

RESEARCH AND INNOVATION – THE CHANCE OF ROMANIA’S ECONOMIC AND FINANCIAL PROGRESS

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Abstract

This paper aims at highlighting the importance of scientific research and economic innovation for economic and financial progress of Romania in the long term. Stem analysis is the gradual accumulation of organic connection between science and how it is used, in a productive vision deeply understood both in the public and private spaces. Financial and economic progress involves scientific research and innovation as the ideal long-term and daily movement of the economy in the short term. So we should keep in mind that not everything is equally urgent and important, in a correct view of the labor and force of the economic and financial effort.

Keywords: economic and financial progress, research, innovation, development

1. Human economy and the osmosis of research and innovation

Human economy relies on great scientific and technical discoveries, on extensive environmental improvements, demo-economic and on behavioral changes beneficial to the entire population. The new economy involves multiple and profound reforms, of a structural effectiveness, considering that scientific research contributes to the expansion of both wealth and poverty. It also contributes to the substitution of raw labor with information or knowledge and to the rational use of sophisticated economic, financial and management mechanisms on national and global levels.

The emergence of new systems of economic activity undermines the pillars of the old economic system, transforming all – individual life, business, politics, morality, nation-state – and placing the economy on the verge of the deepest switch, according to the trend of a lasting, sustainable economy, global and eventually cosmic. Such issues are directly related to the very essence of economy because **the economy is a consistent mix of relational activities, in which one selects what, how and how much to produce in order to achieve his goals of development and personality manifestation within the community, being himself the product of nature and society.**

The content and the continuous transformation of economy reflects the manner in which **individuals manage to correlate their unlimited needs, constantly diversifying, with scarce resources that have alternative uses.** The tension between needs and resources is permanent and is reflected by human satisfaction or dissatisfaction on the individual and society level, by inequities, gaps or relative stability. “Without such a system which is able to produce food, to process it, to wrap and distribute it, which is able to produce fabric, to provide medical and educational services, to regulate and maintain order, to make itself ready to defend the community, life would be very hard.”¹ During this complex process, each individual finds himself in transition through life, permanently recording joy or bitterness. Thus, **economy is the real form of human social action, it itself is in continuous transition.** Economical life is man’s unceasing struggle with the principles of rarity, impossible and unknown, with the limits of freedom in order to transform them in certain, possible

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¹ J. K. Galbraith, *Economic Science and Public Interest*, Politica Publishing House, Bucharest, 1983, p. 11.

and known elements of everyday life. "The true problem is that in real life, normally, we do not have the possibility of choosing between risky and certain situations, but only between degrees of risk and different possible results".²

Within this struggle with the limits of our existence, man and human community are in permanent transition to adjust to the natural environment, simultaneously constituting a **specific living environment**. Human economy cannot stop its movement, transformation or transition. **Any simplistic, insufficiently precise understanding about finalizing the transition in economy is counterproductive**. The transition proves itself the permanent form of human evolution with the help of science, research and innovation, and the costs of the transition through life interest each individual and the social community as a whole.

The chance of economic and financial progress is **the osmosis of human economy with research and innovation**, which ensures an effective, high-performance human action.

Our demarche pursues two concepts: the filiation of ideas and classical situation. **The filiation of ideas** reveals the efforts for understanding economic phenomena, for creating, perfecting and reconsideration of economical theory, in an endless process. **The classical situation** means consolidating, correlating and synthesizing scientific acquisitions to the certain moment, including appreciating present status in the direction of future development in economic science.

In every era, people were preoccupied to understand internal relations of their action for material existence, starting from observing the limitation and rarity of economic resources. The totality of reflections which refer to economic activities in society (ideas, theories, doctrines, ideologies) forms an **economic thinking**, which has an emphasized historical feature.

Economic reflections can be common and specialized. **Common economic knowledge** stand in reflections which are possible to be made by all people, as participants to ordinary life, without them handling knowledge and necessary instruments to thoroughly understand economic reality. **Specialized economic knowledge** is the scientific knowledge, consisting of people's reflections who participate to economic life on the grounds of prior professional training, specialized and having corresponding research instruments for economic problems and showing results of their research and discoveries. Thus, scientific knowledge exists since a long time, since, in economy, the passage has been made from manufacturing to industrial capitalism. Therefore, we do not consider entirely justified the expression according to which, nowadays, economic life passes to scientific knowledge. Though, it actually means the passage to a new stage of **scientific knowledge, that of elevated, wise scientific knowledge**, which is to contribute to solving the above shown tension.

In such circumstances we emphasize the importance that scientific research and innovation form an organic logical and historical unity. **The second dimension** considers that economic phenomena are, in their essence, social phenomena conceived and established always with a precise human finality. **The third dimension** is in the tension between unlimited human needs, permanent, and limited economic resources, rare, expensive and more difficult to obtain. Thus, the access to natural and economic-financial resources, national and global, is ensured by the context of long term tendency of consolidating the dependency on foreign resources. **The fourth dimension** considers demand of growth and diversification of scientific-innovation exchange of Romania with all countries in the communitarian European area and in extra-communitarian.

Economic scientific research means the action of examining thoroughly, of studying, of analyzing rationally, at system level, phenomena and economic processes, this to obtain new elements materialized in novel variants of understanding their essence, of their internal causality and new possibilities of improvement.

Economic innovation represents the action of change, of introducing in a process or a system, an already known novelty which is supposed to solve the economic problem, to ensure dynamic optimization of rare and limited resources use.

² Orio Giarini and Walter Stahel, *The Limits of Certainty*, Camro Publishing House, Bucharest, 1996, p. 256.

Understood as such, research and innovation are harmonized in an objective manner, are mutually conditioned, determining the growth of productivity, of systemic economic efficiency. As a consequence, these two concepts exist and function in their unity, ensuring obtaining from a unity of resources spent an economic effect more socially useful.

The distinction between these two notions is realized, especially, by the social need of boosting relational dynamics between research and innovation. Such a dynamics must lead to a new specific human behavior, of researching by innovation and innovating by research, especially in the conditions of economic-financial resources are rarer, more expensive and more difficult to obtain.

As a consequence, economic scientific research and innovation prove to be an **authentic axis of economic development**, an anatomic and functional ensemble, which maintains the elements of economic system, defined by own content and permanent dialectic movement. In the presentation of our paper we use with priority the expression of scientific research, understanding, though, its intimate unity with innovation.

Scientific research is materialized nowadays in the tensions of change, being an expression of rational perceptibility of economic evolution by those who have a creative gift, of inventing and innovating and, also, have the motivation of being involved in such matters. Research and innovation actors think according to their interest, correlated with public agenda inherited from a revolution which, like all the others in history, imply an ensemble of quality transformation from an entire system or from its components, lasting an instant and leaving behind a whole century.

Scientific economic research implies essential change in the behavior, in science and technology, in education or in family, in religion and so on. All these hold in an essential proportion of economic creativity. **Creativity** means, above all, creation of New, then its reception and consumption. In the conditions of very fast technical-scientific progress, with low creativity degree, in economy the complex problems of present development could not be solved efficiently. As a perspective, heroes of a country will be the authors of most daring and important accomplishments in science, technology, economy and culture, moving the competition between countries from military environment to great values of human creativity environment. New and original ideas will become decisive, though not by them. It must be known that in their way multiple blockings appear, determined especially by the system of training and education, as well as the psycho-social climate. Any participant in economic life can be creative, though for this reason multiple conditions are imposed, which are related to the specific person, to creativity levels, to individual structures and creativity group, to identification instruments, to creativity evaluation and so on.

Creativity contents are in its **novelty and originality**, thus an economic good, as impossible to imitate and with further effects, as harshly judged by contemporaries, being appreciated as fantasy, useless. Though, such a situation does not discourage geniuses to exist and manifest, opening new tracks to technical-economical efficiency.

Specialists consider that creative minds always imply: imagination (capacity of accomplishing infinity of new associations, by composition and decomposition of ideas), judgement (combining imagined ideas, reuniting in the same class of those homogenous and rejecting the inappropriate), taste (the internal sense of delimitating aesthetic by unaesthetic, decent by insignificant).

Creativity as a composite element of scientific research, as a psychological formation of great complexity is materialized in many and diverse effects such as: productivity, value, quality, utility and so on. These are not limitative, though they must be connected with many others such as: ingenuity, novelty, originality, dare and so on.

Creativity is, as a matter of fact, a **social need**, which must ensure economy development, though its accomplishment depends on removing inappropriate mentalities. We point out, for this matter, that presently in Romania, but also in other more developed countries, some negative cultural-educational phenomena manifest, such as: preference for a more complete education than stimulating the development of an original and creative thinking (conformist specialists, with diverse stereotypes); passive character, non-creative of some actions which develop during free time; more

appreciation for scholars than for those with original ideas, who are somehow tolerated; many people's frustration because of the lack of creative effectiveness; tendency towards multiplication of same modalities of superficial, inefficient behavior in personal life, and so on.

Profound understanding of the essence and functions of scientific research and economic innovation presumes also capturing the main tendencies of economic science, as organic part of science in its totality and coherence, which influences quality development of economy on grounds of an adequate scientific research.

In the frame of science system, economic science develops permanently related to other sciences and, especially, with sciences of nature. Revolution in natural sciences, starting with physics, brings back to exegetes' attention the concept of **perfect prediction**, as an object of economic science. For this matter, an elitist trend of economic thinking accepts the **transformation of economic science into an exact science**, as any natural science. Therefore, notions, theories and economic science methodology should be profoundly restructured. For example, the theory of economic equilibrium, having as a genesis the progress of mechanical physics of Newton, is about to give way nowadays, on grounds of modern physics revolution, to disequilibrium, to chaos.

Another tendency of economic science is represented by the **movement towards interdisciplinarity and multidisciplinary**. Causes are found in the complexity of analyzed object; science penetration in every section of economic life; technology input and use of instrumental methods in order to achieve scientific knowledge; creation of a tighter link between raw science and applied science, between fundamental theoretical disciplines and those experimentally-applied; emphasizing the historical dimension of science; transition to theories with a high degree of structural organization, open to both natural and human created environment, and so on.

In such frame, emphasizing the importance of **social significance that economic phenomenon (social by its essence) holds, is imposed**. Therefore, when making decisions of economic politics, one must consider the dimension and social impact that they bear; otherwise heavy costs, economic, social and ecologic imbalance, would be generated, and it would be hard or impossible to manage them. Economic science holds, before all, a **powerful social determination**. As a consequence, facts and acts of economy can satisfy every man's needs, giving him the dignity and allowing him to fully take advantage of human essence's own rights and liberties.

2. Directions of reasoning in research and innovation for economic and financial progress

The first direction of this reasoning results from the fact that along with some elements of "civil global society" **comes again the social problem**, as opposed to forces behind the globalization process.

In such circumstances, economic science enters more in direct contact with natural sciences, with juridical sciences, with technical sciences and so on. It must approach the more complex individual, that is as a consumer, a labor resource, as governor, which opens new tracks of investigation and offers more refined instruments for measurement, perfecting and capitalization of economic analysis in itself. Experience of totalitarian systems in the past century shows us that only in democracy it is possible to have economic development and plenary affirmation of human aspiration, regarding the rights and fundamental liberties of the human being. For such reason, to reduce the citizen only to his consumer dimension generates premises of a new type of totalitarianism, overly dangerous.

Thus, economic science includes in the research field also **the present role of the state**. Though, it concerns the state as organizer of social cohesion, the regulating state, the judge state and not ultimately state as economic actor. Such vision about state in actuality rehabilitates the public service and its social utility, meaning that population demands broad and quality public services to

international standards and performances, of health, education, social protection. Health, culture, personal safety cannot and must not be transformed into goods only for market's sake.

Another direction of reasoning in economic science, implicitly in economical research, represents **the growth of mathematics application in researching economic phenomena and processes**. Mathematics proves to be an essential and indispensable instrument for elaborating models, for analyzing and explaining of profound sides of economic processes and phenomena, for their prediction, for discovering elements of relative truth in economy.

Using mathematics in growing proportions in economic research derives from the thoughts of Alexander Rosenberg, well-known specialist, who states that "economic science is not a discipline, but a particular theory, of extreme character and, thus, by its nature, mathematical"³. Still, economy is not the field of absolute supremacy of the mathematic instrument. For this reason Anghel Rugina underlined that "in reality, roots of nowadays problems could be expressed only in quantity"⁴. By extension, the relationship between economic science and mathematics must be understood and applied correctly, as the relationship between any science branches, ensuring their unity, implicitly necessary, through the compatibility of rational systems.

An obvious reasoning direction of economic scientific research and innovation regards the **integrative approach of economic phenomena**. This means the transition from the classical, analytical model, to the synthetic-integrative model of economic thinking. Thus, integrative disciplines are constituted, such as: cybernetics, communication theory, systems theory, semiotics and others, that favor the transfer of methods, principles and concepts between science branches.

This way, a movement of science and economic research is established, towards **logics competence field**, blending common, empirical knowledge with the scientific, systematized one. Different logical models are built with the help of generalizations of essential aspects, common to a mass of homogenous phenomena. Thus, economic science fulfils more systemic functions such as: **methodological function** by which critical analysis and methodical evaluations of real facts are accomplished, passing beyond their immediate appearance and reaching their essence, which favors the putting in order and systematization of empirical material; **heuristic function**, meaning the discovery of new facts and laws; **explicative function**, that is understanding of known facts; **prospective or predictive function**, which allows anticipating the relations between facts, establishing new predictions concerning the way economic reality will look like in the future.

We reveal, as well, the fact that ideas of causality, of probability and so on, gain more and more space in the economic science and research, using also, insistently, logical methods such as formalization or model building.

From the epistemological standpoint, the most difficult problem that economic scientific research faces is the **testability or verification of results**. Unlike natural and technical sciences, where there are relatively wide testing possibilities, in economic science these are more limited because of the specificity of the economic phenomenon, which directly implies the human being, with its own system of needs and interests, as well as due to high social cost of experiments. Practically, economists exclude the possibility of laboratory experiment, on people and groups of people.

We underline that other forms of experiment, such as econometric testing, inquiries and surveys, simulation, scenarios play an important part in investigation and evaluation of the economic phenomenon. Therefore, experiment, despite its critiques, is the main procedure of verifying assumptions and building scientific conclusions.

³ Mark Blaug, *Economic Theory in Retrospective*, Didactic and Pedagogic Publishing House, Bucharest, 1992.

⁴ Anghel Rugina, *Principia Oeconomica*, Romanian Academy Publishing House, Bucharest, 1993.

Conclusions

We must emphasize one more time that the chance of Romania's economic and financial progress is the osmosis of human action with scientific research and innovation within the Romanian economic space as a whole and in all periods of evolution, including conditions of crisis. The major internal and external imbalances, of financial-economic and also social nature that we perceive are, for scientific research and innovation, an unprecedented challenge, a duty to attend irreproachable standards as concerns the behavior in economy, moral issues and fairness. This duty must be directly coupled with proactive management involving high professional competence and performance on the micro, meso and macro- levels, on the complex path of real convergence with the economy of the developed world.

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