The Promise of Behavioural Economics

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Abstract

In this essay we argue that behavioural economics should enjoy a prominent role within economics. Behavioural economics is not a new trend that some economists have decided to work on but its foundations go back to Adam Smith's (1759) work *The Theory of Moral Sentiments*. Behavioural economics has accumulated a vast range of empirical evidence which illustrate some of the shortcomings of neoclassical economics and have provided alternative theoretical models to overcome these shortcomings. In addition, behavioural economists have recently embarked to direct policy recommendations from which we highlight a few. In line to these observations we conclude, with what we see as the biggest challenge for behavioural economics as a whole for the forthcoming years and that is the trade-off between predictive power and tractability/generality.

In the last two decades, it has been observed a proliferation of economic theories and empirical analyses that have brought evidence and ideas from psychology into the traditional approach of neoclassical economics. These new contributions to the understanding of economic phenomena have been raised in response to the weaknesses of mainstream economics highlighted in many empirical observations. In particular, the group of psychologists and economists, who try to explain the traditional limits on rationality, willpower, and self-interest through the theoretical and methodological approaches of psychology, calls its members behavioural economists. This new approach towards economics is nowadays well represented in the economic literature and

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is generally referred as behavioural economics. Despite the great range of contributions that behavioural economists have offered in the area of economics there are still some economists who seem hesitant and sceptical towards the subject. Aim of this essay is to emphasise the importance of behavioural economics for the future of economics.

This essay is structured in the following manner: we start with a discussion of the historical foundations of behavioural economics to show that the latter is not a new trend but a return to the roots of economics as these were perceived by its founders and fundamental contributors; secondly, we argue that behavioural economics is even more relevant now due to the improvements in both psychology and sociology and also due to the vast technological progress of the last twenty years; thirdly, we briefly review some of the shortcoming of neoclassical economics that behavioural economics has stressed along with alternative approaches suggested by the latter to alleviate these weaknesses; fourthly, we mention some of the policy implications stemming from that research; and lastly, we conclude with what we see as the challenge that behavioural economics will have to face in the years to come. It is clear that this a long curriculum and it is not the aim here to provide a comprehensive review of the issues but rather briefly point some of the most outstanding. As a logical consequence, this essay would be of most interest not to behavioural economists with years of experience on the subject but rather to economists who still are hesitant with the prospects of behavioural economics.

At first sight, behavioural economics can be considered as a new branch of economics. Mainstream economics is based on the assumption that variations in the psychological traits of individuals, such as feelings, impressions, and passions, do not matter in aggregate or do not alter, drastically, the main patterns of behaviours (Akerlof and Shiller, 2009). This view of economics derives mainly from the normative scope of economics, orientated towards the construction of a simple theory that focuses on efficient allocations of resources and idealized choices (Glimcher *et al.*, 2009). This line of reasoning goes back to Adam Smith's *The Wealth of Nations*, which conventionally coincides with the beginning of the classical period of economic theory. Smith suggested a principle of rationality that considers people motivated mainly by their economic interests. In particular, paraphrasing Smith, people choose according to their self-interests, while markets possess a self-regulating na-

ture. On the basis of Adam Smith's *The Wealth of Nations*, economists developed an approach directed on investigating the mathematical structure behind consumer choice, competition, and supply and demand, leaving behind any psychological traits.

However, Smith proposed also a theory of human behaviour that diverges from the joint assumptions of rationality and self-interest (Ashraf *et al.*, 2005). In particular, in his book, *The Theory of Moral Sentiments*, published in 1759, Smith described the human behaviour as determined by two conflicting forces: 'passions' and 'impartial spectator'. 'Passions' refers to all visceral factors, such as emotions (e.g. anger and fear), drive states (e.g. hunger and sexual desire), and feeling states (e.g. pain), that drive people towards specific behaviours (Lowenstein, 2000). These 'passions' are restrained by the 'impartial spectator', that is the individual perception of own behaviour from the point of view of an outsider (Ashraf *et al.*, 2005). If 'passions' are sufficiently intense, the role of the 'impartial spectator' is nullified. Therefore, with his theory of moral sentiments, Smith was anticipating several theoretical constructs that would have constituted the framework of psychology, neuroscience, and behavioural economics. Economists interpreted the two books as substitutes to each other. However, as Raphael and MacFie (1976) points out, this was a misinterpretation based on ignorance and misunderstanding and a more precise interpretation would be to consider the two books as complements to each other.

Before the shift from classical to neoclassical economics took place, economics observed a transitional period in the early years of the twentieth century during which important schools of economic thought provide further insights on the psychological approach to economics. For example, economists such as Edgeworth and Fisher argued about the possibility, thank to future developments in 'physio-psychology', to develop a 'hedonimeter', that would be a specific tool able to measure directly utility (Colander, 2007). While Edgeworth was optimistic about the possibility to obtain such device in the future, Fisher was more pessimistic, arguing that economists might be able to find a measurement of utility through the observation of the individuals' behaviour. Both ways of reasoning were anticipating two current approaches to economics: neuroeconomics and experimental economics.

However, the most important contribution of that time on the psycholog-

ical approach to economics was given by Keynes. The English economist introduced important psychology-based concepts, such as 'propensity to consume', and entrepreneurs' 'animal spirits' (Glimcher *et al.*, 2009). In particular, according to Keynes, economic decisions "can only be taken as the result of animal spirits - a spontaneous urge to action rather than inaction, and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities" (Keynes, 1973 [1936]: 150). The theories of Keynes have provided important insights to economics by introducing psychologically and empirically based assumptions, and still challenge standard economic thinking.

Nevertheless, the ideas of Keynes did not reverse the shift in economics - started by Vilfredo Pareto, and carried on in the 1930s and 1940s by several economists, such as Samuelson, Arrow, Debreu, and Hicks who removed psychological concepts from economics (Bruni and Sugden, 2007), focalising instead the investigation on the mathematical structure of economic behaviours and markets (Glimcher, 2009). In particular, this group of economists based the analysis on simple assumptions about preferences, such as rationality and self-interest, removing the psychological nature of preference. The aim of these theories was to infer approximately economic and market behaviours, rather than describe exactly how people behave and how markets work. In fact, according to the neoclassical approach, in order to investigate complex social phenomena, economics must rely on simple assumptions that can offer approximately true predictions. Therefore, there is no need to incorporate psychological grounds in the analysis since sharp predictions can be obtained by simple axioms. The neoclassical prospective, described above, was anticipated by Pareto, who argued, "the natural sciences have progressed only when they have taken secondary principles as their point of departure, instead of trying to discover the essence of things. [...] Pure political economy has therefore a great interest in relying as little as possible on the domain of psychology" (quoted in Busino, 1964, p. xxiv).

From the 1930s to the 1980s, most of the theoretical developments in economics have been based on models aimed to extend the power and scope of rationality and individual greed. The implicit belief behind this neoclassical revolution was the universality of the theory in all its applications. For instance, according to neoclassical economists, economic theory applies under both certainty and uncertainty, to both public and private sector, and

to both self-interested and other-regarding behaviour (Bruni and Sugden, 2007). However, this implicit presumption was the main source of criticism of neoclassical economics, and the base where behavioural economics arose.

In particular, several scholars started to criticise the fact that all the axioms and assumptions of neoclassical economic theory were motivated on a priori grounds but not tested in a real decision-making situation. From this prospective, what happened in the 1950s is crucial for understanding the behavioural economics' counter-revolution. In 1953, Maurice Allais presented a decision problem, later called 'Allais Paradox', which contradicted the expected utility axiom of independence. A few years later, Daniel Ellsberg (1961) introduced a famous paradox, based on experimental evidence, which implied a violation of the expected utility assumptions. Both paradoxes challenged the significance of the expected utility theory, encouraging economists (in particular, in the 1980s) to conceive new theories capable of accommodating the paradoxical behaviour.

However, the decisive turn towards a behavioural approach was given in the late 1970s and 1980s by several psychologists interested in choice theory, such as Kahneman and Tversky. These scholars proposed many experiments, whose evidences conflicted with fundamental axioms of choice. These experiments captured the attention of many psychologists and economists interested in decision-making, later called behavioural economists, who started to consider the empirical critiques of the neoclassical approach in order to develop more general axiomatic systems based on psychological principles. This new way of analysing economics by incorporating evidence and ideas from psychology is referred as behavioural economics, and can be thought as a counter-revolution of the 'Paretian turn' (Bruni and Sugden, 2007), which took place from the beginning of the twentieth century in opposition to the psychologically and empirically-based tradition of economics.

Therefore, behavioural economics can be considered as a return to the original roots of economics, with, however, important new tools on the economists' arsenal. Firstly, new progresses in psychology on how people behave can suggest to economists important ways to improve the traditional description of economic behaviour (Rabin, 1998). Secondly, the development of a precise experimental method in economics, begun roughly in the 1970s with the works of Charles Plott, Vernon Smith, and other experimentalists, provides

an important weapon to test economic theories. Finally, the emerging field of neuroeconomics offers further insights on how economic decisions are made, by analysing the underlying neural activities of the brain (Glimcher *et al.* 2009).

These new tools along with the will of those economists who dared to do different despite the scepticism faced by their colleagues resulted to the accumulation of a vast empirical literature on the weaknesses of mainstream economics and alternative approaches of how these weakness can be resolved. The main areas that behavioural economics has mostly flourished are the failures of expected utility theory (EUT); the endowment effect; social preferences; and hyperbolic discounting (Pesendorfer, 2006).

EUT has been perhaps the topic that had attracted the most of the attention during the 1980s. EUT is based on four assumptions: completeness, transitivity, continuity and independence. Violations of expected utility theory can be generalised in two broad categories: violations of the independence axiom, and violations of the assumption that choices are derived from well-defined preferences (Starmer, 2000). The most famous experiment showing the violation of the independence axiom is the aforementioned Allais paradox. Following experimental studies have numerously replicated the Allais paradox (e.g. Slovic and Tversky, 1974; MacCrimmon and Larsson, 1979) but this is not the sole issue with EUT. The assumption that choices are derived from well defined preferences has been shown to be violated by experiments which demonstrated that subjects may experience a switch of preference between two prospects either due to different method used to elicit them or through violation of transitivity (see Loomes *et al.*, 1989). Similar issues have been observed when presenting the same choice to subjects with different frames (see Tversky and Kahneman, 1981). Such results have spurred many economic theorists to propose alternatives to the EUT such as regret theory (Loomes and Sugden, 1982) and prospect theory (Kahneman and Tversky, 1979). Such theories tried to create richer models of individual decision making which would provide greater explanatory and predictive power.

Standard economic theory assumes that the mere ownership of a good should have no relevance for the value that the owner assigns to it. Thaler (1980) showed that people tend to value higher the items they own from what they would be willing to pay to buy them. This effect has been since known as

the endowment effect. This result creates a disparity between willingness-to-accept and willingness-to-pay and is a significant deviation from standard perceptions of consumer theory. Thaler (1980) argued that this discrepancy between willingness-to-accept and willingness-to-pay might be explained by loss aversion. A similar argument held by Samuelson and Zeckhauser (1988) who claimed that the endowment effect might be a more general 'status quo bias'.

Numerous economic experiments have focused to the narrow self-interest assumption held prominently in modern economics (see Fehr and Schmidt, 2001). These studies have shown that individuals may be willing to sacrifice part of their material payoff motivated by concerns for fairness and/or reciprocity. It comes with no surprise even to the most hardnosed economists that people care also about other things than their own monetary payoffs but it is usually argued that as long as the predictive power of the narrow self-interest is robust there is no reason to complicate our models by trying to take in to account social norms. Empirical evidence has revealed that the self-interest hypothesis performs poorly in explaining human behaviour in certain real life scenarios and enhancing our analysis by accounting for moral concerns may have direct policy implications (Fehr and Schmidt 2001). For instance, Greenberg (1990) showed that employee theft was highly related to inequity concerns of the employees. In particular, he showed that wage cuts resulted on increases in employee thefts but also that this effect was reduced when "pay cuts were thoroughly and sensitively explained to the employees" (Greenberg, 1990: 561). A recent study by Feld and Tyran (2002) found evidence that tax compliance may be directly linked to concerns of taxpayers with respect to the fairness of the tax system. In addition, Alesina and Ferrara (2005) showed that people who believe that the American society offers equal opportunities are more averse to redistributive policies.

The discounted utility (DU) model, introduced by Samuelson (1937) and developed by Koopmans (1960), has been the central intertemporal choice model being widely used among economists (Shane *et al.*, 2002). The DU model assumes that all the motives underlying intertemporal choice can be compacted into a single factor term, the discount rate (Shane *et al.*, 2002). Yet, a great range of experimental evidence has shown that individuals when faced with a choice between a small reward today and a larger reward at a later date they tend to discount more rewards over shorter time horizons than

in longer time horizons. This declining rate of time preference is often called hyperbolic discounting (Shane *et al.*, 2002). Thaler (1981) evidenced that when subjects are asked to declare indifference for $15 today and an amount of money received in one-month time they set an average annual discount rate of 345%. For the same question but a time horizon of a year the average annual discount rate dropped to 120% while for ten years the average annual discount rated decreased to 19%. Similar results have been replicated by a variety of experiments (Chapman, 1996; Kirby, 1997; Pender, 1996 among others). Understanding intertemporal choice has a great range of policy implications (i.e. health, drug addiction, savings, investments etc.) which require sufficient predictive power of behaviour that the standard model does not possess. Instead, the advances in behavioural economics have not only provided the ability to recognise the limitations of DU model but also provided alternative models helpful for the formulation of public policy.

Main motive of the previous discussion has been to show some of the limitations of standard economic theory that behavioural economics have contributed on being uncovered along with the efforts that has been made to provide alternative theoretical models that would be in line with the empirical evidence. Yet, behavioural economics have now stepped further by not being only a tool to test standard economic theory, but have initiated on creating policy recommendations. There is by now a numerous range of policy recommendations founded in behavioural economics. A few examples are: Thaler and Benartzi (2004) who aimed to create a saving rate policy, and for this introduced the 'SMarT' program which has been highly successful with participants quadrupled their saving rates; Kahneman and Riepe (1998) who provided prescriptive advice to financial advisors; and Gowdy (2008) who argued how climate change policy could be benefited from behavioural economics.

The main challenge behavioural economics will have to face is the trade-off between predictive power/depth of understanding and generality/tractability. Stigler's (1965) three criteria – accuracy of prediction, generality, and tractability – should and will be the challenge that behavioural theorists will have to face in the following years. Mainstream economic theory enjoys the advantages of the last two criteria of Stigler, while the main disadvantage concerns the potential lack of predictive power in certain domain as it has been shown by behavioural economists. In opposition, behavioural economics have

achieved a better understanding of some economic phenomena that were lacking of insights in human behaviour (Fudenberg, 2006). However, the problem that behavioural economics will have to solve will be how to increase predictive power without a big expense on the other two criteria. In fact, many psychological variables that are shown to matter in some contexts may be useless or irrelevant in economics applications.

Behavioural economics have provided evidence of the inadequacies of standard economic theory along with several models that attempted to explain the "behavioural regularities" observed in economic scenarios. In particular, behavioural economists, following the tradition of the founding fathers of economics, have incorporated psychological insights and empirical observations in their models in order to improve the predictive power of economics and explain the economically significant regularities observed in the reality. Although the neoclassical school have developed a clear theory, characterised by sharp predictions, many elements of that theory have been falsified by behavioural economists and new phenomena have emerged. The full potential of behavioural economics has only recently started being realised and there are still a lot of areas that are under-researched and able to stimulate fascinating research and new insights to economics and human understanding.

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