

The Science of Animal Spirits

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It is necessary to incorporate animal spirits into macroeconomic theory in order to know how the economy really works. In this respect the macroeconomics of the past thirty years has gone in the wrong direction. In their attempts to clean up macroeconomics and make it more scientific, the standard macroeconomists have imposed research structure and discipline by focusing on how the economy would behave if people had only economic motives and if they were also fully rational.'

Akerlof and Shiller (2009, page 168)

It is consensual amongst economists, business men and analysts in general that there are relevant noneconomic motivations driving human behavior in decision-making contexts. Less consensual is the extent in which economic theory should pay attention to such motivations. A possible interpretation, the one with a Keynesian flavor, firmly advocates the need for considering mental processes as a component of primary importance in structuring a coherent explanation of the macro economy. A different view, the one typically associated with the so called neoclassical authors, claims that Economics should focus on their distinctive strong ideas, namely rationality, optimization and equilibrium; other forces (e.g., psychological, sociological or cultural) have an undeniable influence on the course of action of individual agents but, on the aggregate, are seen as virtually innocuous in the determination of economic outcomes.

As any economist would recognize, mainstream macroeconomics has embraced the second of the mentioned views. Economists felt attracted by the scientific rigor underlying the rational expectations concept and built a whole theoretical body in turn of such notion. The precision, the exactitude, the 'scientificity' of the logical arguments that were offered to explain economic phenomena relegated to a second plan any effort of building an interdisciplinary and integrated theory of human action capable of better addressing collective economic performance. The introduction of Keynesian features in the dominant neoclassical paradigm, such as the inclusion of price stickiness or the substitution of rational expectations by learning devices, has been made with extreme care, in order to maintain intact the benchmark general equilibrium model on which the neoclassical interpretation of reality is built upon.

The influential book by George Akerlof and Robert Shiller [1], published in 2009 and entitled *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters for Global Capitalism*, has come to challenge the dominant view. It is not a work oriented to give definitive answers, at least with the formalism the advancement of the science requires, but it poses extremely pertinent interrogations about the state of macroeconomic thought. Psychological drivers are placed at the center of the discussion and the most important of these drivers are listed; namely, the authors highlight the following: confidence, fairness, corruption and antisocial behavior, money illusion and stories. Each of these items is recognized as appearing intermittently in theoretical advancements, but a full-fledged economic theory of animal spirits

*This text is an adapted version of the research proposal presented by the author to the 2014 Grant's program of the European Research Council. It claims for the urgency of developing a unifying and multidisciplinary theory of animal spirits. Animal spirits are understood, in this context, as the behavioral forces shaping collective action in the macro economy.

involving the mentioned components is missing from the literature.

The repercussion of the cited book in the scientific community was considerable. In the last few years, an increasing number of studies, published in some of the most prestigious economic journals, has started to pave the way for a consistent theory of animal spirits. This theory is still in an early stage of its development; however, some meaningful steps have already been taken [2,3].

An enthusiastic follower of the animal spirits approach to macro theory is the Belgian economist Paul De Grauwe. In De Grauwe [4,5], agents forecast future output and inflation resorting to simple biased rules, called heuristics. The correlation of biased beliefs conducts, in the proposed scenario, to endogenous waves of optimism and pessimism (i.e., to changing animal spirits on the aggregate level). This author emphasizes the idea that animal spirits and rational expectations do not 'mix well'; under rational expectations, agents are identically endowed with an unlimited capacity to process information and the economy may be described via a representative agent. Animal spirits, in turn, allow for a diversity of individual choices that provide a wider range of possible outcomes when addressing decentralized decisions.

Paul De Grauwe calls the attention for an important methodological issue. Unlike rational expectations, which are grounded on uncontested scientific principles, animal spirits can be introduced in economic models in a multitude of diverse ways. Strict criteria must be used in selecting the arguments that justify the adopted departure from full rationality, i.e., the scientific method requires the necessary care to avoid that 'everything becomes possible'. De Grauwe's analysis employs a discrete choice procedure to justify the adaptive behavior of agents and resorts to the new-Keynesian macro model in order to study the impact of heuristics on the trajectories of the most important economic indicators.

A second influential path on the contemporaneous literature concerning animal spirits is the one followed by Angeletos and La'O [2]. These authors address market sentiments without abandoning rational expectations. In this case, animal spirits or waves of optimism and pessimism arise as the result of limited communication on a decentralized economy. This approach is important because it proves that imperfect communication may serve as the vehicle required to generate a compatibility between rational expectations and changing sentiments.

The studies mentioned in the above paragraphs constitute a small

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sample of the effort being made to bring back animal spirits to the core of economic thought. A unifying theory of animal spirits is apparently emerging from these contributions, a theory capable of offering a deep and systematic understanding of the causes and consequences of taking mental processes seriously when approaching economic events. Psychosociological phenomena do matter for aggregate economic outcomes and, therefore, a scientifically strong and sound theory of animal spirits is of primary importance for the advancement of human knowledge.

Edifying a science of animal spirits requires adopting a multidisciplinary approach, an approach that demands for an integration of concepts, techniques and logical arguments from such distinct fields as psychology, sociology, anthropological and cultural studies, political science, biology and demographics. It also requires a clear understanding that three distinct phases must be taken into consideration in building such a theory. These phases are the following: first, the quest for the foundations of the mental processes that feed animal spirits; second, the search for the links that connect human thought to economic decisions; and, third, the investigation of how economic decisions originating in the previous phase impact on the aggregate economy.

Some of the studies in this area, such as the ones already referred, search for the sources of animal spirits in the economy itself. For instance, agents' confidence is most of the times associated to the perception that agents have on the observable or the expected performance of the economic system. However, changing sentiments can occur as well with a relatively high degree of independence from the economic context. Waves of optimism and pessimism, skepticism, euphoria and other sentiments might be mostly dependent on how individuals interact in a social context, on their psychological profile and on how social and political institutions constrain their behavior. Thus, a first fundamental line of inquiry asks to what extent animal spirits are effectively rooted in Economics; conceding that their seeds lie elsewhere, a thorough investigation on where they might be found is required.

The second stage of the construction of the animal spirits theory relates to how one translates sentiments into practical economic decisions. The relevant questions at this level are: are animal spirits necessarily converted in a form of bounded rationality or can they be compatible with rational expectations? If compatibility with rational expectations exists, through what other channels can sentiments impact decision-making? If animal spirits truly mean a departure relatively to full rationality in the formation of expectations, how will agents effectively predict the future?

The third and last phase of the animal spirits research program concerns the investigation of the impact of the previously discussed behavioral implications of animal spirits over the macroeconomic system. At this respect, the most popular macroeconomic models, as the new-Keynesian model, originally proposed by Goodfriend and King [6] and Clarida, Gali and Gertler [3], or the sticky-information model of Mankiw and Reis [7], must be adapted to include the changes that arise in stage two of the pursued research.

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