## A Review of Christian Arnsperger, *Full Spectrum Economics. Towards an Inclusive and Emancipatory Social Science*, Routledge, 2010, 277 pp.

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Many brilliant economists today do recognize that economics need to be reformed, but the vast majority of scientific works is still captive into the absolute rigor of the Cartesian paradigm and the finery of the Newtonian models. In this context, Christian Arnsperger's book aims to be a guide in the efforts to conceptually renew economics. As part of this endeavour, he pursues ambitiously to build a new sub-discipline within the economic science - Full Spectrum economics. The writing is mainly constructed on a critical and consistent review of the philosophical principals of scientific materialism and mainstream monism, on which Western Enlightenment was built, and of the current research methodologies applied in economics and founded on these principles. Enlightenment is disregarded as being based on mathematical formalism that looks for "characteristic universalis" (Descartes), absent from real world. The book is also a struggle to holism and transdisciplinarity, being indeed an enriching experience in logics, philosophy, psychology and economics.

The authors' writing style, brilliant, coherent, scientific but easy to follow transforms the book into a truly instructive, as well as novel and innovative reading. The book contains four parts and twelve chapters. Part I, II and III are a detailed philosophical critique both of neoclassical and post-neoclassical economics, the last including complexity, neuro and behavioural economics. Supported by these reviews, the basis for the sub-discipline of Full Spectrum economics is established in Part IV. The philosophical background assumed with academic honesty by the author is inspired by the philosopher Ken Wilber. Wilber's studies are focused on the psychology of the highest states of consciousness and noetics, a branch of metaphysical philosophy centred on the study of mind and intuition. Arnsperger not only uses philosophy in building the paradigm of Full Spectrum economics, but he also makes use of

philosophical argumentation methods, like discourse analyzing, when debating, for example the "grammatical" structure of economic knowledge.

For the purpose of a renewed form of knowledge, Arnsperger introduces the notion of existential rationality and critical rationality, making room for interior/subjective equivalent of the exterior/objective feedback mechanisms that connect quantitative and qualitative properties of individual economic behaviours and properties of the economic systems. Economics science is not physics, Arnsperger confirms. In fact, he launches a disguised invitation of passing the boundaries of subjectivity in economics, a lesson that indeed recalls reflection. Subjectivity is an indicator of "good science". In Wilber' and Kuhn's conception, "good science" is formed of a series of subjective experiences, centred on hypothesis testing. In consequence, Arnsperger recommends that economics take into account developmental psychology and political philosophy. He rejects mainstream objectivism, due to its premises that totally neglect subjectivity. For example, they state that the economist himself is not subjective, individual agents have no subjectivity and the economist's audience is irrelevant to how he does his scientific work.

Also related to subjectivity, the author proposes 'introspection', as part of the Full Spectrum economics experience. He motivates this proposal by the fact that the economist is himself an actor within the economic reality that he's studying. The author proposes even that economists should ask themselves how they feel about their work, if their life as economists is meaningful and what are their physical and mental states when they do economics. I believe that a more in-depth reflection should be made regarding the need for introspection. Although I agree with the concept of a "reflexive researcher" that the author proposes, I express doubts about the relevance of the economist's introspection for it.

The Broadness of knowledge, the first part of the book and the Structure of economic knowledge, the second one, initiate the reader in the identification of the four combinations that represent the dimensions in which people know, the so called the four perspectives or quadrants: exterior-individual, exterior-collective, interior-individual and interior-collective. The quadrants result from the division of the knowledge structure by two dichotomist principles: individual versus collective and interior versus exterior. In the absence of the four resulting quadrants, classical and neoclassical economics

failed to see the world as it is. Most importantly, they were not able to represent in economics the interactivity between agents and agents' capacity for self-criticism, i.e., conscience.

The inclusiveness of the newly proposed social science is principally determined by the integral approach, built on the four quadrants of reality. A gorgeous immersion in the traditional Platonic trinity lies at the basis of the four quadrants. The quadrants represent four fundamental dimensions of reality: I, WE, IT, ITS. "I" refers to how I personally see and feel about an event, "We" is about how others see the event, "It" refers to the objective fact of the event and "Its" to a plurality of "It-s" objects. These are the four windows Arnsperger opens for the study of economics, as a four-dimensional understanding of how agents acquire their own understanding of the world.

Arnsperger considers that the methodology of neoclassical economics rests on three important principles: methodological individualism, instrumentalism and equilibration. Based on these, microanalysis gave rise to the model of independent-agent. In this paradigm, agents have parametric rationality – in choice of their action, each agent takes his environment as a parameter that he can not affect and includes in that parametric environment the actions of all the other agents, a supposition not valid outside of the Walrasian model with "infinite" number of players. Indeed, interpretation of rationality is of primary importance in neoclassic theory, especially if we think that, in the absence of any exogenous change in the environment, agents have no incentives to change their optimal choices. Based on Weber, rationality has other meanings too, than the ones on which emphasis is put in Arsnperger. The model of rationality in social science maintains rationality as a cause, but also develops a model of reflexive analysis, called interpretation. Weber insists on these two facets of the interpretation: 1) evaluative rationality, which is the result of the evaluation of an event according to its socio-cultural significance and 2) analytical rationality or "causal knowledge", which is identifiable when we try to establish relations among phenomena. Economics centred on "causal knowledge" is supported by what Arnsperger calls the evil of neoclassicism: that it cannot be rejected, when tested empirically. This is because, when the whole is falsified, it is hard to establish what part of it is false.

In Part III, *Post Neoclassical reductionism*, game theory and strategic interaction are being discussed, with merits of these theories admitted

generously. Regarding game theory, Arnsperger introduces the concept of strategic rationality, as opposed to parametric rationality, that implies that individuals are able to take into account interactions with others. Albeit this ability, individuals' actions are supported by the assumptions of perfect knowledge, common knowledge of rationality and perfect compatibility of actions.

Strategic rationality and its implications in economics gave rise to evolutionary complexity economics. The agents interact within a system that is more than the sum of all individual level properties, i.e., it has emergent properties. It is also adaptive: the system's outcomes and rules may be modified and individuals may learn from mistakes. Complexity economics rejects the traditional theory of independent-agent approximation, being more close to an economics for humans, although, it remains stuck to a view of economic interaction with no subjectivity.

Behavioural economics incorporates human emotions if they can be measured in ways that allow insertion in formal models. Neuroeconomists believe that the brain is a biocomputer, with serious implications about previous economic findings and laws. For example, feelings and preferences are different depending on moments in time, neuroscience shows; so how could we admit in economic models that they are uniform over time? Further, agents have domain-specific expertise, so using across-the board assumption of bounded rationality is unwarranted. Equally important, individuals act in discriminatory ways, very often, for example, on the labour market, and they are not always capable of explaining their choices.

Part IV, *Beyond reductionism. The quest for Full Spectrum Economics*, proposes a new economic sub-discipline as a mixture of complexity theory and cognitive science, of behavioural and experimental psychology, in which the ideas of equilibrium and rationality become less demanding. The original idea of Full Spectrum economics relates to the reason for which (post)neoclassical economists have missed the so called "Left-hand" quadrant from the picture. This quadrant includes individuals' self consciousness, subjectivity and the collective dimension of knowledge. The reason is that many times even agents are unaware of the existence of these dimensions in their own lives. The agents themselves use a paradigm of knowledge that teaches them to treat their environment as if they were sophisticated, information-processing automata with no awareness of any

"I" or any "We". Agents are seen as living in "forgetfulness" of the Left-Hand dimensions and spiritually and culturally alienated. One important reason for which post-neoclassical agents are not constructed to carry "reflexive equipment" is that their main preoccupation is to generate and distribute wealth. Alienation appears due to the fact that the industrial system created a culture in which many interior aspects of experienced reality became invisible to Reason. All these considerations describe with fidelity modern times and deserve special attention.

As final thoughts, the author expresses the need for critical realism, understood as the need for a theory able to describe how thinks are and how they could change in the future. One of the main feature of it is that it does not identify the domains of real, actual and empirical, so that it recognizes that there are many parts of reality that are not directly observable under current empirical conditions, even though they exist as "latent potentialities". In the same line, Arnsperger defines Full Spectrum economics as being epistemologically, psychologically and spiritually subversive, because the incorporation of human potential makes the inclusion of spirituality and religion inevitable, which I fully agree. Instead, I do express doubts about the boundaries of these shifts in the way of renewing economics, so that it still be economics.

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