

**European Contributions to Evolutionary Institutional Economics:
The Cases of ‘Cumulative Circular Causation’ (CCC)
and ‘Open Systems Approach’ (OSA).
Some Methodological and Policy Implications**

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and
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This paper reconsiders the pioneering contributions to evolutionary institutional economics (EIE) by the European institutionalists Nicholas Georgescu-Roegen, Gunnar Myrdal, and Karl William Kapp, namely the conception of circular cumulative causation (CCC) and the open system approach (OSA). First, we briefly reconstruct the basic ideas. Then we discuss whether these have been adequately appropriated by modern EIE, or whether their original meanings may have been partly “lost” and thus recent references to these authors may not grasp the main thrusts of their concepts, substantially and methodologically. Finally, we show how the approaches imply a “political-economic” EIE which is more critical and radical vis-à-vis the “market” and the private enterprise, and consider their policy implications for preventing “social costs” of the “market” economy.

Circular Cumulative Causation (CCC)

There is widespread understanding among evolutionary institutional economists that the CCC was directly derived from Veblen’s concept of “cumulative change” (e.g., Argyrous and Sethi 1996, 485) and that the two are more or less identical (e.g., Mayhew 2001, 243). In fact, approaches dealing with “cumulative” effects were common in England, Germany and Sweden in the 1920s. Suffice to mention the work of Adolph Lowe and the “Kiel School” on the causes of the trade cycle (e.g., Forstater 2003 309ff.) as well as Knut Wicksell’s work on inflation and Myrdal’s work on the dynamics of savings and investment rates (e.g., Sandelin 1991, 186ff.). Myrdal

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formulated the fully developed CCC for the first time in Appendix 3 of his “American Dilemma – The Negro Problem and Modern Democracy” (1944) and used it as a research hypothesis to explain the circular (reinforcing) causation between prejudices, i.e., social norms and *institutions* in general, and poverty, triggering a *vicious circle* or “cumulative effect.” The latter is manifest in increasing inequalities, instabilities and even a major crisis of the whole socioeconomic system. Myrdal derived the concept from his earlier models in “Monetary Equilibrium” (1939) and considered Wicksell a forerunner of the CCC (Myrdal 1944, 1065, fn. B; see also Wahid 2002, 85). The two distinct elements of the CCC are *circular* (reinforcing) causation and its *cumulative* effect. Myrdal gave a clear statement of circularity and cumulation in “Asian Drama – An Inquiry into the Poverty of Nations” (1968):

[. . .] circular causation will give rise to a cumulative movement only when [. . .] a change in one of the conditions will ultimately be followed by a feed-back of secondary impulses [. . .] big enough not only to sustain the primary change, but to push it further. Mere mutual causation is not enough to create this process [. . .] (Myrdal 1968, 1875).

Elsewhere he had formulated:

Because of such circular causation a social process tends to become cumulative and often to gather speed at an accelerating rate (Myrdal 1957, 13).

However, without delving into the details of Veblen’s “*cumulative change*,” there appears to be some difference between Veblen’s and Myrdal’s understandings. Veblen’s definition of cumulative change has been:

For the purpose of economic science the process of cumulative change that is to be accounted for is the sequence of change in the methods of doing things – the methods of dealing with the material means of life (1898, 387).

Veblen used the conception to stress causal inquiry that is based on factual givens and historical processes:

The economic life history of the individual is a cumulative process of adaptation of means to ends that cumulatively change as the process goes on [. . .] (1898, 391).

According to Veblen, the main characteristic of an evolutionary economist is that

he insists on an answer in terms of cause and effect [. . .] the notion of cumulative causation (1898, 377).

Of course, Veblen was aware of the potential *reinforcing* nature of institutions in relation to non-institutional factors, and thus the frequently self-reinforcing nature of the whole socio-economic process. However, his concept of cumulation, *per se*, does not contain the idea of a self-reinforcing positive feedback and even states that there is “no trend” in cumulative causation (Veblen 1907, 304). This might even be the reason why Myrdal did not explicitly mention Veblen’s concept in this context in his “Remarks upon Receipt of the Veblen-Commons Award” (Myrdal 1976, 215). Thus, Myrdal’s CCC cannot simply be read as a theoretical module introduced and already used by Veblen. Recent studies have stressed the difference between the two understandings as well (see Bellets and Sosthe 2006; Angresano 1997, 85).

In fact, CCC is an empirically oriented heuristic, much more specific than Veblen’s “cumulative change,” to detect and specify critical processes, vicious circles and *cumulative crises* of socioeconomic systems. Myrdal’s CCC appears to be the first scientific application of the ancient idea of a vicious circle to socioeconomic problems. *Positive feedback loops* apply the idea of the CCC in more formal system dynamics models (e.g., Richardson 1991, 77) so that an integration of the two should be based on the CCC rather than Veblen’s concept. This said, it nevertheless appears completely consistent with Veblen’s original “research program” for a radical, critical, evolutionary-institutional “political economy.”

Open System Approach (OSA)

The meaning of Georgescu-Roegen’s and Kapp’s contributions to OSA shall also be reconsidered against the background of recent contributions that parallel OSA with the open system ideas of philosophical Critical Realism and Ludwig v. Bertalanffy’s “General System Theory” (see Hodgson 1999, 145; Mearman 2002, 573), and against the understanding that Georgescu-Roegen’s “bioeconomics” is a metaphorical approach (Hodgson 2005, 133).

Thermodynamics and Openness at the More Complex Level of Human Society

The OSA was built upon the biological theory of open systems developed by Ludwig v. Bertalanffy and Erwin Schrödinger in the 1930s, and showed how living organisms are thermodynamic open systems. In Kapp’s words:

[Living organisms] are open systems which maintain themselves in a steady state due to an influx and efflux of nutrients and waste materials. [. . .] [They] use materials from their environment for the maintenance of orderly processes [. . .] It is these superimposed self-regulating mechanisms which tend to restore balance [. . .] and give the appearance of purpose and direction not found in the inanimate closed systems [. . .] (Kapp 1961, 93)

The complex formation of the life process (as an open system) thus seems to be compatible with the implications of the entropy law. Therefore, from a physical viewpoint, the economic process is an *entropic* transformation because it transforms low into high entropy, which is irrevocable waste (Georgescu-Roegen 1966, 97).

However, OSA also focuses on the social *institutions* that co-determine the speed of the entropic transformation process and of socioecological degradation (e.g., Georgescu-Roegen 1966, 96, 126) and thus involves an institutional analysis of the most complex level of organization, i.e., human society. The term “open system,” as used in thermodynamics, is distinct from its application at higher levels of organization. To understand the “openness” of the socioeconomic system, the socioeconomist has to analyze institutions in which the open economic system is “embedded” and the institutional changes, which it elicits in the wider cultural and societal framework.

The “Biocultural Concept of Man”

Individual openness has a long-standing humanistic tradition since Erasmus and Arnold Gehlen (see for example, Kapp 1961, 1967; Steppacher, Zogg-Walz, and Hatzfeld 1977; Steppacher 1994). In this tradition, Kapp’s “biocultural concept of man” conceptualizes behavior through the enculturation process of a uniquely “open” and “unfinished” biological structure. The quasi-embryonic state results in an extreme dependence of the infant, and the completion of the biological process of maturation has to take place in interaction with a highly variable environment. Man is born endowed with a little differentiated system of drives and with a high degree of plasticity. Human basic needs of cooperation and communication are the outcome of the human experience of helplessness and isolation. These experiences call for assurance that can only be established in interpersonal relationships in which man is able to affirm his self-esteem. This *interaction* is a precondition for the development of man’s potentialities and he depends on a process of *enculturation* to become a human being that is unconscious in early childhood. Hence, individuals become culturally conditioned and view reality through their acquired linguistic and symbolic systems (see for example, Kapp 1961, 155ff.).

The Non-Metaphorical Character of the OSA

Georgescu-Roegen and Kapp considered openness to establish a causal analysis, which *directly* takes physical and institutional chains into account (e.g., Kapp 1976). Thus, the OSA is not based on analogies or metaphors from natural sciences. The idea of openness was used to deal with discontinuous nonlinear feedbacks, which characterize the dynamic interdependencies between the different subsystems, as well as of each subsystem with the composite whole. This differs from an ontological understanding of “open systems,” of Critical Realism for instance (e.g., Lawson 1994, 220-2), because the latter assumes a reality independent of observations and the possibility of the separation of theory and object. This inevitably leads to a purely

formal understanding of an open system, as a thing in itself with a high level of abstraction that is not subject to further inquiry. In the pragmatist tradition of John Dewey, Kapp warns against this skepticism concerning the validity of sensory perceptions, and the trend toward greater abstraction (Kapp 1961, 195-7). Kapp cautions against the purely *formal* use of the term “system” and advocates the *substantive* approach in the tradition of Max Weber and Karl Polanyi (Kapp 1961, 198-9).

[F]or the formal concept of system acquires meaning and content only by making explicit the distinguishing characteristics of specific modes of association (Kapp 1961, 103).

Despite his early interest in systems theory – documented in correspondence with William R. Ashby and Bertalanffy – Kapp distances himself from mathematical cybernetics and finds that there are too many problems in constructing a “General System Theory” (Kapp unpublished manuscript, 190).

Thus, OSA seems to differ from (thermodynamic) *analogy* approaches, such as self-organization (see for example, Witt 1997), the (biological) *ontology* approach, and Universal Darwinism (Hodgson 2002). In Kapp’s view, analogies from the natural sciences add confusion rather than insight since predetermined causal mechanisms taken from the natural sciences may divert attention from important inherent characteristics of the socioeconomic system (e.g., Kapp 1961, 56-60). Again, an instance may be seen in the use of the physico-chemical “self-organization” metaphor to justify the non-interventionist worldview of Hayek’s “spontaneous order.” Kapp’s “substantive” approach, in contrast, makes use of biological and physical knowledge in a *direct* integration, as far as this is directly applicable to the biological open character of man and the material level of the economic process.

“Political-Economic” Institutionalism

Social Costs as a Result of the Open System Character and of Circular Cumulative Causation

A major field of application is involved in Kapp’s lifelong preoccupation with the “*Social Costs of Private Enterprise*” (1950). The private firm shifts a certain share of the costs of production in the form of socio-ecological degradation to third parties, to the society at large, and, via the “commons,” to future generations. Social costs are non-market relationships generated by the *market*, which illustrate the openness of the economic system toward the institutional framework that tends to give rise to increasing social costs; in all, an overall circular cumulative causation. Veblen shared this critical institutional view of the “market” economy, analyzing the causes and detrimental effects of the pecuniary institutions in the age of the *business enterprise*.

In modern EIE, this critical institutional analysis of the causes and effects of social costs has often fallen outside the attention and research programs of

evolutionary institutional approaches. The understanding of the open system character of the economy with its circular cumulative effects and its provoking heuristic to investigate social costs, vicious circles, socioecological degradation and socioeconomic crises has often been “lost” out of the approaches and conceptions of modern EIE (on the conception of “paradigmatic losses” in economics, see Elsner 1986). Note that this critical approach results from Kapp’s *specific application* of “openness” as a mode of abstraction on different levels of organization.

“Political Institutionalism”

Thus, taking the direct integration of biophysical openness of man and his socioeconomy seriously, Kapp proceeded from a radical critical analysis of the “market” economy and its private firm to a “political-economic” approach of collective decision-making, planning, intervention and institutional design. In an unpublished version of “Open System Character of the Economy and its Implications” (Kapp 1976), Kapp stressed the fact that the open system character of the economy requires a new economics because economic effects on the natural environment can threaten socioeconomic reproduction.

In short, as soon as the open character of economic systems is fully realized the formulation of social goals and objectives and the problem of collective choices can no longer be avoided. Such objectives and choices with respect to the maintenance of dynamic states of ecological and economic balance for the maintenance and improvement of the conditions of social and individual existence (quality of life) must become the point of departure of normative science of economics. [. . .] In short, a normative science of economics taking account of the open system character of the economy would imply a complete reversal of the analytical procedures of the discipline as heretofore practiced and applied. [. . .] the new task of economics would be to elucidate the manner in which collectively determined social goals and objectives could be attained in the most effective and socially least costly manner. (Kapp 1976, 18)

Thus, Kapp developed a “Political Institutionalism” that deals with policy-making aiming at the *reduction of social costs* (Kapp [1971] 1983a). Kapp argued that the *political process* has to generate priorities in the light of defined human needs, i.e., “quality of life.” He believed in the scientific contribution to define the fundamental requirements of human life and survival as an integral part of a constellation of societal goals. The universal values of existential needs could be objectified and transformed by scientific inquiry into *social minima* and *maximum tolerance levels*, e.g., for environmental pollution.

"Systemic" Policy

Ex-post measures or ad-hoc methods, however, fall short of what seems to be required to protect or improve the quality of the environment. So, he assumed a "systemic" stance.

Pollution effects are not minor side-issues and cannot be easily corrected by isolated *ad hoc* measures of legislative control, chosen and preferred because they are more or less compatible with the market system. [. . .] What has always been put in question by the phenomena of [. . .] social costs is the rationality of allocation and production patterns guided by market prices. (Kapp [1971] 1983a, 124)

In view of the rapid deterioration of the environment, Kapp argued that *ex-ante* measures will play an increasing role, as well as *direct* controls that stop pollution by prohibition and curtailment of production of toxic materials. He underlines that nothing is more important than the *planned* development of *technologies* designed to reduce or eliminate environmental disruption. In addition, Kapp proposes a more *comprehensive economic calculus*, which takes into account the short-run and long-run social costs and potential benefits of alternative patterns of resource allocation (Kapp [1974] 1983).

CCC has highlighted the fact that the components of the whole are reciprocally interlinked in uneven and complex manners - i.e., the links are in constant flux and mutually overlap. Hence, a prerequisite for setting in motion a cumulative reduction of social costs in a virtuous circle is an understanding of the *interrelations between subsystems* which in turn should not be changed in isolation. Effective policy requires a concerted effort in many variables, such as institutions, education, and technology. Their specific interrelatedness determines the cumulative effects.

Policy-making has to be aware that because the system is moving, the coefficients of interrelations among the various conditions in a circular causation are not known with precision because of inertia, time lags and in some periods and areas even a non-responsiveness of the system to changes (Myrdal 1968, 1870-8). Hence, the policy maker has to be aware of the complex *time* factor, as the effects on different variables of the system could be very different over time (also e.g., Myrdal 1957, 19).

Conclusion

This paper has tried to illustrate that OSA and CCC, conceived in their original meanings and implications, may become key concepts of a more "political-economic" EIE. The latter would be concerned with the elaboration of alternative "systemic" policies, and the elaboration of social goals as part of the processes of collective interaction. The dominant properties of original OSA and CCC seem to be that they

are able to conceptualize socioeconomic and socioecological openness and change, and integrate knowledge from the natural sciences *directly* to comprehend the “entropic” socioeconomic process. Hence, they avoid the dangers of potentially arbitrary utilizations of metaphors, analogies and ontologies taken from the natural sciences.

A reintegration of these conceptions into cutting-edge EIE would shift the center of attention toward dealing with *direct biophysical openness* of man and the socioeconomy, and, specifically, with the tendency of the system of “markets” and private business enterprise toward *cumulative crises*, and its unwarranted effects, i.e., *social costs* in a comprehensive, systemic, and scientific understanding. Thus, it has been illustrated that the direct integration of biophysical knowledge about openness leads to a critical, radical, and “systemic” analysis of social costs and a “*political-economic*” evolutionary-institutionalist conception of policy-making and “*systemic*” *institutional design*, which might bring modern EIE closer again to its original *Veblenian* impetus.

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