DOI: 10.33278/SAE-2018.eng.292-295

JEL C18

REFLEXIVITY IN SOCIAL SYSTEMS: THE THEORIES OF GEORGE SOROS

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Abstract. An earlier version of this article was published in Systems Research and Behavioral Science 24, 515-522 (2007)

George Soros's reflexivity theory connects ideas in cybernetics with economics, finance, and political science. This paper briefly provides an introduction to Soros's version of reflexivity theory and describes some applications in economics and finance. Soros's approach to economics is based on different assumptions about information and human behavior. His approach to finance is more holistic than most current work in finance. He does not emphasize mathematical models but rather sees finance as a human player game with himself as a participant. The paper concludes that Soros's work is a very important contribution to and expansion of contemporary social science.

Keywords: equilibrium theory, reflexivity theory.

DEFINITIONS OF REFLEXIVITY

Reflexivity occurs in social systems when an actor observes and thinks about his or her actions and their consequences and then modifies his or her behavior. More generally "reflexion" is defined as the return of light or sound waves from a surface, the action of bending or folding back, or an idea or opinion made as a result of meditation. (Stein, 1968) "Reflexive" is defined as something turned back on itself, a relation that exists between an entity and itself. "Self-reference" in mathematics indicates a statement that refers to itself, for example, a set that contains itself. Such statements lead to paradox, a form of inconsistency. In the informal fallacies self-referential statements are considered as a poor form. However, a social scientist who formulates a theory of a society in which he or she is a member is making self-referential statements. An investor who makes trades that alter price is engaged in a reflexive process.

Given the self-referential nature of social systems and financial activities, how is it possible to create a non-paradoxical, logically consistent theory? Stated differently, should traditions concerning the FORM of arguments limit the SCOPE of science? Or, should the subject matter of science be guided by curiosity and the desire to construct explanations of phenomena? Cyberneticians have historically chosen subject matter over form of argument.

In recent years at least three theories of reflexive processes have been created.

- Heinz von Foerster, beginning in 1974, advocated including the observer in the domain of science. He called this line of inquiry "second order cybernetics." (von Foerster, 1974)
- Vladimir Lefebvre proposed the existence of two systems of ethical cognition and called the activity of selecting the appropriate ethical system for the occasion one form of "reflexive control." (Lefebvre, 1982)
- George Soros described both economic and political systems as being composed of individuals who are actors as well as observers. (Soros, 1987)

Soros's theory of reflexivity is now increasingly known in the systems and cybernetics community. In the traditional social sciences Soros's theory is known and used by people in finance more than by

economists. Soros uses a participatory, not a purely descriptive theory of social systems. Soros studied with Karl Popper at the London School of Economics. He has worked to implement Popper's idea of "open societies" in many countries around the world. Soros uses Popper's idea of conjectures and refutations" to guide his investments and social interventions. Soros points out that in social systems there are two processes – observation and participation. The natural sciences require only observation.

WAYS TO DESCRIBE SYSTEMS

It is useful to note that social science disciplines describe systems using different basic elements (Umpleby, 1997).

- Variables are used by disciplines such as physics and economics. Physicists measure mass, length, time, velocity, acceleration, pressure, temperature, etc. Economists measure variables such as price, savings, income, growth rates, and return on investment.
- Ideas, including beliefs, values, and assumptions, are the subject matter of philosophers, psychologists, and cultural anthropologists.
- Groups are the focus of attention of sociologists and political scientists.
- Events are the chief concerns of fields such as computer science and history and law. Computer scientists describe sequences of operations, for example retrieval, addition, storage. Historians and legal scholars describe systems in terms of key events, for example wars, elections, and reform programs.

Classical scientific theories operate in the realm of variables and ideas. That is, variables are defined and measured and relationships among them are proposed and tested. Although most work in economics describes social systems in terms of variables, Soros uses all four methods – variables, ideas, groups, and events. See Figure 1. Hence, Soros's analyses of social systems are more holistic than purely economic analyses. Reflexivity is the process of shifting back and forth between description and action.

For Soros it is important to understand the "bias" or perception or preconception of the various actors in a social system. He feels that bias is the main driving force in historical processes. He assumes that ways of thinking influence events. For Soros cognition means that perception is a function of the situation. Action means that the situation is a function of perception. Combining perception and action yields reflexivity.

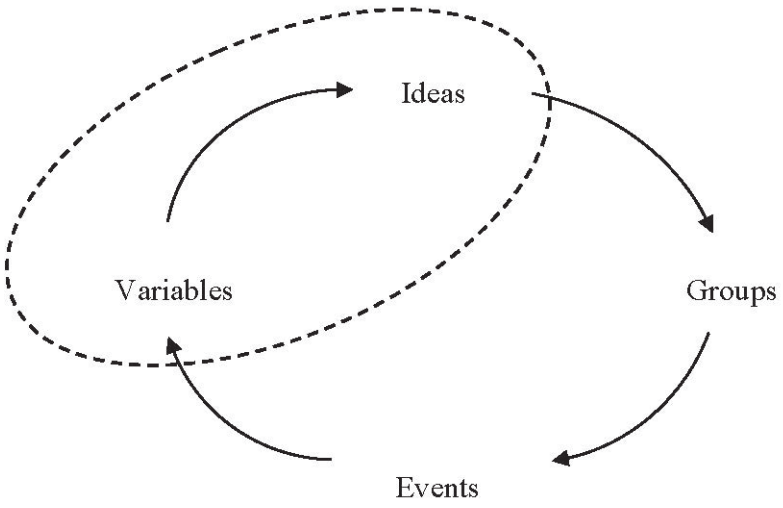

Fig. 1 A reflexive theory operates at two levels

To illustrate reflexivity theory Soros (1987) provides several examples – the currency market the conglomerate boom, Real Estate Investment Trusts, the venture capital boom and collapse, and the credit cycle. Consider the conglomerate boom. Soros describes a high-tech company with a high price to earnings (P/E) ratio that begins to diversify. It buys consumer goods companies with high dividends but low P/E ratios. As earnings of the conglomerate improve, the price of the company rises. The higher stock price means greater ability to borrow. The conglomerate borrows to buy more consumer goods companies. Earnings per share continue to grow. Investors eagerly buy more stock. Eventually people realize that the character of the company has changed and a high P/E ratio is not justified. Price then falls to more closely match the character of the company. Figures and tables in Umpleby (2007) show how the conglomerate boom can be described using variables, ideas, groups, and events.

IMPLICATIONS FOR FINANCE

Most academic work in the field of finance currently involves building mathematical models. Although behavioral finance is a growing part of the field, this subfield tends to emphasize limits on rational behavior. Soros in contrast regards finance as a multi-person game involving human players. Whereas behavioral finance focuses on decision-making by individuals, Soros is concerned with the behavior of large social systems.

The work of Markowitz (1952) is widely used by financial managers. It is based on mathematics and statistics. It assumes a tendency to market equilibrium. The focus is on historical data. Reflexivity theory, on the other hand, is not as often used by financial managers. It is based not only on economics but also psychology and national policies. It assumes market disequilibrium. The focus is on the future decisions of investors and policy makers.

Soros uses the same theoretical point of view when analyzing political systems as he uses in economics. He looks for gaps between perception and reality. A large gap means the system is unstable. When people realize that description and reality are far apart, legitimacy collapses. An example in politics was glasnost or the policy of openness regarding information, which destroyed the legitimacy of the USSR Communist Party.

Although most of Soros's investments are in conventional investment instruments, he also looks for short term positive feedback situations, which will yield rapid growth, for example the conglomerate boom, a credit cycle, or a high-tech bubble. He also looks for instability preceding collapse caused by a gap between perception and reality.

IMPLICATIONS FOR ECONOMICS

Economic theory is based on several assumptions about information and about human behavior. For example, information is immediately distributed to everyone. Each person seeks to maximize personal profit. Human beings behave rationally. When asked whether they really believe such assumptions, economists reply, "These assumptions allow us to solve problems. If you don't make these assumptions, then you can't do anything." (Waldrop, 1992, 142) Although behavioral economics is becoming more widely accepted, the situation in economics might be called a "far from reality condition."

One might think this new theory would attract great attention. It is more general than the previous theory because it can be applied to political and social systems as well as to economics and finance. It is more detailed than the previous theory because it explains how markets do or do not go to equilibrium. And it enables better predictions, as illustrated by the superior record in financial management.

What would economics look like if beliefs in perfect information, rationality, and equilibrium were replaced with bias, interaction between cognition and participation, gaps between perception and reality, disequilibrium, and boom and bust cycles? See Table 1.

Table 1

Two Theories of Economics

Equilibrium Theory	Reflexivity Theory
Information becomes immediately available to everyone	People act on incomplete information
People are rational actors	People are influenced by their biases
Economic systems go quickly to equilibrium	Social systems display boom and bust cycles
Scientists should build theories using quantifiable variables	Scientists should use a variety of descriptions of systems (e.g., ideas, groups, events, variables)
A theorist is outside the system observed	Observers are part of the system observed
Theories do not alter the system described	Theories are a means to change the system described

Soros's theories expand finance and economics to include the perceptual bias of participants. He also suggests a way to anticipate major political changes. Reflexivity theory provides links between cybernetics and economics, finance, and political science. Reflexivity, which can be thought of as positive feedback between cognition and participation, can be found in other social science fields as well.

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