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Social geography with geopolitics fundamentals: Modern trend of development in conditions of global state and corporate confrontation

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Abstract

The content of this scientific article interprets issues of synergy strategy in the study of social geography of dispersive systems, first of all, territorial social –economics systems (TSES). Main rules and principles of synergy approach, developed by Russian and foreign geographers, politicians, philosophers and economists. At present a methodologic approach of modern foreign economists to problems of building of MEM and forecasting of the "future" of TSES deserves attention of social geography. According to such approach economic and other quantitative values of TSES may be "divided" into subsets of fast and slow variables. Such division is available in earlier attempts to dynamically analyze economy. One of the weightiest conclusions is that in proposed subdivisions of subsystems into fast and slow subsystems one can achieve predictability of their behavior, which in other way must be acknowledged as unpredictable and/or random. Moreover, synergetic method shows that variables influencing variables of decade may become an instrument of global strategic policy. Majority of such variables are referred to slow, and, consequently, may be considered as parameters of world order in evolution of TSES of different taxonomic layer. The latter automatically means that these variables influence taking of strategic decisions and are important instrument of methodology of social geography and geopolitics, oriented towards modeling of "future" of complex TSES of various taxominic layer –in time, space and/or Universe.

Introduction

Modelling of an object of research and relative theoretic composition of "polymer" models is based on the category "future". In our opinion and in the opinion of Professor of Berlin University Werner Ebeling [Boulding, 1969], when development of inter-civilization is in global crisis, utilizing of category "future" in geographic and/or geopolitical, historic, philosophic, economics studies, objective essence, must be relevant to objective scientific notation and realistic scientific-methodological approaches during models development of territorial social – economic system (TSES).

In case when dynamic model TSES consist of a single or several system building elements which are supposed to induce changing of an object, it will very simple to forecast its "future" state. In case when a single object of research is under the influence of multiple factors – distribution in time and space, forecasting of the "future" of the object becomes a more complicated task. In this, however, if object of simulating itself is a complex system, forecasting of the "future" will be a very difficult task. At the modern stage of history of development of international human civilization, at the time of changing of the world with growing speed, modeling of the "future" of the complicated territorial social – economics systems become an important administrative, scientific, corporation business and state policy task.

Main Part

From the point of view of social geography and geopolitics simulating of "future" TSES – this will be creation and development of universal theory in the system of geographic knowledge with focus on methodology of synergy with taking into account of: 1. An analysis of quantitative and qualitative changes of the object in the past; 2. Defining of trends of its development in the present; 3. Building of alternative model of possible changes of the object under study in the future; 4. Objectives and tasks of creation of such kind of future, which human society desires and deserves.

Mikhail Dmitrievich Sharygin a famous Russian geographer, Doctor of Science, Professor of Perm State University considers enrichment of its scientific methods and methodology as an important development path of modern social geography and, first of all, by creative concept of building of mathematical economics models (MEM) and synergetic approach, reflecting all realities of modern world, idea of survival and self-preservation of human civilization [Sharygin, 2007].

Many scientists of the countries of the world and Russia did scientific research of problems of creation of the «future» of human civilization, among them Hermann Haken – Germanic physicist, Ilya Prigogine – Belgian thinker, Roger Penrose – American mathematician and many others.

Many schools of thought are known which practiced future studies on the basis of scientific methods. The most famous of them is a school of constructivism. The founders of this school are Berkeley, Vico and Heraclitus. Berkeley believes that only a content of consciousness is available for a self, that is why it can only state his being; Vico states that rational knowledge does not involve what exists in real world, but it is limited to world of experience which is created by a man; Heraclitus declares that a man creates his surroundings and by doing so he changes himself. Hence there is a well-known formula, "esse est percipi" or «To be means to be perceived».

Fundamentally in the differences of presentation of "future" of human civilization for many scientific schools there exists an infinite circle of mutual determination of the type: "self-non self" and/or "subject-non self". However, in progressive schools "future" is always appreciated as a consequence of taken decisions and timely actions.

Philosophy of synergy states that human social activity has natural limitations in the form of individual evolution paths of TSES or structural attractors, which are defined by internal properties of dynamic systems themselves, surrounding worlds and/or Universe. In synergetic relation "self – non self" that self of perception constructs surrounding and social world with certain attitudes. It is not by change that Hermann Haken Professor of the University of Stuttgart names such synergetic view as a "constructionistic realism" [Haken, 1991].

In traditional world science linearity and closed nature of all real systems are the basic tenets of research. Until present this was convenient and therefore adopted in the established methodology of scientific research. Scientist researcher was reasoning that, if TSES under consideration can be analyzed from the point of view of natural development of historic events, it means that this TSES is "true", if not, this TSES is random. Actually evolutionary processes occur "by method of trial and errors», wherein only a few from described plenty of attempts to change the status of one or other target object have a positive result, by means of what evolution does happen. Therefore, in "our world" evolution of non-linear complicated territorial social – economics systems and natural systems is essentially random. For a long time, scientists did not pay attention to this fact and disregarded many small fluctuations, naming them randomness. Most regrettably, dissipative systems in geographic space open non-linear structures.

Role of chaos in evolution of non-linear and complicated TSES is re-evaluated by synergetic model of the modern social geography, because synthesis of geographic knowledge shows a diversity of random and hidden potential of small fluctuations and/or randomness. Therefore, it is correct to say, that chaos is not always a vice, but in all cases small and occasional is an unessential factor of development of TSES [Sabanin, 2009]. When and which of randomness, fluctuation and/or chaos on macro-, meso-, micro-, plane will have a chance to revolutionize and determine a direction of evolution of system building structures, natural or social pattern? A synergetic model of social geography and geopolics is able to give a specific and constructive answer to the question mentioned above.

First of all, special condition of open non – linear environment is required-this is unstable status of fluctuation in time of geographic stratum and/or Universe. It shall mean sensitivity of non –linear environment to small fluctuations by aids of positive non – linear reaction. In unstable status there exists something evidencing the relation of micro- and macro scales. In such conditions small disturbances define macro model of being and type of macro economy, and minor and random have a direct exit to surrounding macro world.

World view, which is based in classic science envisage that all processes in closed systems go in time to the most probable status even after when Sir Roger Penrose a Professor of the University of Oxford calls for necessity to remember that "the second law of thermodynamics is not an equality, but inequality", when there exists a quantity-related value called "entropy" of an isolated system, which serves as a measure of random or/and randomness of the given system and constantly rises relating to its values of preceding point of time [Penrose, 2013]. One of such key categories in synergetic is a "bifurcation point" or "path dependence", fixing the moment of entering into unstable state relatively to fluctuations.

Forecasting of TSES on the basis of principles of synergetic may be and must be done taking onto account development of mathematical economic modelling. By the provision of world experience on modelling of complex TSES of different nature in the world concepts of hierarchy of simplified models including hierarchy of eight levels for dynamic TSES of American economist Kenneth Boulding [Boulding, 1969]. Model of Maltus may be referred to such MEM models as well [Maltus, 2012].

MEM of dissipative systems, describing non-linear processes, is an important path of development of methods and methodologic base of modern social geography in the study of problems of evolution of TSES. A drastic difference of dissipative systems from conservative systems is that in the first systems exit to attractors is possible, meaning that many points in phase stratum of dynamic system which TSES evolution path is striving to. If the path has gone quite close to attractor, then, with the time, it cannot leave attractor's "field" and will approach to it closer and closer, in other words there will be observed effect of "attraction" to attractor. Attractor is an extremum path in geographic stratum and/or Universe which evolution of dissipative TSES is striving to.

Mathematical apparatus of modelling of dissipative systems has an essential difference from methods of building of conservative systems. Mathematic models which describe qualitative characters of TSES "convey" dissipative systems' behavior at variable parameters. A change of any of parameters of TSES may result in critical and/or bifurcation statuses, defining its future, quantitative and qualitative changes of its structure. Hence, forecasting of definite qualitative status of dissipative territorial social-economics system today may be done by way of variant modelling of values of its structural parameters. Objective of qualitative research of transformations and "future" of TSES is in description of scenario of possible bifurcations.

It should be noted that social geography now approaching the question of reasonable scientific forecasting in which there exists a lot of factors limiting in quantity and quality the processes and results of mathematical economics modelling, including solution of issues of regional nature management. One of the reasons of limitation of modeling is related to possibility in principle of modern electronic calculating machines. For example, if path system fills some field of phase space that it is impossible to forecast such path on electronic calculating machines as per path because calculating machines have digit capacity. All formulas are converted into digits, for example, system of partial differential equations by means of digitalization is derived into system of equations in ordinary derivatives and after that will be calculation. But in writing of system of ordinary derivatives it is supposed that some part of coordinates is contiguous, meaning that one part is discrete and the other part remains contiguous. Contiguous coordinates are not available in calculating machines, all of them are discrete. There exists finite collection of point there exists in each point of time, where a system can get in meaning that, there cannot be a non-periodic movement. Only distributions can be modeled, but not each path of moving of TSES separately.

In geographic research system building elements shall be principles of forming of complex evolution unity from parts and building of various kinds of TSES structures from simple elements. In non-linear world super position principle is prone to dislocate: a sum of quotient solutions is not a solution of formula. And here, «an integral shall not make a sum of its constituting parts». Quantitatively, it is neither less, no more than its constituents, but qualitatively –it is another in comparison with parts that are includes in it.

Within the frame of theoretical and practical research by V.V. Leontiev [Leontief, 1997], G. Fridman [Fridman, 2010], V.B. Zang [Zang, 1999], and others – because of synergetic method it was proved that arrangement of configuration of evolutional structure of TSES is informative. The time in such structure is "released". It means that different time periods of evolutional structure of TSES are given in convergent form –are extended and withheld at the same time. Information about evolution of "the past" and "the future" of such structure can be derived by analyzing synchronous section of dynamic TSES at present moment of time.

Some fragments and/or space domains of TSES structure show quality of the "past" of evolution of structure as a whole and others fragments and/or geographic fields show character of it "future"

development. Figuratively speaking, a complex structure of TSES may be assumed as "space pattern" of various discrete, secreted evolution stages of development of such structure.

Synergetic method of analysis and modeling of dynamic TSES provides new possibilities in long term geographic forecast, which is in building of MEM of one or another solution, including administrative and/or management solution, with subsequent exit to analysis of synchronous section of obtained TSES structure. Thus, we get a possibility of definite and/or apriori verification of feasibility of taking of a solution or of a group of solutions.

At present a methodologic approach of modern foreign economists to problems of building of MEM and forecasting of the "future" of TSES deserves attention of social geography. According to such approach economic and other quantitative values of TSES may be "divided" into subsets of fast and slow variables. Such division is available in earlier attempts to dynamically analyze economy. The same attempts did Alfred Marshall in 19th century [Marshall, 1993] and Paul Anthony Samuelson in 20th century [Samuelson, 2002]. However, did not suppose precise solution of raised questions, and synergetic paradigm shows the way how system building methods are working in dynamic analysis of the most important questions of development of countries and regions of the world.

Conclusion

One of the weightiest conclusions is that in proposed subdivisions of subsystems into fast and slow subsystems one can achieve predictability of their behavior, which in other way must be acknowledged as unpredictable and/or random. Moreover, synergetic method shows that variables influencing variables of decade may become an instrument of global strategic policy. Majority of such variables are referred to slow, and, consequently, may be considered as parameters of world order in evolution of TSES of different taxonomic layer. The latter automatically means that these variables influence taking of strategic decisions and are important instrument of methodology of social geography and geopolitics, oriented towards modeling of "future" of complex TSES of various taxominic layer –in time, space and/or Universe.

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Общественная география с основами геополитики: Современный тренд развития в условиях глобального государственного и корпоративного противостояния

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Аннотация

Материал научной статьи интерпретирует вопросы синергетической стратегии в исследованиях общественной географии диссипативных систем, прежде всего, территориальных социально-экономических систем (ТСЭС). Раскрываются основные закономерности и принципы синергетического подхода, разработанные российскими и зарубежными географами, политиками, философами и экономистами. Один из самых важных выводов исследования заключается в том, что при делении подсистем на быстрые и медленные можно добиться предсказуемости их поведения, которое иначе должно быть признано непредсказуемым и/или случайным. Более того, синергетический метод показывает, что некоторые переменные могут стать инструментом для глобальной стратегической политики. Большинство таких переменных относятся к медленным. Эти переменные влияют на принятие стратегических решений и являются важным инструментом методологии социальной географии и геополитики, ориентированным на моделирование «будущего» во времени и пространстве.

Для цитирования в научных исследованиях

Сабанин С.А. Общественная география с основами геополитики: Современный тренд развития в условиях глобального государственного и корпоративного противостояния // Контекст и рефлексия: философия о мире и человеке. 2018. Том 7. № 5А. С. 169-175.

Ключевые слова

Общественная география, территориальная социально-экономическая система (ТСЭС), диссипативная система, синергетика, точка бифуркации, моделирование «будущего» человеческой цивилизации.

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