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## COMPLEXITY AND MODERNITY IN THE THOUGHT OF SCHUMPETER: A USEFUL APPROACH TO UNDERSTAND THE EVOLUTION OF THE SOCIAL SYSTEMS

### **ABSTRACT**

The development of the thought of Schumpeter can certainly find its essential inspiration in the concept of complexity.

The History Economist appears able in his writings to anticipate, by intuition, innovations and concepts that would require years to gain approval in the field of economics.

Probably the complexity and the concepts connected may constitute a useful instrument for analysis of the future evolution of social systems and a principle through which to attempt to unify the multiform aspects and facets of his work.

### **Introduction**

The development of the thought of Schumpeter can certainly find its essential inspiration in the concept of complexity. The History Economist appears able in his writings to anticipate, by intuition, in-

novations and concepts that would require years to gain approval in the field of economics. With great originality of thought in a scientific panorama dominated by the idea of the balance and linearity of phenomena, Schumpeter is able to understand that the explanation of reality and economic phenomena must necessarily go beyond these simplifications. If the theory of Schumpeter has been viewed as a non-orthodox one this is surely to be attributed to its extreme modernism. The limitation of Schumpeter's thought, which was already pointed out by its first commentators, lies in the lack of formalization that is found in his writings. Without doubt this criticism is valid, and very probably it is this fact that determined the poor capacity to penetrate the thinking of Schumpeter of certain economic schools. It is, however, impossible to deny the extraordinary originality of some of his insights that point out even more strongly his stature as a thinker because he obtained his results not through an analytical or technical-mathematical effort, but as the simple fruit of reflection and intellectual elaboration. Not only the most famous books, such as those that deal with the theory of development, possess this type of character, but also the less famous and complex texts, such as the book: "The Essence of Money", find in this approach one of their fundamental leitmotifs. To say that probably the complexity and the concepts connected to it constitute the most fundamental nucleus of Schumpeter's thought is certainly bold, even if this interpretive theme in his thought may constitute a useful instrument for analysis of the future evolution of social systems and a principle through which to attempt to unify the multiform aspects and facets of his work.

### **The Complexity of the Economy**

An extremely interesting and innovative contribution that emerges from some of Schumpeter's writings, that are collected here, is the early recognition of the role of complexity in the field of economic phenom-

ena. The idea that the economy cannot be fully described with a static comparative approach, but necessarily must refer to a dynamic one, generally of a complex type, is certainly an extremely topical and winning idea. All the same it is important to examine carefully the implications and the consequences that the introduction of complexity produces within economic systems. In this light a rediscovery of the thought of Schumpeter can be extremely useful and appropriate. A new reading considering these new interpretive categories may consent the gathering of the insights of the great Austrian economist in order to adapt them to modern conceptual schemes for the economy. In particular it can be interesting to attempt to reconstruct the role that may be played by the institutions in the complex development of economic phenomena. In the following passage these concepts are treated eloquently.

*«Disturbances from outside, in particular the interventions of political power on the economic organism would bring very weak effects and, above all, different effects, that would be more simple to describe if they affected a process that, in reality, was stationary, that would adapt passively to them according to the rules of the static theory and not show their own impulses.» (Schumpeter, 1950)*

The incapacity of economics to describe and foresee economic phenomena, even in the monetary field, can be traced to the lack of a sufficiently profound theory of economic dynamics.

*«and this is the effect of the circumstance that a satisfying theory of movement regarding the economy is lacking and, at the same time, it is caused by the fact that the results of today's monetary theory are evidently insufficient.» (Schumpeter, 1950)*

Developing this line of thought further one can mark the limits of comparative statics. That is, if we proceed using only this we can describe only a linear and reversible economy. The effects of policies would therefore be annullable simply by interventions of an opposite type.

*“static analysis is not only unable to predict the consequences of discontinuous changes in the traditional ways of doing things; it can neither explain the occurrence of such productive revolutions nor the phenomena which accompany them.” (Schumpeter, 1934)*

In order to be able to capture the true nature of the phenomena it is necessary to introduce such concepts as disequilibrium, dynamic irreversibility, and, modern scholars would add, non ergodic systems. Even if Schumpeter did not use these concepts, which in his times were still in an embryonic phase, nevertheless he was able to capture their meaning and describe their effects.

*«We will postulate the existence of states of equilibrium where none exist, but only where the system is moving towards one. When for instance existing states are in the act of being disturbed say, by ... a mania of railroad building, there is very little sense in speaking of an ideal equilibrium coexisting with all that disequilibrium. It seems much more natural to say that while such factor acts there.» (Schumpeter, 1939)*

*“...we will ... recognise existence of equilibria only at discrete points on the time scale at which the system approaches states which would if reached fulfill equilibrium conditions. And since the system in practice never reaches such a state, we shall consider instead of equilibrium points, ranges in which the system as a whole is more nearly in equilibrium than it is outside of them.” (Schumpeter, 1939)*

These passages demonstrate the depth of the insights of Schumpeter who without using the instruments and concepts of mathematics and thermodynamics is able to express ideas that only in the last years of Twentieth Century would take their places among the most interesting and up-to-date paradigms of economics.

Re-reading many ideas of Schumpeter in the light of the paradigm of complexity appears, therefore, to be an interesting exercise to understand the evolution of the social systems. It follows that the idea that the economy is made up of a «complex system in evolution,» in which single individuals are joined by relational forces, that the dynamic char-

acteristics cannot be represented by means of individual approaches, but through collective properties submitted to successive non-reversible scansions.. Thus it is imaginable that each economic system, in its evolution, manifests both a multiplicity of equilibrium points, each dependent on previous historical interrelations, and the presence of inefficiencies and lock-ins that may be selected during the evolutionary course of the system, to the detriment of the possible efficient solutions.

The government of the economy, read as a complex system in evolution, excludes, therefore, the possibility that commands can be expressed thinking of a prescribed type mechanism, as would happen if the system under analysis were substantially closed and characterized by a low level of interrelations between the agents.

If the complexity and environmental turbulence is low, this method of programming is workable. This type of programming experiences a crisis when the system encounters those critical areas characterized by elevated turbulence and uncertainty. In this case it is necessary to program for critical situations, that is to think of a program capable of auto-regulation in the presence of critical factors and to vary its parameters to overcome eventual lock-in or bottleneck situations. As long as the critical zones are of small dimensions, this approach is sufficient. If, on the other hand, the turbulence and the complexity are elevated to such a point that the critical factors can occur at any moment, then it is necessary to program for integration contexts, considering, that is, the system in its entirety as an organism able to adapt itself continuously to the outside environment. Policies in this case must take into account the changes that influence the system, that is, how they are metabolized by the system.

In the light of complexity even the emphasis on the economy as a process of historical evolution may acquire a different meaning. It is no longer, as someone has pointed out, an attempt to sociologize a science such as economics that instead aspires to increasingly acquire

the formal purity of the exact sciences, but it is the recognition that the dynamics and temporal trajectories of economic systems would simply become incomprehensible if interpreted ignoring the history within which they move and have meaning. Complexity is able to reconcile the necessity to connect the different behaviors and different histories of the economic agents that determine the history and temporal evolution of all the economic system and that make up the hard core of the social sciences with the formal models typical of the exact sciences. Without this historical content the mathematical models would become simple mathematical games separated from reality. Complexity permits one to make syntheses between these different modes of interpreting the epistemology of the economy.

### **Complexity in the Development Theory of Schumpeter**

The innovative development and entrepreneurial theory is without doubt the most notable and well-known area of the thought of Schumpeter. This theory has been thoroughly studied and discussed and can be considered a homogeneous and compact whole within the corpus of thought of the Austrian economist. The idea of complexity permits, though, the enrichment of this theory with new aspects.

*“development in our sense is then defined by carrying out of new combinations. This concept covers the following five cases: The introduction of a new good - that is, one with which consumers are not yet familiar . of a new quality of a good. The introduction of a new method of production that is one not yet tested by experience in the branch of manufacture concerned , which need by no means be founded upon discovery scientifically new, and can also exist in a new way of handling a commodity commercially. The opening of a new market, that is a market into which the particular branch of manufacture of country in question has not previously entered, whether or not this market has existed before. The conquest of a new source of supply of raw materials or half manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. The carrying out of new organisation of any industry, like the creation of a monopoly position (for example through*



*trustification) or the breaking up of a monopoly position” (Schumpeter, 1934)*  
*“...development consist primarily in employing existing resources in a different ways in doing new things with them irrespective of whether those resources increase or not” (Schumpeter, 1934)*

*“everyone is an entrepreneur only when he actually carries our new combinations and loses that character as soon as he has built up his business when he settles down to running it as other people run their businesses” (Schumpeter, 1934)*

*“If someone who has never seen or heard of such a state were to observe that a farmer produces corn to be consumed as bread in a distant city, he would be impelled to ask how the farmer knew that this consumer wanted bread and just so much. (Schumpeter, 1934)*

*“By development therefore we shall understand only such changes in economic life as are not forced upon it from without but arise by its own initiative, from within. Should it turn out that there are no such changes arising in the economic sphere itself, and that the phenomenon that we call economic development is in practice simply founded upon the fact that the data change and that the economy continuously adapts itself to them then we should say that there is no economic development” (Schumpeter, 1934)*

This synthesis of the description of the concept of development ends with a new paradigm. Schumpeter clearly highlights in his work the concept of «discontinuous change», which is certainly a concept with rich implications from the point of view of the comprehension of a process that has the characteristics of a complex phenomenon. Development is not, therefore, a linear process that goes ahead in a progressive and regular way, but, to use an image from Bergson, it is a sort of «*élan vital*», a discontinuous and irregular process that goes ahead with sudden leaps, with irregular accelerations and decelerations.

*“ development in our sense is a distinct phenomenon entirely foreign to what may be observed in the circular flow or in the tendency towards equilibrium. It is spontaneous and discontinuous change in the channels of the flow, disturbance of equilibrium, which forever alters and displaces the equilibrium state previously existing» (Schumpeter, 1934)*

For Schumpeter the innovative entrepreneur is a destructive and unbalancing force that shakes the market out of its sleep. With this affirmation Schumpeter is close to other thinkers of his times, Keynes and von Hayek, who maintained the role of the innovative thrust and of unbalance in the description of economic phenomena in opposition to the static description that emerges from the «general equilibrium» approaches.

The development theory of Schumpeter was frequently criticized and the Austrian economist was rebuked for not having formalized any of his ideas. Surely it is true that Schumpeter's thought is one of the least formalized in economics, even though its extraordinary depth should be underlined as well as the extraordinary brilliance of its insights. The criticism of the models of general economic equilibrium and their pretension to form a satisfying and exhaustive explanation for the functioning of the economic system is certainly a consolidating aspect of the economy of New Century. When, however, Schumpeter formulated his theory of the innovative entrepreneur the general economic equilibrium approach with its extraordinary formal beauty was the dominant approach, and whoever tried to criticize it was running the risk of being considered a heretic. The refusal of formalization and the emphasis on history make up, perhaps, the manifestation of this intolerance towards the dominant thinking and the shared paradigm. His insights were able to shed light on the limits of this approach that would emerge years later, and this perhaps is the major merit of the thought of Schumpeter.

### **The Originality of the Thought of Schumpeter**

The theme of complexity can enrich with new elements of modernity and relevancy the already topical thought of Schumpeter. It can, in fact, form a link between the different themes dealt with by the Austrian economist that would appear unconnected to each other without this

binding thread. Both the theme of history and the theme of development, as well as the monetary theme that has remained secondary in the comments on the thought of Schumpeter, find in complexity their unifying motif. On the other hand, Schumpeter's thought would be mutilated if it did not take into account these contributions that were not among the most studied by economists.

Complexity is perhaps the leitmotif of all his thought, that basic insight, even if never too strongly manifested, that permits Schumpeter's thought to cross the limits of the economic thinking of his time in order to shed light on questions and aspects that would emerge only years later. The strength of his thought and its modernity rest in this capacity for insight that makes up the element of genius of his thought. If sixty years after his death his thinking is still studied and his insights are still able to guide economic research then the superior value of his thinking cannot be denied, consenting us to confer to Schumpeter a place of honor in the Olympus of the science of Economics.

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