2015) and under an economic downturn against the background of continued high spending needs (the income of the budget system and the economy in general that are hardly elastic to contraction) has led to the emergence of chronic budget deficits⁹.

The interim findings from the analysis of the world economy dynamics are as follows:

1. In 2014, the global economy entered a phase of growth inhibition after the post-crisis rebound. Although forecasts of international institutions for 2016-2017 suppose a dynamics increase, they are

⁷ See report "О текущей ситуации в экономике РФ по итогам первого полугодия 2016 года". - Минэкономразвития РФ, июль 2016. (On the current situation in the Russian economy in the first half of 2016. - Ministry of Economic Development, July 2016). URL: <http://economy.gov.ru/minec/about/structure/depmacro/20160728>

⁸ See report "О производстве промышленной продукции в июне и втором квартале 2016". - ЦМАКП, июль 2016. (On the industrial production in June and the second quarter of 2016. CMASF, July 2016). URL: <http://www.forecast.ru/>

⁹ See report "Итоги 2015 года и прогноз экономического развития на среднесрочную перспективу". - ЦМАКП, апрель 2016. (Results of 2015 and forecast of economic development for the medium term. CMASF, April 2016). URL: <http://www.forecast.ru/>

most likely too optimistic. The key problem is the exhaustion of modern-type economic development based on an unprecedented build-up of a debt pyramid that no longer stimulates the growth of the real production sector.

2. For the United States and the European Union, the possible scenario is a significant slowdown from the 4th quarter of 2016, low industrial output, a deceleration of the job creation rate.

3. India and China slow down their economic growth. It is assumed that India will overtake China in terms of growth in 2015-2016, but then the country can expect a deterioration of the economic situation.

4. Japan's economy is teetering on the brink of recession. Brazil, as well as Russia, is in a crisis situation.

5. The Russian economy began to slide into an autonomous recession already *in the autumn of 2013*, although the crisis moved into an open form only in the autumn of 2014. The working hypothesis of the study is that till the end of 2015, the development of the crisis phenomena in the Russian economy was of independent nature due to the structure and characteristics of the country's economy reproduction. From about the winter of 2016, the expanding crisis phenomena have been provoked by the still sluggish global economic crisis that started with the crisis of overproduction in the raw material sectors in 2015.

3. HYPOTHESIS ABOUT TRANSFORMATION OF THE SOCIAL MECHANISM OF DECLINE DURING RECESSION TO THE MECHANISM OF ECONOMIC GROWTH

In view of the above, we can formulate the hypothesis of the global economy functioning:

- The global economy is a complex, heterogeneous synthesis of various types of societal objectivizations - local households, economy per se, finance and financial assets;
- This synthesis is dynamic in principle, with a relatively balanced growth at the beginning of each business cycle: economy stimulates the development of the world household, and the development of finance and financial assets stimulates the progress of economy;
- However, capital (including its financial form) develops *faster* than its basic material productions (including household relations), resulting in accumulation of new imbalances.

The sphere of financial assets is respectively growing *faster* than the world economy due to a social mechanism of cost appropriation in the real sector at the expense of expanded reproduction of debt. Besides, debt are accumulated, according to some data, during 20-25 years prior a crisis, which is significantly longer than the classical business cycle (7-11 years).

Each new configuration in all these types of societal objectivizations within another period of economic development is *unique*. In the framework of every configuration, the combination of specific types of capital ultimately produces conditions that provoke a new crisis.

Global financial and economic crises should be considered as destruction processes in such configurations (temporary syntheses) of reproducing and interacting societal objectivization. After another global crisis, which partially eliminates the disproportions associated with overproduction of various capital types, there is a new synthesis that provides opportunities for further expansion of the global economy and global finance, due to:

- The growth of a specific part of households (material productions);
- Destruction of not yet fully capitalized households.

Moreover, these crises are characterized by depreciation of all types of riches:

- Reduction of commodity production (with possible deflation), as well as cash devaluation;

- Impairment of all types of productive capital, including bank capital; it is reflected in the increase of interest rates on loans for the elimination of risks;
- Depreciation of financial assets (stock markets falls).

The current crisis that has hit the global economy is not a classical economic crisis since it is actually triggered by financial over-accumulation, and not by over-accumulation of productive capital.

To describe the development of the global economy during the crisis period of 2007-2009 and in the post-crisis period, we use the methodology of decomposition of the "potential", "structural" and "actual" growth [Синельников-Мурылев, Дробышевский, 2015, p. 7-55], but we should re-interpret it in accordance with the theoretical conceptual system proposed here.

The essence of the quantitative interpretation of the crisis reconstruction lies in the hypothesis, which assumes that the financial crisis of 2007-2008 provoked an economic crisis too early, because economic problems in the global economy were to begin later - by about 2011. As a result, there was a "shift" of the global economic crisis to an earlier date (Fig. 2).

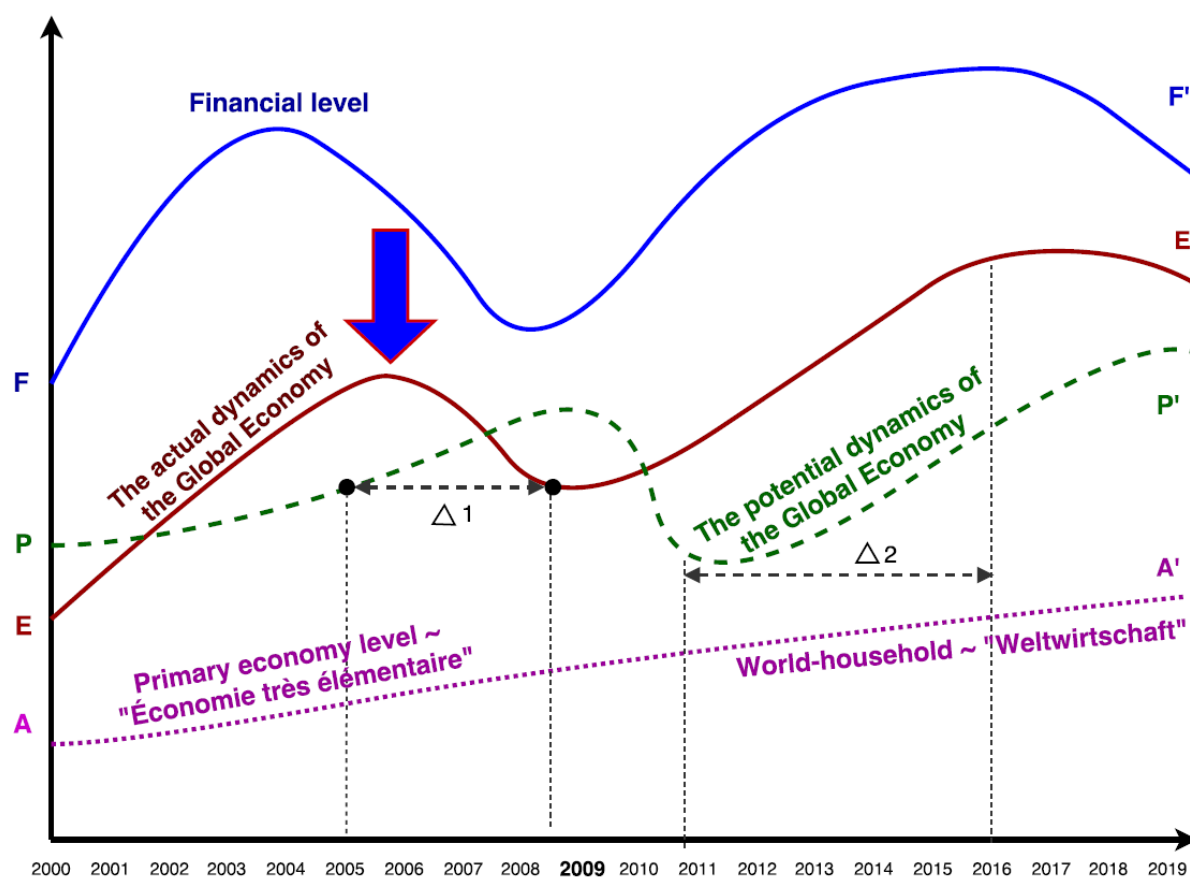


Fig. 2. Conceptual scheme of the growth potential "shift" and the time of global economy recession¹⁰

¹⁰ Legend: F-F' – the level of the upper limit of financial assets reproduction; E-E' - the level of the actual dynamics of the global economy per se; P-P' - the level of the potential dynamics of the world economy; A-A' - the level of "support" of the world economy fall; it is the lower limit of primary economy reproduction based on the reproduction of the "world household".

Accordingly, the hypothesis of a "shift" in the start of the global economic crisis is as follows:

1. The potential growth of the world economy within the business cycle could have continued till about 2010-2011. In this time interval, the potential for economic growth would have been exhausted and a classical economic crisis would have occurred. But in 2007-2008, there emerged and started a crisis of overproduction in the sphere of financial assets (accumulated since the beginning of the 1980s.). This financial crisis caused a premature decline of the global economy in general (in 2009) and rolled the global economy back to about the level of 2005-2006 (Δ_1) (see Fig. 2), which created a conditionally alleged "unscheduled" potential for its development.
2. Simplified evaluations showed [Фролов, Ципко, Кошовец, Ганичев, 2011, p. 102-109] that this situation's "shift" of potential growth (Δ_2) was such that a new (economic) crisis in Russia would have happened in 2012-2014, and a crisis in the global economy – approximately in 2014-2016 (but it could have shifted "to the right" along the time axis because of the "super soft" monetary policy by the Federal Reserve System - FED).
3. Economic crisis considered in the framework of the theoretical construct used in this work is a process of *depreciation* of over-produced capital, which, in particular, means overproduction of goods and, consequently, an excessive increase in the *stocks* of unsold products. De facto, it is a process of *contracted* cost reproduction (economy per se), revival of barter relations, etc. Accordingly, economic agents have to sharply *decrease* relative prices (including *below* the level of the local equilibrium cost), in order to gain at least minimal revenue from reduced production.
4. After that, there begins a *non-uniform* increase in *productive consumption* of local households: acquisitions (at net book value) of production means by surviving companies in case of bankruptcies, and family purchases of consumer products (including complex equipment) at ultra-low prices on sales.
5. *Expansion* of the "world household" (as a set of local households, i.e. an increase in the number of consumers for a certain product type (both private and industrial) with a relative decline in prices) *creates a new base* for future expansion of economic activity. Based on the expansion of the world household, a new "primary economy" appears. For its reproduction, it prices that are significantly lower than previous prices (before the crisis).
6. Besides, there is a reorganization of economic relations and the emergence of new fields of activity (new structures) and, consequently, new types of capital; they start to grow faster than the economy in general.

In other words, the decline of the economy is a phase of *destruction* of "old" economic relations. *At the same time*, it is a phase of *expansion* of the world household and the formation of "new" economic relations, having a certain potential for development.

In this context, the formation of "new" economic relations can be seen in a broad sense - as certain types of innovation. Distinguishing innovation of type I and II was described by the author earlier [Frolov, 2012]; it has been also updated [Фролов, 2016]. Innovations vary in terms of the movement of productive innovative capital (*innovations of type I*) and in terms of the movement of financial (venture) capital and (*innovation of type II*) [29, p. 109-113]. Within such a theoretical position, *innovation in the Schumpeterian sense* is also determined in another way: as a process of emergence and formation of new spheres of human activity associated with the appearance of key inventions (socially significant for a particular period of history and society). These new spheres of activity are formed basing on the development of productive capital, which, in turn, objectifies the method of advanced technologies application (including getting technical knowledge on commercial development of advanced equipment and technologies) in the final links of the material structure of the global economy [Frolov, 2012, p. 134-135].

Based on the results outlined in the studies [Koshovets and Frolov, 2014; Koshovets and Frolov, 2015; Frolov, 2012, Фролов, 2016], in the framework of the task indicated at the beginning of this paper, we can summarize everything mentioned above and make a brief conclusion that the specific conditions of the world economy in 2011-2016 and the duration of future crises will postpone the period of rapid

introduction of new-generation innovations. In other words, the emergence of an "innovation pause" in the early 2010s is not accidental; it will last at least for 10-15 years and may end, at best, by the mid-2020s. The effectiveness of a new "wave" of innovations will be lower than that of the innovations of the 1960-1990s.

The sluggish crisis of the global economy in the winter-summer of 2016 can turn into an open phase quite quickly (within a few months). It is unknown, which sector of the world economy and in what country will "trigger" the beginning of the crisis. The banking systems of the EU countries are possible candidates, especially the system of Italy (for example, banks Intesa Sanpaolo, Banka MPS, Mediobanca and UniCredit) and, partly, Germany (in particular, Deutsche Bank). It can be proved by the data from the European Central Bank (ECB) that about 1 trillion EUR (9% of EU GDP) of non-performing loans are on the balance of European banks, including 360 billion EUR in Italy; the average share of non-performing loans in assets is 7.1%.

4. CONCLUSIONS AND SUMMARY

4.1. The analysis of the situation in 2016 and the preceding development in 2011-2015 shows that the extrapolation of current trends seems unrealistic, because the global economy is likely at the stage of *a new global systemic restructuring* that will be accompanied by "a series of" crisis waves. But the systemic restructuring of the world economy *cannot be reduced to crisis*; it involves the formation of new types of capital, including possible new types of innovations.

4.2. After the so-called "post-crisis rebound" in 2010, the global economic growth has been steadily declining in 2011-2016. After the conjunctural increase in 2014-2015, from 2016, the developed countries are falling into a recession again - slowly, but consistently. The Russian economy began to fall into an autonomous recession already in the autumn of 2013, although the crisis became open only in the autumn of 2014. Approximately in the winter of 2016, the deepening crisis of the Russian economy was provoked by international crises phenomena, which had already begun with the crisis of overproduction in commodity sectors.

4.3. The peculiarity of reaction of governments and international organizations to the incipient economic crisis is omni-directional and inconsistent ongoing macroeconomic and institutional measures, due to the lack of understanding the nature of the current changes.

4.4. The dynamics of new crises events (2015 and later) will be *different* compared to the financial and economic crisis of 2007-2009:

- Crisis began as a low-intensity crisis of overproduction in raw materials (mining) sectors (autumn 2014 - winter 2015);
- At the moment, the crisis gradually covers "higher" (in terms of material redistribution) sectors of the world economy; they will finally take over the sphere of financial assets;
- The stock markets may collapse in the relatively near future, which, in turn, will deepen and expand the economic crisis;
- The new crisis will linger more than the crisis of 2007-2009.

4.5. The long duration of future crises will postpone a period of rapid introduction of a new-generation innovations. An "innovation pause" will last at least till the mid-2020s. The effectiveness of a new innovation "wave" will be lower than the effectiveness of the innovations in the 1960-1990s.

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