

# Paradigmatic alternatives of global development, scientific and technological progress and prospects for the development of civilization in the institutional “physical social economy” models

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**Abstract.** The article analyzes the models of scientific and technical progress, the application of physical social economy developments in the conditions of globalization processes. The specifics of understanding the essence, forms and content of the strategy for the development of science and socio-economic reforms at different levels are determined. In recent years, the concept of “Physical Social Economy” has occupied a significant theoretical-practical, social-analytical, and at the same time economic-prognostic position among the global development models of national economies, economic forms, international relations, and the world economy, studying the peculiarities and principles of the development of the material sphere (physical) production with the aim of quantitative and qualitative improvement of the filling of the “market basket” on the basis of continuous scientific and technological progress, ensuring the long-term existence of mankind on Earth.

## 1 Introduction

The concept of “*global-institutional social physical economy*” and its direction (*physical social economy, institutional social physical economy, global social-physical economy, physical institutional social economy, physical social economy of global development*) in recent years has occupied a rather significant theoretical and practical, social-analytical and at the same time economic-prognostic position among the models of global development of international relations and the world economy, studying the features and development principles of the material (physical) production sphere with the aim of quantitative and

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qualitative improvement of individual and nation material and spiritual state fulfillment on the basis of continuous scientific technological progress, which should ensure the long-term existence of mankind on Earth. Therefore, knowledge based on the natural laws of social and economic existence will be the closest to social and economic reality. The national representative of this school, Mykola Rudenko, calls it *physical economy* [8].

The definition of this economic knowledge segment is confirmed by the words of the Nobel laureate in economics M. Alle: “What is true for physics is also true for economic sciences” [1]. Back in the second half of the 60s of the XX century, he came to the conclusion that “scientific analysis of economic phenomena shows the existence of regularities just as impressive as in the physical sciences” [1]. Developing this idea over the past decades, the scientist is convinced of its correctness, and therefore repeatedly emphasizes the importance of what has been said. It is noteworthy that in 1988, in his Nobel lecture delivered before the Royal Academy of Sciences of Sweden, he once again confirmed that “it is precisely in this that the principles that make the subject of economics a science and by virtue of which this science obeys the same principles and the same methods as physical sciences” [1].

## 2 Research methodology

Contemporary foreign representatives of the newest model of this direction substantiate the connections between scientific and technological progress, the economy of human labour, the increase in its productivity, the growth of the cultural volumes and the increase in the population density per unit area. The modern Western school of this direction includes, in particular, economists, political scientists, cultural scientists, social scientists – Lyndon LaRouche, Nobel Laureate Maurice Alle, Jonathan Tennenbaum, Lothar Komp, Karl-Michael Witt, Helga Sepp-LaRouche, Michael and Gail Billington, Richard Freeman, William Engdahl and others. Representatives of this school, perhaps, for the first time drew attention to the strengthening and hegemonic aspirations of the world’s financial and speculative oligarchy and its activities in the creation of world financial pyramids. Deep scientific analysis of this school, its ability to understand the economic and political situation in detail allowed it to create an original concept of development and forecasting of economic, political, sociocultural processes on the planet. Its ideas can also be considered as a concept of early prognostic warning for the global economy. A complex approach to considering the problems of unity and interaction of the production and financial sectors of the economy deserves a particularly high rating.

In many ways, all the existing diversity of current world economic thought can be reduced in the most general outline to *two directions*, which are recognized: *the school of physical economy* founded by the Physiocrats and *the school of political economy* derived from it. The emergence of these schools meant the completion of the syncretism of economic thought and the birth of its internal contradictions. The basis of the views of the founder of the classical version of physical economics – F. Kene – was the doctrine of “natural order”, enlightened by him in the work “Natural Law” (1765), which to a certain extent reflects the worldview of the scientist and the philosophical foundations of physiocracy. He believed that public laws are laws of the “natural order”, beneficial to society and established by God for the reproduction and distribution of benefits [4]. Physiocrats, investigating the problems of the relationship between nature and man and his activity in the transformation of the material world, deepened our understanding of the essence of economic processes and the role of man

in them, proposed scientific theories based on physical approaches to social and economic processes.

### 3 Discussion and research results

Physical social economics analyzes fundamental socio-economic knowledge, the basic principles of socio-economic relations in society, developing scientific methods of analyzing phenomena and processes at different levels – from an individual person, enterprises and firms to the system of global and international relations.

In 2008, the general trends of the existing global type of economy transformed into a global financial and economic crisis of the entire existing global system. During 2008, latent inflation in financial markets and the stock exchange resulted in overt inflation in commodity markets, primarily raw materials. The first trigger was the jump in oil prices, which have risen 4.5 times since the beginning of the year. Only in September 2008, the prices of copper in the USA increased by 27%, steel – by 20%, nickel – by 37%, sulfuric acid – by 55%, cellulose – by 67%, ammonia – by 73%. At the same time, a steady decline began on the stock exchange. Thus, a *deflationary trend* has emerged on the securities market and an inflationary one on the markets of raw materials and energy carriers. In these conditions, it was very likely that the ordinary holder of shares would begin to get rid of them, and the stock markets would be threatened with collapse. The situation is complicated by the fact that the information sector, where, strictly speaking, there was rapid growth, did not live up to investors' hopes for super profits. On the contrary, corporations associated with the so-called "new economy" showed significant losses in their reports for 2008-2012.

The line of leadership of the Fed (Federal Reserve System) and the IMF (International Monetary Fund) is to delay the new stage of the global financial and economic crisis with an additional injection of liquidity into the economy. If it is fully implemented, the world will be under the threat of hyperinflation, similar to that experienced by Weimar Germany in 1921-1923. As analyst-observer Ambrose Evans-Pritchard from the London Daily Telegraph wrote in September 2010: "I apologize to my readers around the world for the fact that I defended the extraordinary stimulus measures adopted by the Federal Reserve System, and as a naive weakling claimed that the Fed would not indulge this drug addiction, political abuse and unbridled insanity after injecting the first doses of "unconventional easing of monetary policy" [2].

In these conditions, L. Larouche proposed his plan to reorganize the world financial system. It consists in returning to the *Bretton Woods system of fixed exchange rates*, and, as the basis of the currency system, instead of gold or the dollar, it is proposed to take *a basket of "solid goods"* necessary for a person's livelihood. **An artificial monetary unit for international settlements** could be built on the basis of this basket. National currencies would be tied to it by a fixed ratio. L. Larouche proposes to implement the new system in 2 stages. First, on a bilateral basis and in regional economic blocs, and only later – on a global scale. At the same time, financial obligations arising on a speculative basis, as well as debts of developing countries, must be canceled [6]. According to L. Larouche, these measures, together with his long-standing plan for restructuring the world infrastructure, at the center of which is the creation of the Eurasian land transport bridge, should ensure sustainable economic growth and bring the volume of world financial instruments into line with the capabilities of the world's productive forces.

Sharp changes in exchange rates, which is a consequence of the activities of the financial and speculative oligarchy, confuse all the maps of the true competitiveness of countries, expressed in terms of labor productivity, lead to the instability of all world markets. Thus, both developed and developing countries lose from capitalist globalization. Instead, the school of “physical social economy” proposes a policy of “*reasonable protectionism*” implemented by sovereign national states and based on the ideas of physical and institutional economics, which originates from H. Leibniz and represented by the so-called American school of political economy represented by A. Hamilton, F. Liszt and G. Cary.

To measure the productivity of the physical economy, it is suggested to use such indicators as *the total volume of material goods production*, which is per capita, per household, and per square kilometer. This is *the potential relative population density* per 1 square kilometer of the territory. This value shows what population density can potentially be supported with a given scientific and technical provision of material production and a given composition of the consumer basket, based on the household, necessary for its livelihood, taking into account the reproduction of the human stock, continuously increasing qualifications and improving physical condition (health). It is this value that they propose to accept as *the true measure of human progress*. “In this case, human activity can be expressed mainly in relation to *the physical processes* of production and consumption” [5].

Only such types of services as education, professional healthcare, science, classical types of visual arts – poetry, drama, music, painting, sculpture and architecture – are closely related to these material and production processes. However, the needs for these types of services are completely determined by the cultural level, which is the basis of the consistent growth of physical productivity measured per capita, per square kilometer. It is also considered a reference value for all economic calculations and forecasts. They should begin with the determination of the desired population density, and then proceed to the calculation of the consumer basket necessary to maintain the given population growth. From this it is possible to obtain the necessary volume of production of intermediate goods, and then capital goods. The given rate of population growth, taking into account the ratio of different age cohorts, will ultimately determine economic growth and infrastructure development (including healthcare, science, education, culture). At the same time, the proposed principle looks much more productive than the one practiced by the Soviet State plan – in the form of planning “from what has been achieved”. Strictly speaking, such an ideology can serve as the basis of a regulated planned market economy.

Analytically, the key value for determining this (statistically represented) function (which characterizes the process of human activity) is *the ratio between the physical volume of the market basket contents* (per capita) of a household or producer and *the number of working years* (per capita) required for the production of this labor force market basket of consumption (per capita), per household, per square kilometer. Physical limitations directly related to these relations “cost-output” is the cornerstone for the justification of the necessary statistical presented. Thus, *the concept of the market basket consumption* occupies one of the central places in the physical economy. First of all, he distinguishes *the market basket consumer*, *the producer* and the intermediate goods for both market baskets. The general conclusion is as follows – gross domestic product is a falsified concept. The existing statistical practice of calculating national income by governmental and other structures that prepare relevant reports rejects any attempts to draw a rational distinction between *the physically unnecessary expansion of nominal income and useful production and consumption*.

Another methodological position of the modern model of this school is important. It consists in the fact that the official statistics refused to deduct from the gross national product the cost of uncompleted work on the repair and maintenance of important objects of the basic industrial infrastructure, for example, the railway system, highways, water management and water supply systems, power plants and networks, etc. Indeed, if this was done, the indicators would be included in the national income and GDP. But now the actual wear and tear of infrastructure is not deducted from GDP or national wealth. Indeed, the modern methodology for calculating GDP suffers from serious shortcomings. And the differences between the real growth of goods and services needed by people and GDP indicators, which include all types of services, including financial services and services of entertainment establishments, show business, advertising, gaming halls, etc., apparently, quickly are growing. This is confirmed by the real trends of the collapse of the real sector in the USA, in developed countries, and around the world. By the way, it should be noted that in the Soviet Union, according to the Marxist methodology, national income was calculated separately from material production and services. Back in the 1960s, the Soviet economist A. Kats tried to estimate the dynamics of a person's real income based on changes in the consumer basket.

Representatives of the contemporary physical social economics school tirelessly expose the supporters of neoliberal "*globalization*", noting that it damages the entire world economy, including both developed states and developing countries. Since in developed countries, instead of low-skilled forms of production of items of the market basket being transferred to countries where the workforce has not yet reached the general level of qualification of the workforce, for example, in the United States, there is a "*shop desertion effect*", in which part of the employed American workforce is transferred to the status the unemployed either moves to a less qualified job, or is separated from the production of real goods and transferred to the service sector. At the same time, the purchasing power of American households is decreasing, as a result of which the American market as a whole is shrinking.

This negative influence is amplified by the other side of globalization – *the free movement of capital*. The latter contributes to the fact that the profit from these enclave productions is by no means necessarily invested in the country where it is produced. Moreover, capital can be easily removed and moved. They are chasing "cheap" labour. Striving to attract capital, transitive countries enter into a competitive struggle for the reduction labor force cost, and this, of course, leads to a decrease in the level of their population, to a reduction in the purchasing power of their domestic market. To this is added *the movement of speculative capital* organized by the world financial and speculative oligarchy.

It is not possible to unconditionally agree with all the provisions of the concept of L. Larouche, as well as with all significant original concepts. In our opinion, LaRouche clearly does not fully take into account the objective course of economic and political processes, in particular, the class and intra-class struggle, the influence of powerful financial and economic structures behind the adoption of political decisions. Therefore, he believes that the development of the second half of the 20th and early 21st centuries is based on false economic theories and false economic decisions. Hence, he believes that it is possible to convince the powerful with scientific argumentation. We believe that political decisions should be made by those who benefit, in this case, the largest oligarchic clans at the national, regional, and world levels. They will not give up their selfish benefit, even if it costs the death of civilization. As for the idea of a *synthetic currency* based on a solid commodity basket, despite its attractiveness, it requires serious practical refinement.

In addition, we believe that L. LaRouche is mistaken about K. Marx, putting him in the same row with the bourgeois economists of the English school. Of course, the scheme of reproducing Marx has the character of a zero-sum game, but this applies only to the modern Marx of capitalism. There, indeed, the gain of the capitalist is equal to the loss of the worker. But the general theory of K. Marx envisioned a breakthrough in a new social formation, *where value will be determined not so much by the costs of physical labour, but by science and scientific and technical progress, that is, by the creative potential of human labour* [3] (i.e., from creative mental work). K. Marx, in particular, wrote: “As large-scale industry develops, the creation of real wealth becomes less dependent on working time and the amount of labor spent (i.e., physical labour) than on the power of their agents, which are set in motion during the work time and which themselves, in turn (their powerful efficiency), are not in any way consistent with direct working time, but depend, most likely, on the general level of science and technical progress, such as the application of this science to production“ [7], i.e. from creative mental work. This “breakthrough” character of Marxist economic theory relates it to the “breakthrough philosophy” of LaRouche. As, by the way, is the well-known statement of F. Engels about the role of the hypothesis in the development of science: “The form of the development of natural science, as it thinks, is a hypothesis”, is also consistent with the corresponding ideas of the Western physical social economy [9].

Modern French economist – a representative of the physical economics school, – laureate of the Nobel Prize in Economics (1988) Maurice Felix Charles Allais believes that the economy and any economic system aims at striving for *maximum efficiency*. Maximum efficiency occurs when resources are distributed in such a way as to satisfy everyone's needs to the greatest extent – so that no one person could improve his well-being or worsen the well-being of another.

Being an unconditional supporter of free trade and competition between countries as a means of increasing the welfare of the nation, M. Allais at the same time believed that the effective organization of the free market should be provided by the corresponding economic and social organization. His ideal was the so-called *competitive planning*, which involves the combination of state planning of the economy with the competition of private business enterprises. As a countermeasure to monopolies and obtaining “unjustified profits”, he recommends the widespread use of fiscal and monetary policy methods, including taxes on “unjustified profits” and capital. In particular, in the field of monetary policy, Allais considers it necessary not only to establish control over the rate of growth of the money supply as a guarantee of price stability, but also to index all securities in order to avoid unjustified shifts in the distribution of wealth between the borrower and the creditor.

His constant interest in history pushed him to study the rise and fall of civilizations in connection with economic factors. With Allais’ interest in the influence of economic theories on social life, it is not surprising that he always worked on the application of his ideas in **the real economy**. He considered his task not political activity, but checking the feasibility of the political course. He writes: “Goal-setting belongs to the field of politics, because, in fact, the definition of goals by means of comprehensive agreements is a matter of the political system. But ... the appointment of an economist is to check whether these goals are compatible, after all transactions, one with the other, and also to indicate the best of their achievements” [1]. He managed to show that in such an economic system, where the means of production are placed with maximum efficiency, no producer requires additional investment. As a result, the need to obtain cash loans is eliminated, and as a result, the optimal interest rate is equal to zero. Allais’ theoretical and practical conclusions, despite the fact that in many ways they are opposed to the classical economic model (in which there is always some growth, either



positive or negative), his model served as a reliable basis for other, more fundamental constructions.

Going against the ideas of many economists of his time, Allais also showed that supply and demand mechanisms can lead to maximum efficiency even within a state monopoly. Even if the monopolist has the opportunity to raise or lower prices compared to the competitive market, the monopoly will not receive profit from the following actions. If the price is raised, the demand will fall and the sales volume will be insufficient, and at very low prices, the monopolist loses money on each sold unit of the product.

As a result, thanks to Allais, there was an opportunity to study the conditions for achieving social efficiency, balance and stability in a decentralized economy created by independent consumers and producers, in other words, in a market economy. Allais' models inspired such economists as Gerard Debre and Kenneth Arrow to further study markets and social efficiency.

Modern social physical economics has developed a unique epistemological approach, which can be called *the "social-economic philosophy of breakthrough"*. The essence of this "breakthrough" is that, according to this scientific school, the history of mankind, as well as the true vocation of man, consists in the fact that the creative mind, overcoming existing ideas about the universe, and at the same time relying on the previous experience of mankind, opens new physical principles, breaks into new areas of knowledge, expanding the scope of humanity's capabilities, strengthening its qualitative interaction with nature, and creating conditions for the continuous progress of the human race. This, in turn, increases *the "breakthrough forces"* of the collective human mind, increases the number of creative units and skilled workers who prepare new cognitive breakthroughs. In economics, the amount of real profit at the level of the national economy as a whole corresponds to the concept of *"free energy" of the system*. In addition, this science, in our opinion, helps to correctly understand other socio-economic theories and concepts, in particular, the concepts of the destructive ideological essence of the methods of economic neoliberalism that have been widely advertised in recent years [10].

## 4 Conclusion

Knowledge of human social and economic activity based on the principles of the theory of physical social economy creates additional opportunities for qualitative and quantitative measurement of human activity results as a process of transformation and energy accumulation, identification of new patterns and modeling of the entire social process on the path of sustainable development.

Therefore, knowledge based on the natural laws of economic existence will be the closest to social and economic reality. Knowledge of human social and economic activity based on the principles of the theory of physical social economy creates additional opportunities for qualitative and quantitative measurement of human activity results as a process of transformation and energy accumulation, identification of new patterns and modeling of the entire social process on the path of sustainable development.

Today, the source of the fundamental threat to civilization comes from the global financial oligarchy, which has adapted the policy of the free trade dogma for its own purposes as an instrument for the destruction of sovereign nation-states, reducing the level and life expectancy of the majority of the world's population, and turning the survivors into a super-exploitable *"global workforce"*. Victory over this oligarchy and its neo-imperialist

aspirations may be the only necessary protection of peaceful relations between sovereign nation-states [9]. This means that our social and economic thinking should come from physical production, and not from the calculation of nominal financial assets, from such a view of the economy that expresses the growing power of man on Earth, in the Universe and over the Universe, its dangers and prospects for progress. This program should also express the recognition of the role of cooperation forms based on cultural principles of knowledge, and not on the distorted understanding of man as a Hobbesian being, degraded to the point where he is guided only by the reflexes of the struggle for existence and survival.

In order to prevent the further deepening of the economic crisis, social humiliation and spiritual disintegration of global society, one should abandon the imposed dubious course of *economic neoliberalism* (with all its neo-colonialist consequences for countries and immoral for people), openly and resolutely oppose other, genuinely scientific, humanistic and highly moral principles and concepts of the economic and social life of society developed by mankind.

The construction of a healthy and efficient form of the modern economy requires the state to create regulated environmental conditions and basic economic infrastructure, in which the action of the individual's sovereign cognitive powers serves as an "icebreaker" for increasingly capital-intensive, high-tech forms of economic progress as a whole. From the form of an abstract association based on the "external features" of the multipolar world, it is transformed into a call for scientific harmony of humanity, national economies, and states in the implementation of social and economic stability in each individual country and in the world as a whole. And here the noospheric greatness of the life of a single human community can be seen in all its perfection.

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