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Artificial Intelligence as an Important Factor of Sustainable and Crisis-Free Economic Growth

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Abstract

Artificial intelligence as a factor of competitiveness growth is beginning to be widely used by leading companies today. The potential for introduction of artificial intelligence into the national economy system is enormous and cannot be limited to individual companies. First of all, it is the possibility of strategic planning on the scale of the entire economy, that is, the search for optimal models of sectoral balance sheets, building target indicators for large businesses, forecasting of aggregate demand and supply, optimization of the monetary-crediting system, etc. Thus, introduction of strategic planning based on artificial intelligence into the national economy system, would build a model of extended reproduction, without distortions between different sectors of the economy, and thus implement a model of its sustainable, crisis-free growth.

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1. Introduction

Nowadays there is no unambiguous approach to the method of managing the national economy. On the one hand, the liberal concept of state non-interference in the economy, the so-called modern mainstream, dominates. On the other hand, state regulation is welcomed, although the limits of such interference are uncertain.

One of the weaknesses of the modern mainstream is the lack of theoretical concepts for explaining economic crises, social differentiation and unemployment. Relying on Say's law, Pareto optimality and other concepts that prove the market effectiveness, capitalism exacerbates its inherent contradictions. In fact, market economy is developing cyclically, for example, the US economy has been developing cyclically over the past 160 years according to Statistical Abstract. Moreover, half of this time was spent on crises, depression and recovery, which indicates the inefficiency of capitalism.

2. The impact of economic cycles on reproduction

The worst indicators in the ratio of the phases of the cycle fall on the period of 1854-1919, when the mechanism of free competition acted as the regulator of the economy. For 1 month of production decline in this period, only 1.2 months of economic growth accounts for.

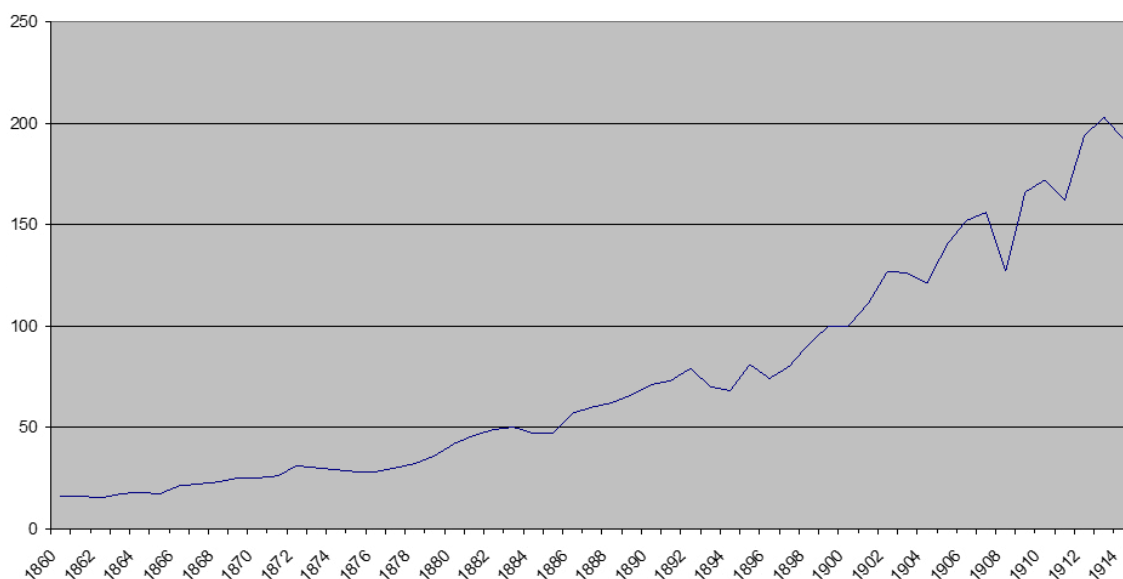


Fig. 1. Dynamics of industrial production in the USA (% vs years) [2].

Fig. 1 shows that the progressive development of the US economy from 1860 to 1914 was periodically interrupted by economic downturns which intensity increased at the turn of the 19th and 20th centuries, when monopolistic giants — the largest capitalist corporations — began to take part in “free competition”.

The culmination of this trend was the Great Depression of the 30s. The 20th century is marked by the deepest and longest global economic crisis in the history of capitalism which was the result of spontaneous market regulation of the world economy by national and international oligopolies and monopolies which put the capitalist economy on the brink of complete collapse. Nevertheless, in the period between the two world wars (1919-1945), the ratio between negative and positive economic dynamics improved somewhat: 1 month of decline in this period accounts for 1.9 months of economic recovery. In general, this period is characterized by faster economic growth than during the period of free competition, but also deeper economic crises (Fig. 2).

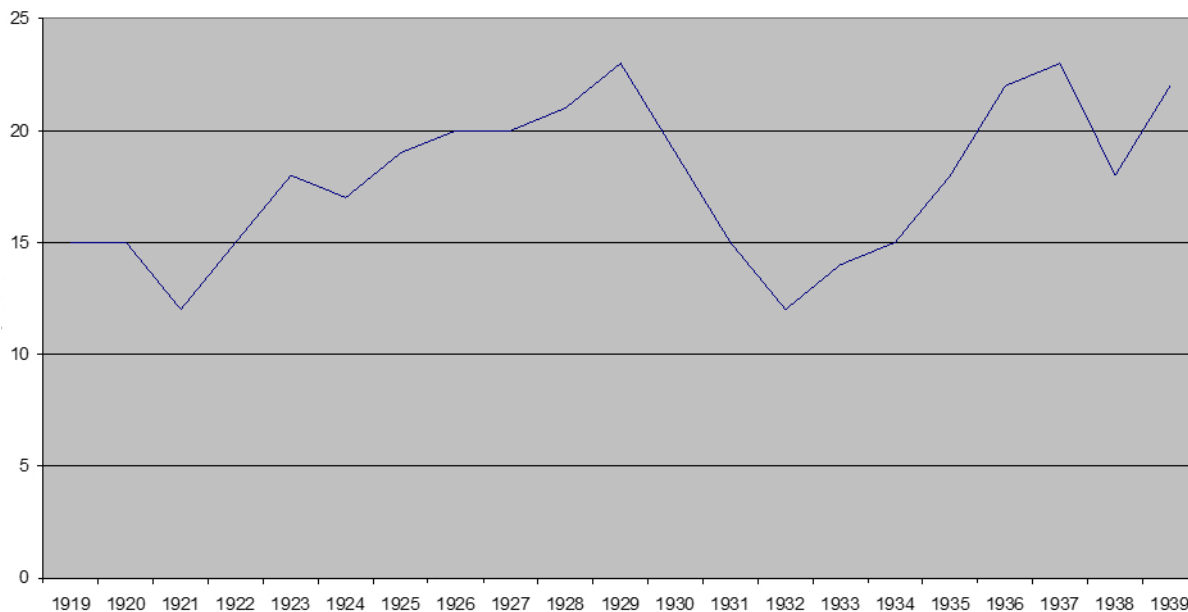


Fig. 2. Dynamics of industrial production in the USA (% vs years) [2].

After the Great Depression, the developed capitalist countries were forced to supplement the spontaneous market regulation of the economy with state regulation which necessarily supposed a gradual change in the nature of appropriation. Private appropriation was increasingly supplemented by state appropriation of the results of social production.

According to the World Bank, at the end of the 1990s, the most economically developed countries (united in the Organization for Economic Cooperation and Development - OECD) mobilized about 50% of their GDP into their state budgets.

The development of state appropriation somewhat softened the acuteness of the main contradiction of capitalism, however, did not overcome it.

3. The impact of economic cycles on reproduction

The ultimate goal and driving motive under capitalism is the maximization of profit which dominates both production and also reproduction. As noted by R. Luxemburg, that profit affects: "...not only what is produced and how is produced, what is distributed and how is distributed, but also the question of whether, after the completion of one working period, the reproduction process will begin again, in what amount, in which direction"[1] . Ultimately, profit, not the availability of material means and labor, determines whether the reproductive process will be: expanded or narrowed.

It is realized profit as an indicator for the capitalist that is the incentive to expand capital, or vice versa to refrain from further growth, or even to get rid of inefficient units. In short, realized surplus value, that is, converted into monetary form and presented in the form of profit, is a litmus paper that determines the further behavior of the capitalist.

The implementation problem remains relevant today. Moreover, modern studies show that labor productivity tends to constant growth, while real wages, including indicators of developed countries, are declining. For example, Fig. 3

shows an increase in hourly production and a decrease in real wages in the United States from the second half of the 20th century .

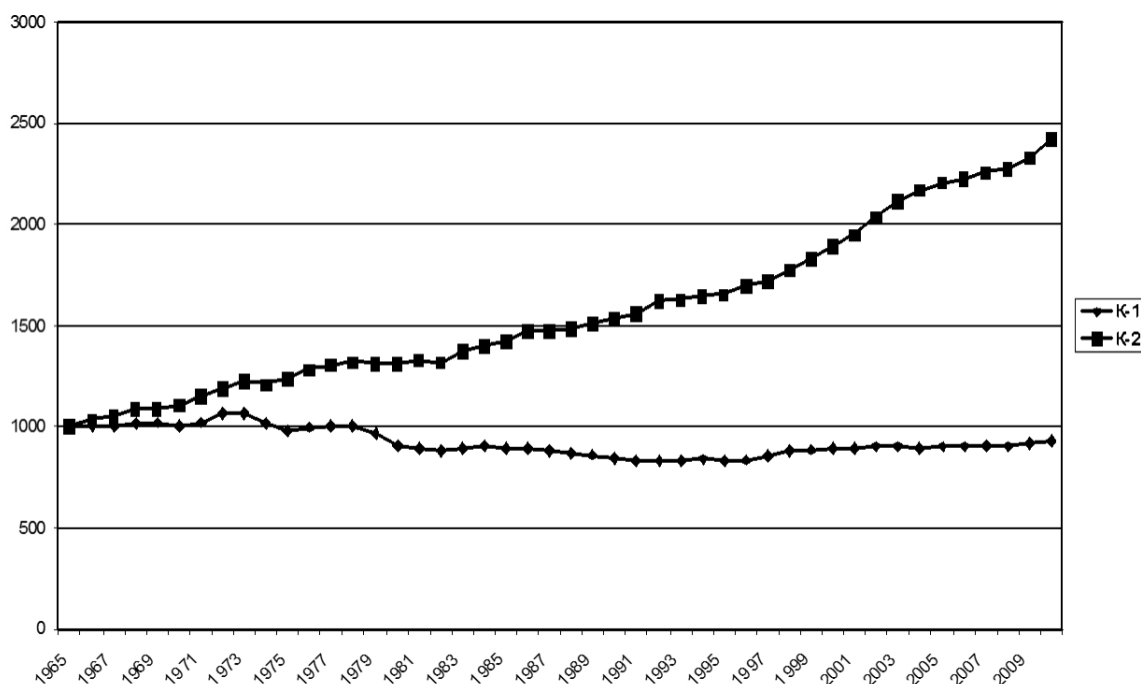


Fig. 3. Hourly production and real wages in the USA (1965-2010) K1 is the index of the real weekly wages in non-agricultural economy sector in the USA (USD,1982-84,1965=100). K2 is the index of hourly output in the same sector (1965=100) [3].

From these graphs, it is easy to see that a similar trend leads to a relative over-accumulation of capital in the real sector and a reduction in aggregate demand.

One of the measures to stimulate aggregate demand is a monetary easing policy, including the so-called “quantitative easing,” that is, the injection of liquidity into the financial system. Such events are not able to completely solve the implementation problem, but only put it aside for several years. It should be noted that these measures also contribute to the process of financialization, that is, the replacement of productive assets with financial ones.

In the world economy, there is a correlation between the growth of assets of leading Central Banks, trends in stock markets and the growth of the world economy. This circumstance additionally shows us the dominance of fictitious capital over industrial capital which today acquire monstrous forms of subjugation of the world economy to financial capital which cannot lead to sustainable economic growth.

4. The role of artificial intelligence in the reproduction of capital

Sustainable reproduction of the capitalist economy, without crises and imbalances, is an important task in today's time of the Great Recession, that is, an economy with its fundamental instability.

The way out of this impasse may be a combination of state planning and a free market. At the same time, there are many concepts of organizing such planning, for example, subordinating the reproduction of the economy to an interbranch balance, organizations of institutes of indicative planning, etc.

For a long time, it was believed that planning was impossible to organize due to the lack of computational capabilities of technology. Nowadays, with a sharp increase in computer performance, such an opportunity already

exists. Combining these capacities with artificial intelligence, big data, you can remove many technical obstacles to the distortion of information for planning.

To overcome the global crisis, it is necessary to create a proactive artificial intelligence system that develops a dynamic system of intersectoral balance, suggesting an effective relationship between planning entities. Construction of this system involves reflection of the effect of objective economic laws.

These measures of introducing AI into the strategic planning system will allow developing crisis-free reproduction of the national economy, while a policy of quantitative easing or other incentive measures will lead to relative over-accumulation of capital in the real sector, inflation of financially speculative bubbles, etc.

References

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