Behavioral economics and the economics of Keynes

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Abstract

The aim of this paper is two-fold: it first evaluates some of the psychological insights offered by Keynes in his economic theories, and secondly it weighs up these insights in the light of recent research in behavioral and experimental economics. We found that many of the psychological ideas set forth by Keynes in his economic works, especially in The General Theory, have a defensible behavioral foundation and fit broadly the actual behavior of economic agents in the real world as suggested by recent empirical evidence. As a consequence, we argue that Keynesian economics can benefit from this interaction, especially for issues related to judgment under uncertainty and building solid microfoundations for macroeconomics.

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Recent developments in the field of behavioral and experimental economics have provided new grounds to interpret the writings of the great economic authors. Ashraf et al. (2005), for example, highlighted the behavioral underpinnings of Adam Smith’s The Theory of Moral Sentiments, which included topics related to decision-making, motivation, and interaction. By the same token, we claim in this paper that Keynes’s work constantly emphasized the importance of psychological factors in human decision-making, and that these factors were embedded in his analysis of economic issues. In his major philosophical work, A Treatise on Probability, he touched upon several concepts that would transform the classic frequentist view of the judgment of probabilities, stressing the necessity of explicitly considering psychology to improve probability theory. But it was in The General Theory that Keynes explicitly emphasized the importance of psychological propensities in analyzing the economic consequences of human behavior, and used them to support his departure from the neoclassical tradition; ideas like wage rigidity, animal spirits, money illusion, conventions, and uncertainty all suggest that Keynes refused the imposition of rationality (i.e., obeying some specific axioms of choice) as the decisive criterion of human behavior.

That Keynes paid substantial attention to the role of psychological factors when constructing his economic theories is not a recent fact in the history of macroeconomic thought, even though there is no reference to psychological studies in The General Theory. George Akerlof, for example, remarks that the current development in behavioral macroeconomics has its roots in, and is, to a certain extent, a continuation of Keynes’ project (2002, 2007). He argues that (2002, p. 411):

“That dream was the development of a behavioral macroeconomics in the original spirit of John Maynard Keynes’ General Theory (1936). Macroeconomics would then no longer suffer from the ‘ad hocery’ of the neoclassical synthesis, which had overridden the emphasis in The General Theory on the role of psychological and sociological factors, such as cognitive bias, reciprocity, fairness, herding, and social status. My dream was to strengthen macroeconomic theory by incorporating assumptions honed to the observation of such behavior.”

Akerlof and Shiller (2009) reinforce this claim that macroeconomics can indeed be based on behavioral foundations, proposing a ‘behaviorally informed Keynesianism’. To the best of our knowledge, no single study to this date has explicitly laid bare the potential links between psychology and the economics of Keynes in his own writings, providing textual evidence of his insights concerning the behavior of economic agents that could be directly connected with behavioral studies, nor an assessment of these
insights in the light of recent advances in the treatment of economic psychology.\(^1\) This is probably due to several reasons, among which it is worth mentioning the relatively recent appearance of behavioral and experimental economics, which creates the possibility of overcoming the fetters imposed on economic analyses by the behavioral postulates of neoclassical economics, the exclusive focus on aggregate relationships in the traditional studies of Keynes, and the sometimes confusing treatment Keynes himself gave to psychology. If on the one hand, Keynes was very clear in describing specific behaviors, on the other he touched upon topics in which psychology was important to him, but treated it in an ambiguous and vague manner, using expressions such as "psychological effects", "psychological laws", etc., without explaining clearly what these are.\(^2\) This paper is an attempt to fill this gap, seeking to find in Keynes's own works the hints and suggestions about what a realistic approach to behavior under uncertainty might be. We claim that there is strong evidence that Keynes was deeply conscious about the necessity to incorporate realistic behavioral assumptions in economic theories that deal with judgment under uncertainty. Moreover, we found that, indeed, his behavioral insights are broadly compatible with and find support in most of the recent findings of behavioral and experimental economics, although his inferences were largely based on "subjective impressions" rather than rigorous scientific studies. A large number of experimental works have been done in areas that Keynes considered important in his General Theory. We will expose these advances in comparison with Keynes's ideas.

The paper is organized as follows: after this introduction, we will briefly discuss some interpretations and controversies surrounding Keynes's ideas in order to contextualize and present our analysis. The following section will provide a comprehensive comparison of the main behavioral tenets of Keynesian theory with the most updated findings of behavioral and experimental economics. The final section concludes the essay.

1. Controversies and interpretations of Keynes's approach to economics

The theories put forth by Keynes have always been surrounded by controversies, which is not surprising considering the far-reaching impact of his work. As a consequence, several schools of thought have emerged with different interpretations of Keynes's work. Obviously, the use of psychology to explain economic behavior has not been the only controversial issue. The IS-LM interpretation, the consumption function, the role of expectations, the real balances effect, fundamental uncertainty, liquidity preference, the influence of the Treatise on Probability on the General Theory, to mention just a few, have all received a large deal of attention, both in mainstream and non-mainstream circles. And these controversies are related only to the economic aspects of Keynes's ideas. Cottrell and Lawlor (1995) put together different new perspectives on Keynes's thought or how they interact with other approaches, even though 'Keynes and Psychology' was not part of the volume. In this regard, proposing an interpretation of Keynes's theories in terms of individual behavior, emphasizing the psychological dimension, is no less controversial, for several reasons.

The first objection is evident. In stressing the role of psychology we must consider the role of individuals in Keynes's economic theories. There are no detailed methodological discussions in the works of Keynes in general, and in The General Theory in particular, that would enable one to claim that Keynes clearly avowed his commitment to methodological individualism. Winslow (2003) claims that Keynes rejected atomism and embraced an organic approach. However, he argued that it is still possible to consider Keynes as an individualist (p. 156, fn 5, italics in the original):

"Atomic individualism needs to be distinguished from individualism per se. Much writing on methodology, for example, on so-called 'methodological individualism', implicitly and mistakenly identifies individualism with atomic individualism. Keynes, though he abandoned atomic individualism, remained philosophically an 'individualist' in the sense of 'Paley's dictum' that "although we speak of communities as of sentient beings and ascribe to them happiness and misery, desires, interests and passions, nothing really exists or feels but individuals.""

Carabelli (2003, p. 218), also supports this view:

"For Keynes, then, the material, or the object of economics, were the beliefs, the opinions of economic agents. Intentionality, motives and human agency, on this view, are the material of economics."

There remains the question, obviously, of the aggregate behavior of the economy, which cannot be reduced to a sum of individual behaviors. This debate is beyond the scope of our paper, but we accept Winslow's and Carabelli's characterization as a plausible distinction for the purposes of this article. This is because we are mainly interested in the first step of this analysis, viz., the existence of important behavioral insights in Keynes's work.

The second objection is about the rationality of individual behavior, particularly with respect to conventions. According to Keynes, as will be discussed below, in situations of uncertainty economic agents use conventions as useful guides to action, supported by their higher or lower degree of confidence (or weight of argument) in them (Crotty, 1994). Conventions are considered rational (or reasonable, according to Meeks, 2003) if they help individuals cope with uncertainty in a successful manner. Dequech (1999) analyzes the different uses of the concept 'convention' in the post-Keynesian literature. These range from something that structures individual expectations, to individual or collective rules-of-the-thumb that lead to a convergence of beliefs. Dequech then discusses the different arguments employed to defend the rationality of conventional behavior. Again, this is a very important issue, and Dequech provides a very clear explanation of what is at stake in these debates. Nevertheless, these discussions have an intrinsic normative bias, trying to adjudicate between different behaviors in terms of what is a value judgment. This article, however, proposes a descriptive analysis of people's actions, not engaging in the discussion about their specific rationality. Therefore, we do not consider Keynes's psychological insights as merely representing a deviation of rationality as defined by neoclassical economics because we see this discussion as a gridlock, notwithstanding the fact that Keynes disagrees with the orthodox 'principles of behavior' in his Quarterly Journal of Economics article (Keynes, 1937).

Moreover, the concept of rationality itself is not crystal clear and has been used in economics in many different ways. Badeley (1999), for example, discussing Herbert Simon, distinguishes between substantive and procedural rationality. The former is the rationality employed by actors in neoclassical models, whereas the latter is the reasonable rationality used by individuals in the real world. It is worth noticing that there is a direct relationship between

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1 Earlier attempts to link Keynes and Psychology have been Drakopoulos (1992) and Marchionatti (1999). These studies, however, made no or only loose connections with the behavioral economics literature.

2 This ambiguous treatment opened Keynes' psychological perspective on the marginal propensity to consume to criticisms such as the ones carried out by Schumpeter (1954).
the concept of rationality employed in developing theories and the role ascribed to psychology. Baddeley (1999, pp. 197–198) argues that:

“Simon (1979) comments that the substantive rationality approaches underlying these orthodox concepts ‘freed economics from any dependence upon psychology. (…) Keynes’s emphasis on the subjective determinants of investment, the limits to quantification and the role of conventional behavior, fits broadly into a procedural description of rationality. In contrast to the orthodox analyses based on substantive rationality assumptions, Keynes argues that scientific theories should be able to cope with real-world situations and should not force the facts to conform with theoretical assumptions.”

Based on Keynes’s works, we consider Simon’s distinction as a suitable one to the purposes of this paper, and heretofore all references to rationality will refer to substantive rationality.

A third potential opposition concerns the very realm of our interpretation and the foundations of behavioral macroeconomics, namely, the explicit importance of psychology in Keynes’s works in terms of individual behavior. To refute this objection, we will consider three approaches. First, we will take the comments of Keynesian scholars on the issues of psychology and behavior in Keynes’s work. Second, we will propose an exegesis of Keynes’s affirmations towards psychology. Finally, in the next section we will compare some passages in Keynes’s work. We henceforth use Keynesian analyses based on substantive rationality assumptions. Keynes argues that scientific theories should be able to cope with real-world situations and should not force the facts to conform with theoretical assumptions.

According to these readings, Keynes placed a large emphasis on psychological matters. And this is not an overstatement. Keynes himself refers several times to the psychological aspects underlying his theory. Sentences such as “psychological laws”, “psychological effect”, “psychological propensities”, “psychological influences”, “psychological characteristics”, “psychology of the community”, “psychological motives”, are extensively deployed in The General Theory, mainly regarding the influences on the marginal propensity to consume and the multiplier. The fact that he uses these terms interchangeably suggests that Schumpeter, in his criticism of Keynes psychological insights, placed undue emphasis on the word ‘law’. Of course, in Chapter 18, where Keynes summarizes his general theory of employment, there is explicit reference to ‘fundamental psychological laws’ and the fundamental role these laws played in stabilizing the economic system, but those should be seen as emphasizing the role of individual decision-making under conditions of uncertainty in affecting overall macroeconomic stability, rather than changing, “iron” laws.

Some passages from the Quarterly Journal of Economics article and from The General Theory show the importance Keynes attributed to behavioral issues. From the QJE (1937, pp. 215 and 222, respectively):

“Perhaps the reader feels that this general, philosophical disposition on the behavior of mankind is somewhat remote from the economic theory under discussion. But I think not. Tho (sic) this is how we behave in the market place, the theory we devise in the study of how we behave in the market place should not itself submit to market-place idols.”

“The hypothesis of a calculable future leads to a wrong interpretation of the principles of behavior which the need for action compels us to adopt, and to an underestimation of the concealed factors of utter doubt, precariousness, hope and fear.”

From The General Theory there are some quotes that undeniably suggest the existence of profound behavioral elements in Keynes’s theory, and that psychology is a major factor in his theory (Keynes, 1937, pp. 217, 246–247, 250, and 251, respectively):

“Thus we can sometimes regard our ultimate independent variables as consisting of (1) the three fundamental psychological factors, namely, the psychological propensity to consume, the psychological attitude to liquidity and the psychological expectation of future yield from capital-assets (…)”

“Now, since these facts of experience do not follow of logical necessity, one must suppose that the environment and the psychological propensities of the modern world must be of such character as to produce these results. It is, therefore, useful to consider what hypothetical psychological propensities would lead to a stable system; and, then, whether these propensities can be plausibly ascribed on our general knowledge of contemporary human nature, to the world in which we live.”

“Our first condition of stability … is highly plausible as a psychological characteristic of human nature.”

However, recognizing the importance of psychological factors in Keynes’s work is not enough. The lack of a more rigorous treatment, understandable in terms of the problems he was dealing with, led to a large number of different interpretations. Baddeley (1999, p. 198) remarks that:

“In both A Treatise on Probability and The General Theory, Keynes treats psychology as, in some sense, the contrary of rationality. However, Keynes does not distinguish adequately between mass psychology and conventional behavior and at times he seems to treat them as distinct forces.”
And that (1999, p. 199):

“This fuzziness in Keynes’ ideas about rational versus conventional versus psychological forces has led to the development of divergent interpretations of his analysis.”

If the conceptual treatment of psychology and conventional behavior is not crystal clear in Keynes’s works, his depiction of real world behavior is consistent with empirical evidence brought about by behavioral and experimental economics, and also with research in psychology not directly related to economics. And although at the time Keynes was writing The General Theory it was possible to claim that Keynes (1964, p. viii):

“It is astonishing what foolish things one can temporarily believe if one thinks too long alone, particularly in economics (along with the other moral sciences), where it is often impossible to bring one’s ideas to a conclusive test either formal or experimental.”

Today this statement is invalid. There are a large number of empirical studies about decision-making using laboratory experiments that highlight the most important aspects of human behavior. If, according to Keynes (1964, p. 147):

“(…) our conclusions must mainly depend upon the actual observation of markets and business psychology.”

It is possible to show that his conclusions are, by and large, broadly supported by the actual behavior of market participants and observation of business psychology, as the next section will seek to demonstrate.

2. Behavioral economics and the economics of Keynes

2.1. Main findings

Our third approach explores several features of the behavioral economics literature that are directly related to Keynes’s works, in particular The General Theory. The purpose of this section is to identify the elements that corroborate Keynes’s psychological speculations, and show how behavioral economics lends support to this claim.

To a certain extent, there is also some disagreement between researchers in the fields of Behavioral Decision Making, Behavioral Economics, and Experimental Economics. It is important to point out, however, that this divergence is more pronounced in terms of the interpretation and implications of the experimental findings rather than the findings themselves, even though they may cause some views to be more closely related to a specific school of Keynesian thought than another. Although this could lead to a very interesting debate, the goal of this paper is of a different nature: we intend to provide an amalgam of evidence conducted so far within the behavioral arena that is in touch with the writings of Keynes, regardless of the branch of behavioral research that it came from and the school of thought that supports these results. We are revisiting Keynes by showing how these findings fit his description of human behavior, and we acknowledge that some of them will be more closely aligned with different Keynesian schools at different points in the paper.

2.2. Heuristics

During the last hundred years, the view that human beings act rationally according to the cannons of mainstream economics has been constantly challenged. As argued by Lewin (1996), there has been a continuous tension in economics about the role of psychology, what she calls ‘Sen’s Paradox’. Mainstream economics adopts methodological individualism and assumes rational choice in terms of maximizing a utility function that does not include any type of cognitive limitation, self-control problem, or social preferences. This boils down to a view that, according to Lewin (op. cit.), sees economics as a field independent from psychology. On the other hand, heterodox authors have emphasized the necessity of using more realistic models of individual behavior in economics. Other challenges to the rigid mainstream definition of rationality when applied to choice using the expected utility theorem were brought forth in the 1950s and 1960s, in which the Ellsberg and Allais paradoxes are the most prominent examples. The actual responses of people facing these two paradoxes could not be explained by the neoclassical theory of choice, but no alternative behavioral explanation was provided. In 1955, Nobel Laureate Herbert Simon argued that people do not always seek to optimize. Instead, he argued that humans rely on a series of rules of thumbs that act as a type of “satisficing” process, which came to be associated with his use of the concept of “bounded rationality (Simon, 1955).”

The third milestone came from a group of psychologists, in special Daniel Kahneman and Amos Tversky, who launched in the seventies a research project on human judgment based on what they have called the “Heuristics and Biases Approach”. The evidence from their experimental studies is that people are far from displaying maximizing behavior as assumed by conventional economic theory. Instead, as Herbert Simon initially asserted, they rely on heuristics, which are defined as fast decisions, using particular and simplifying rules of thumb. In general, these heuristics are very useful in providing guides for action and judgment of complex situations under uncertainty. Nevertheless, the dependence on these heuristics might cause systematic deviations from the standard definition of rationality. The heuristics that attracted most attention and received a detailed treatment in Tversky and Kahneman (1974) are the following:

Representativeness—Judgments of the likelihood of an event are based on how representative this event is within a class of events. To assess the likelihood of an object A belonging to class B, people compare how similar A is to B, that is, the degree to which A resembles B (Tversky and Kahneman, 1974). As an example, consider an individual who has been described by a former neighbor as follows: “Steve is very shy and withdrawn, invariably helpful, but with little interest in people, or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail.” How do people assess the probability that Steve is engaged in a particular occupation from a list of possibilities (for example, farmer, salesman, airline pilot, librarian, or physician)?

It is clear that Steve’s description is very representative of a librarian, and this was actually the occupation chosen by the majority of the subjects as the most likely for him. Even though it is intuitive to assume that Steve is more likely to be a librarian rather than a salesman, the problem with this reasoning is that the number of librarians compared to salesmen, for example, is very small. If one takes into account the base rate, then Steve may indeed be more likely to be a salesman than a librarian, even if he is not representative of this occupation.³ The base-rate fallacy is only one of many biases that are related with the use of the Representativeness heuristic. Other frequently documented biases that are associated with this heuristic are: (a) the behavior of small samples will be perceived as similar as to the behavior of large samples (insensitivity to sample size); (b) samples with more alternations than

³ A simple numerical example illustrates the point: a hypothetical population consists of 10 librarians and 200 salesmen; all librarians are shy and withdrawn, but only 10% of salesmen fit this description. In this population, 30 people are shy and withdrawn, 20 of them being salesmen and only 10 being librarians.
expected by the theory will be judged as being more likely to have come from a random process, and conversely (misconception of randomness); and (c) failure to recognize that extreme events will be followed by less extreme ones whenever an element of chance is involved (misconceptions of regression to the mean).

Availability—Situations in which people assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind. Thus, events that are easy to retrieve or to imagine will be perceived as more likely to happen. For instance, people think that homicides, which are highly publicized, are more common than suicides, when actually the opposite is true. As homicides are much easier to retrieve than suicides, they appear to be more frequent in people’s minds.

Anchoring and Adjustment—Estimates that people make by starting from an initial value and then doing some adjustment to arrive at the final answer. The initial value in which the estimate is based may be suggested by the formulation or some preliminary computation. In either case, the empirical evidence shows that adjustments are usually insufficient, causing the estimate to be biased. They will be too high when the original anchor is high, and too low when the anchor is low. Another source of bias coming from the Anchoring and Adjustment Heuristic is the evidence that people also use irrelevant anchors. In Ariely et al. (2003), subjects were asked whether they were willing to buy specific products—computer mouse, bottles of wine, and a luxurious box of chocolates—for a price equal to the last two digits of their Social Security numbers. Their results showed that these numbers worked as anchors for the subjects, and those who had higher numbers were willing to pay significantly more for the products than those with low numbers.

What is the link then between heuristics and Keynes? In The General Theory, there are several passages in which Keynes explicitly assumes that people, by not being able to maximize, utilize some kind of “useful mental habit” to overcome the problem (1964, p. 51, italics added):

“For, although output and employment are determined by the producer’s short-term expectations and not by past results, the most recent result usually plays a predominant part in determining what these expectations are. It would be too complicated to work out the expectations de novo whenever a productive process was being started; and it would, moreover, be a waste of time since a large part of the circumstances usually continues substantially unchanged from one day to the next.”

“It would be foolish, in forming our expectations, to attach great weight to matters which are very uncertain. It is reasonable, therefore, to be guided to a considerable degree by the facts about which we feel somewhat confident, even though they may be less decisively relevant to the issue than other factors about which our knowledge is vague and scanty. (…) our usual practice being to take the existing situation and to project it into the future, modified only to the extent that we have more or less definite reasons for expecting a change.” (1964, p.148)

Notice how the three heuristics stated above can explicitly be applied to these cases: by using the most recent result, or how confident she is, the entrepreneur uses the information that is more representative of the situation and the information that is easiest to retrieve or imagine (availability). The present may also work as an anchor, so after absorbing this information, the final decision will be adjusted according to the entrepreneur’s expectations. These rules might work fairly well in general, but they also lead to several biases that are not expected by the decision maker, as described above.

In different circumstances, Keynes uses examples that suggest the use of other kinds of heuristics (1978, p. 57):

“As time goes on I get more and more convinced that the right method in investment is to put fairly large sums into enterprises which one thinks one knows something about and in the management of one thoroughly believes.”

Here, Keynes invokes the Recognition Heuristic as a fast and frugal rule of thumb to invest as a substitute for the optimization process. Coming from the research on Evolutionary Psychology, this heuristic is defined in the following manner: “consider the task of inferring which of two objects has a higher value on some criterion (e.g., which one is faster, higher, stronger). “If one of two objects is recognized and the other is not, then infer that the recognized object has the higher value.” (Goldstein and Gigerenzer, 1999, italics in the original). Thus, the evidence that people use heuristics to make judgments and decisions can be extended to the insights brought by Keynes in his work. Using this approach, it is possible to understand human actions as systematic behaviors instead of a set of random actions that cannot be analyzed consistently, while at the same time not having to assume ‘perfect’ rationality. Because Keynes was aware of the widespread use of heuristics by humans when forming the basis for judgment under uncertainty, we believe that heuristics may provide a useful tool to analytically explain judgment under uncertainty through the lens of Keynesian economics.

2.3. Conventions

In situations of fundamental uncertainty, Keynes argued that people also rely on a series of conventional behaviors to make decisions and base their actions. Although he did not offer an explicit definition of convention, his 1937 QJE article emphasizes the following actions as being “conventional” (p. 114):

“(1) We assume that the present is a much more serviceable guide to the future than a candid examination of past experiences would show it to have been hitherto. In other words we largely ignore the prospect of future changes about the actual character of which we know nothing.

(2) We assume that the existing state of opinion as expressed in prices and the character of existing output is based on a correct summing up of future prospects, so that we can accept it as such unless and until something new and relevant comes in to the picture.

(3) Knowing that our own individual judgment is worthless, we endeavour to fall back on the judgment of the rest of the world which is perhaps better informed. That is, we endeavour to conform with the behaviour of the majority on average. The psychology of a society of individuals each of whom is endeavouring to copy the others leads to what we may strictly term a conventional judgment.”

It is clear in this passage that Keynes saw a convention as a form of heuristic as well, with individuals assuming that the unknown future will resemble the present, that this forecast will be reflected in current prices and quantities, and that if others are following these conventions, individuals can reliably fall back on these judgments and forecasts. These attitudes lead to the formation of habits, which are used to substitute for the use of complicated optimization procedures. Behavioral Economics and Psychology have also

4 There are disagreements, however, between Gigerenzer and Kahneman and Tversky with respect to which heuristics should be analyzed in judgment and decision making, and about what constitutes biased behavior. For a debate, see Kahneman and Tversky (1996) and Gigerenzer (1996).
studied conventions, both in terms of individual decision-making and strategic interactions.

The concept of focal points as solutions to coordination problems, first described by Schelling (1960), has been one of the main forces in explaining convention formation. Mimetic behavior has been consistently explored within the psychology literature, and more recently in explaining outcomes in economic experiments (Carpenter, 2004, Bardsley and Sausgruber, 2005). Finally, the behavior of investors in the stock market as the behavior in a dominance solvable game – a game in which the process of iteratively deleting dominated strategies leads to a unique equilibrium – has been used to make the analogy with Keynes’s beauty-contest example.

2.3.1. Focal points

The first form of convention created within a strategic environment is the concept of focal points. Schelling’s The Strategy of Conflict used several examples of pure coordination games to exemplify when focal points emerge. A pure coordination game is usually defined as a situation in which the players’ interests coincides, making the players indifferent to which equilibrium is achieved, as long as one of them is achieved. In this case, classical game theory does not offer a precise prediction of which equilibrium is most likely to be reached. But according to Schelling, people’s expectations about the behavior of others, largely based on common experience, psychology and culture, lead them to achieve one of the equilibria in a proportion superior to the game-theoretic prediction, therefore diminishing the magnitude of the coordination failure. In one of his original examples, Schelling asked subjects to imagine a situation in which she and another person have to meet in New York City at a specific day. Nevertheless, no time and place were specified in advance. Naturally, every situation in which they meet at the same place and at the same time is a Nash equilibrium of this game. If a person has no additional information to use to form beliefs about what the other person will do, the best she can do is to choose a place and time randomly. This is not true, however, if people have expectations about other’s behavior. Schelling’s results were indeed very illuminating: people largely chose beneath Central Station’s clock for the place, and noon for the time. Because a significant number of them did that, the probability of actually meeting in New York City without knowing the place and time increases immensely compared to the randomized procedure. People create focal points to coordinate actions, and as these focal points are created, conventions appear. The existence of focal points has been corroborated in several experimental studies, and they have shown that people do much better than expected when coordination is required in several different scenarios (Mehta et al., 1994; Camerer, 2003). In Keynes, it seems that average opinion and judgment, as expressed in current market prices and quantities, can be considered a focal point helping solve the coordination problem of investment decisions, given the interconnections between investment, effective demand, and profits. At the same time, there have been some attempts to find the reasons why a certain focal point emerges. Even though no clear answer has been provided yet, variables such as prominence, uniqueness, closeness, salience, etc. seem to play a definite role in indicating the focal point of a coordination problem.

2.3.2. Conformity

Conventional judgment based on the copying of other people’s opinions has been extensively studied in social psychology. These studies usually distinguish between two types of conformity: informational and normative. Informational conformity (also called informational social influence) is characterized when people mimic the behavior of others because of lack of knowledge. When we do not know what to do, we imitate the behavior of somebody else, using the other person’s behavior as a clue for the “right action.” Normative conformity, on the other hand, is the imitation of behavior to be liked and accepted by others, in order to avoid social ostracism. Despite being sometimes difficult to differentiate between these two types, it is obvious from the above passages that when Keynes suggested that conformity is an important aspect of convention formation when uncertainty is involved, he was referring to informational conformity.

Extreme uncertainty causes people to see others as a source of information, and therefore we tend to rely on their judgment instead of seeking the answer within the existing environment. The main conditions suggested for the existence of informational conformity are: (1) When the situation is ambiguous; (2) When the situation is a crisis; and (3) When other people are experts (Sherif, 1936). This effect has been investigated in applications to consumer behavior and marketing (e.g., Burnkrant and Cousineau, 1975; Lee et al., 2006), economic theory (e.g., Bernheim, 1994; Jones, 1984), and experimental economics (Carpenter, 2004). Nevertheless, there is no academic study that extensively relates informational social influence and uncertainty to understand conventional behavior systematically. Evidently, knowing that conformity is used as a substitute to our lack of knowledge is not sufficient for a deep analysis of its implications. It is necessary to understand the interactions between this effect and people’s behavior related to variables such as investment and consumption, for example. When does conformity appear? Does it cancel out other effects? Or do they move in the same direction? When does conformity cease to be practiced? These questions are important, and we expect future experiments to provide insights about them, which will shed light on other relevant aspects of Keynes’s thought.

2.3.3. “Beauty-Contests”

A third type of conventional behavior is when some level of iterated reasoning is required. When describing the behavior of professional investors in the stock market, Keynes made an analogy by comparing this market with (1964, p. 156):

“(…) those newspapers competitions in which the competitors have to pick out the six prettiest faces from a hundred photographs, the prize being awarded to the competitor whose choice most nearly corresponds to the average preferences of the competitors as a whole; so that each competitor has to pick, not those faces which he himself finds prettiest, but those which he thinks likeliest to catch the fancy of other competitors, all of whom are looking at the problem from the same point of view. It is not a case of choosing those which, to the best of one’s judgment, are really the prettiest, nor even those which average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practice the fourth, fifth and higher degrees.”

In this passage Keynes suggests, perhaps ironically, the possibility of people reaching more than three levels of iteration. But do people actually apply these many levels of iteration? By defining one step of iterated reasoning as the process of guessing what others will do, two steps when somebody is guessing what oth-

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5 There are multiple pure strategy equilibria, and one in mixed strategies for a symmetric pure coordination game in which the payoffs of all equilibria are the same. It attaches the probability of 1/n to each strategy if there are n strategies available to each player.

6 Again, this can also be perceived as a rule of thumb and analyzed under the rubric of heuristics.
ers are guessing what she will do, the evidence suggests that the answer is “no.” In a game similar to the one described by Keynes, called “the p-beauty-contest game”, subjects are asked to simultaneously choose a real number between the interval [0,100]. The winner is the person whose number is closest to p times the average, in which 0 < p < 1. In this case, the unique Nash equilibrium is when everybody chooses 0. This experiment is useful because it provides a way to try to measure how many levels of iteration the subjects are applying. Let us take the case of p = 0.6, that is, the winner is the person who chooses the number closest to three-fifths of the average. Since 60% of the average will never be greater than 60 (the maximum possible average is 100), nobody should choose a number in the interval [60,100], because the winning number will never lie within this interval. But if nobody will choose a number above 60, 60% of the average will never be greater than 36, so the interval [36,60] can also be ruled out, and so on, all the way up to zero. The subjects who only think that nobody will choose a number higher than 60, and make their decisions based on that, are said to be using first-order iterated dominance, whereas subjects who think that nobody will choose a number between 36 and 60 are using second-order iterated dominance, etc.

The experimental results of this game have shown that the majority of the subjects systematically use one to three steps of iteration, with the percentage of people choosing “0” being very small (Camerer, 1997). During the first round, there seems to be a focal point around 50, regardless the value of “p” in the game. With repetition, the average decreases, but never gets to “0”.

In addition to showing that people cannot perform infinite iterations, another interesting point is that, if one believes that other participants have limited reasoning, to play “0” is actually a bad choice. As Camerer (2003) said, “the trick is to be one step of reasoning ahead of the average player, but no further”. This is exactly what Keynes meant by “Rational Speculation”, i.e., “rationally forecasting the irrational behavior of others” (Winslow, 2003, p. 151). However, it seems unlikely that the number of Rational Speculators is large. CEO’s, Economics Ph.D.’s, and Portfolio managers did not perform better in the p-beauty-contest game; the averages were very similar compared to college students. This suggests that even the so called “experts” are not necessarily rational speculators, and winners in situations analogous to the beauty-contest are likely to be determined by chance rather than by reasoning.

2.4. Animal spirits

The third point of convergence between Keynes and Behavioral Economics is the concept of animal spirits. Keynes defines animal spirits as a “spontaneous urge to action rather than inaction” (1964, p. 161), and it plays a crucial role in his understanding of the instability of investment decisions. As mentioned before, Akerlof and Shiller (2009) consider animal spirits to be a solid foundation for the reconstruction of economics and the advancement of behavioral macroeconomics. However, the authors use the term ‘animal spirits’ in a way that embraces several other aspects of behavior, including confidence, fairness, faith, money illusion, etc. Shiller (2009) interprets animal spirits in a different way, emphasizing the role of trust in the formation of animal spirits, but considering how aggregate spending can boost confidence and lead to further spending triggered by animal spirits. Although Keynes emphasized in the 1937 QJE that the need for action compels us to adopt certain behaviors that the conventional theory fails to explain, he did not analyze the determinants of this preference for action in a systematic way, a point in which the psychology literature can provide some insights. But it is not a simple analysis, since there are psychological factors that bias the decision in different directions. In one hand, Overconfidence and Unrealistic Optimism are the two main effects that push the decision for “action”, whereas Status Quo Bias and Ambiguity Aversion support a tendency for “inaction”.

2.4.1. Overconfidence

Overconfidence is defined as the biased assessment of confidence based on available evidence, and it has been the subject of considerable analysis, both normatively and descriptively. One of the major findings is that “people are more confident in their judgments than is warranted by the facts” (Griffin and Tversky, 1992, p. 230). This overvaluation of their abilities makes people think they know more than they really know, which causes the difference between the belief of how confident a person is and her accuracy to be significantly positive.

Keynes also viewed the “degree of confidence” as very important for the determination of long-term expectations, and argued that it is part of human nature to be overconfident:

“The state of long-term expectation, upon which our decisions are based, does not solely depend, therefore, on the most probable forecast we can make. It also depends on the confidence with which we make this forecast – on how highly we rate the likelihood of our best forecast turning out quite wrong.” (1964, p. 148)

“If human nature felt no temptation to take a chance, no satisfaction (profit apart) in constructing a factory, a railway, a mine or a farm, there might not be much investment merely as a result of cold calculation.” (1964, p. 150)

Within the psychology literature, the main determinants of overconfidence are the following: (1) the amount of information: by providing people with more significant information, their level of confidence increases considerably, whereas the level of accuracy stays relatively constant (Oskamp, 1965). This lends support to Shiller (op. cit.) claim that increased government spending can increase confidence and trigger spending based on animal spirits, even though the outcome generated by this increase in investment and spending may have the same rate of “success” as it had before; (2) the difficulty of the task (or its predictability): as the judgment or task gets either more complex or more unpredictable, people tend to be more overconfident (Griffin and Tversky, 1992). These two effects imply that people regarded as “experts” (the ones that have accumulated more knowledge and have to make decisions that are highly unpredictable) in complex situations of extreme uncertainty are likely to be very overconfident, showing the “often wrong but rarely in doubt” type of situation. Studies with stock market analysts are consistent with this hypothesis (Yates, 1990).

2.4.2. Unrealistic Optimism

Along with the overvaluation of abilities, it seems that people also have a tendency to predict in an optimistically biased way. Planners usually underestimate the time necessary to complete a task (Buehler et al., 1994), students expect to receive higher scores on future exams (Shepperd et al., 1996), job candidates overestimate the number of job offers they will receive (Hoch, 1985), and so on. The most common method of measuring this excessive opti-

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7 In some experiments, only integers are allowed.
8 Naturally, only under the standard assumptions of rationality and common knowledge.
9 Fung (2006), however, presents a different viewpoint, showing how the p-beauty contest violates the assumption of fundamental uncertainty and therefore does not represent Keynes’ view of stock markets. But he argues that behavioral and experimental economics can play an important role in advancing post-Keynesian theory (and vice-versa).

10 This determinant is similar to what Keynes called “the weight of argument”.

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mism has been to compare what people expect for themselves and what they expect for others (Weinstein, 1980; Perloff and Fetzer, 1986). The degree of optimism also seems to correlate positively with the level of uncertainty. Early studies on this topic (Irwin, 1953; Marks, 1951) have shown that people expect greater chance of success when the objective odds for success or failure are at maximum uncertainty (50–50). Consequently, events in which the probability of success is either high or low cause people to be less biased (Armor and Taylor, 2002).

Moreover, people also appear to be more optimistically biased as the time to reveal the outcome increases, i.e., if the response time related to the accuracy of the judgment and the appearance of the final outcome is large. Calderon (1993) revealed that analysts’ predictions of corporate earnings declined in optimistic bias as the number of days between the forecast date and the realization date decreased (Armor and Taylor, 2002). In fact, when feedback was instantaneous people became pessimistically biased.

Keynes was aware of this human feature. This is what he says right before mentioning “animal spirits”:

“Even apart from the instability due to speculation, there is the instability due to the characteristic of human nature that a large proportion of our positive activities depend on spontaneous optimism rather than on mathematical expectation, whether moral or hedonistic or economic.” (1964, p. 161)

And in Chapter 22, in discussing about fluctuations of economic activity he remarks that:

“The late stages of the boom are characterized by optimistic expectations as to the future yield of capital-goods sufficiently strong to offset their growing abundance and their rising costs of production and, probably, a rise in the rate of interest also. It is of the nature of organized investment markets, under the influence of purchasers largely ignorant of what they are buying and speculators who are more concerned with the next shift of market sentiment than with a reasonable estimate of the future yield of capital-assets, that, when disillusion falls upon an over-optimistic and over-bought market, it should fall with sudden and even catastrophic force.” (1964, pp. 315–316)

Overconfidence and Unrealistic Optimism are human propensities that contribute to a decision towards “action”, and they provide support for Keynes’s use of the term “animal spirits.” There is evidence, however, of psychological propensities that have the opposite effect, i.e., they attract the judgment towards “inaction”. The main effects to be considered here are the “Status Quo Bias” and “Ambiguity Aversion”.

### 2.4.3. Status Quo Bias

“Status Quo Bias” is a direct consequence of a theory proposed by Daniel Kahneman and Amos Tversky in 1979, shortly after their work on heuristics. Their paper challenged Expected Utility Theory (EUT) as a realistic way of explaining judgment under uncertainty, and they advanced an alternative model, called Prospect Theory, to explain people’s decisions. Two functions are used in Prospect Theory: the value function and the weighting function. But in order to explain “status quo bias”, only the value function will be considered. Its main characteristics are the following:

1. People evaluate decisions over gain and losses with respect to some natural reference point, which is usually assumed to be the status quo. This means that judgments are based on changes in wealth rather than final states or absolute wealth.
2. The value attached to outcomes is concave for gains and convex for losses. This implies that there is diminishing sensitivity as you move away from the reference point, which implies risk aversion for gains and risk-seeking behavior for losses. A movement from a gain (loss) of $100 to a gain (loss) of $200 has more impact than a movement from a gain (loss) of $1100 to a gain (loss) of $1200.
3. Losses loom larger than gains. “The aggravation that one experiences in losing a sum of money appears to be greater than the pleasure associated with the same amount.” (Kahneman and Tversky, 1979, p. 279). The “loss” function is steeper than the “gain” function, so the negative impact of a loss of $100 is larger than the positive impact of a gain of $100.

Prospect Theory paved the way to an enormous number of discoveries in decision-making. Because losses loom larger than gains, and the decision is made comparing it to a reference point, people will have a strong tendency to remain at the status quo (Thaler, 1992). This happens because a movement away from the status quo represents a loss, and since loss aversion is present, the status quo option will be more likely to be selected. This effect has been demonstrated in several different settings, including investment choices (Samuelson and Zeckhauser, 1988), insurance decisions (Hershey et al., 1990), and preferences regarding services (Hartman et al., 1991). For example, in Samuelson and Zeckhauser’s paper, subjects were given a hypothetical choice task in a “neutral” way, without any status quo defined. They had to choose between three portfolios to invest a certain amount of money they inherited (moderate-risk company, high-risk company, treasury bills and municipal bonds). Other subjects were given the same problem, but with one of the options stated as the status quo (default). Their results revealed that the status quo option is always more popular, and this advantage increases with the number of options, so they prefer “doing nothing or maintaining one’s current or previous decision” (Samuelson and Zeckhauser, 1988; Thaler, 1992). Status Quo Bias can also account as one of the causes of liquidity preference mentioned by Keynes, neutralizing the ‘animal spirits’ urge to action.

### 2.4.4. Ambiguity Aversion

A second reason for “inaction”, drawn from the research in decision-making is ambiguity aversion. As remarked by Keynes in the 1937 QJE article, the need for action compels us to adopt certain behaviors wherein utter doubt, precariousness, hope and fear play a fundamental role. Indeed, when a person has to make a relatively equivalent decision between a clear event and a vague event, the former becomes strongly preferred by subjects. The famous “Urn Problem”, tested by Ellsberg (1961), was the first experimental example of this effect. The problem involves two urns each containing black balls and red balls. In one urn, there are 50 black balls and 50 red balls, whereas in the second urn there are 100 balls of both colors with unknown proportion. According to the Principle of Insufficient Reason, which states that if we have no information about the option, we should attach the same probability to each one, the second urn should also be perceived as having a 50% probability of drawing a black ball. But when people have to bet in one of the urns, a great majority chooses the urn with known proportions, therefore showing an aversion towards ambiguous options. In his *A Treatise on Probability*, Keynes used exactly the same example to
suffice, in normative terms, that the urn with unknown proportions should not be preferred, because the weight of the argument is greater in the first urn, even if the numerical probability is the same (Keynes, 1921).

2.4.5. Combining these effects

Considering all these effects together, it is difficult to draw the line of when people will choose “action” rather than “inaction”. Nevertheless, it is possible to analyze which effect tends to dominate others. Heath and Tversky (1991), for example, showed that ambiguity aversion is eliminated if the level of confidence of people is taken into account. Subjects preferred to bet on vague events when they felt competent or knowledgeable about it, suggesting that overconfidence eliminates any ambiguity aversion present; in a subsequent study, Fox and Tversky (1995) demonstrated the comparative ignorance hypothesis, which says that ambiguity aversion will be present only if the vague and clear hypotheses are compared jointly, and it will virtually disappear when analyzed in isolation. Relating Status Quo Bias and Ambiguity aversion, Roca et al. (2006) experimentally showed that even if there is a clear option jointly available, people seek ambiguity if it is pointed as the status quo. These results indicate the weakness of ambiguity aversion as a motive for “inaction”, if there are other variables involved. It follows that the degree of uncertainty itself cannot account much as a reason for “inaction” when it is observed. It will be more likely to happen due to the presence of an explicit status quo bias, which seems to be a more robust human propensity. And as described above, higher levels of uncertainty increase confidence and optimism, and if confidence is higher, ambiguity aversion decreases. Therefore, the only motivation for “inaction” based on these psychological factors would be a Status Quo Bias large enough to cancel out the effects of overconfidence and unrealistic optimism. As of now, there is no literature that explicitly tried to compare the relationship between these three variables and their magnitudes.

Naturally, none of these effects are universal. There are situations in which people are underconfident (e.g., easy tasks), pessimistic (e.g., clinically depressed people), or both. It is certainly possible that these effects work in the opposite direction: people may be overconfident and optimistic towards inaction, for example (although it seems unlikely, since the outcome of inaction is in general more knowledgeable than the outcome of action; and, as it was seen, overconfidence and unrealistic optimism are positively correlated with the degree of uncertainty). But in spite of these limitations, the evidence corroborates the hypothesis that, in general, people are indeed biased towards “action”. Excess entry in markets, causing a high rate of exits due to failure, is a widely known phenomenon, registered both in the lab (Camerer and Lovallo, 1999) and in the field (Dunne et al., 1988). According to Dunne, for example, during the period 1963–82, 61.5% of all new firms exited within five years, and 79.6% exited within ten years, in which most of them were due to failure.

Regarding investment decisions, some critics of Keynes pointed out that a distinction has to be made between what they call “individual rationality” and “institutional rationality.” The argument is that “…Keynes's emphasis on the behavior of the entrepreneur as a determinant of investment decisions is misplaced because the agency forming expectations within the firm is rarely a single commanding individual.” (Hodgson, 1985, 17). This is certainly a valid point. But even if true, the psychology literature on groupthink suggests that overconfidence and optimism are actually higher when decisions are made in groups (P Sous, 1993), therefore corroborating the conclusion that there will be in fact a bias towards “action” for investment decisions, regardless of the number of people making them. The most important result of these findings, it seems, is that investment is not based on rational decision-making as postulated by mainstream economics, and it tends to fluctuate according to each of the specific predominant factors aforementioned.

2.5. Price stickiness

The issue of price stickiness was a recurrent theme in The General Theory. In Chapter 2, Keynes not only recognizes this resistance, but also asserts that it is due to psychological factors (1964, p. 09):

“It is sometimes said that it would be illogical for labour to resist a reduction of money-wages but not to resist a reduction of real wages... but whether logical or illogical, experience shows that this is how labour actually behaves.”

“Thus it is fortunate that the workers, though unconsciously, are instinctively more reasonable economists than the classical school, inasmuch as they resist reductions of money-wages, which are seldom or never of an all-around character, even though the existing real equivalent of these wages exceeds the marginal disutility of the existing employment; whereas they do not resist reductions of real wages, which are associated with increases in aggregate employment and leave relative money-wages unchanged, unless the reduction proceeds so far as to threaten a reduction of the real wage below the marginal disutility of the existing volume of employment.” (1964, pp. 14–15).

Later on, in Chapter 17, Keynes again comments on this resistance, but now emphasizing its normative appeal (1964, p. 232):

“The fact that wages tend to be sticky in terms of money, the money-wage being more stable than the real wage, tends to limit the readiness of the wage-unit to fall in terms of money. Moreover, if this were not so, the position might be worse rather than better; because, if money-wages were to fall easily, this might often tend to create an expectation of a further fall with unfavorable reactions on the marginal efficiency of capital.”

Several economists have looked at the importance of nominal inertia (Akerlof et al., 1996; Kahn, 1997; Bewley, 1999). But despite the vast amount of empirical evidence, little is known about its causes (Fehr and Tyran, 2002). Within the behavioral economics literature, two main factors have been analyzed to explain why nominal wages do not move downwardly: money illusion and variations of the Social Preferences approach (gift exchange, fairness, reciprocity, etc.). Defined as a tendency to give more attention to nominal values than to real values, money illusion accounts as one of the reasons why workers resist reductions in nominal wages but not in real wages. Experiments have shown that people systematically would prefer to receive, for example, a 2% increase in the nominal wage with 4% inflation rather than a 2% cut in the nominal wage with no inflation, even though they are equivalent in real terms (Shafir et al., 1997). Moreover, these nominal cuts are perceived as unfair if the firm is not losing money (Kahneman et al., 1986), so money illusion can also shape value judgments about wage levels and lead to different actions for situations that have been considered to be economically equivalent.

Nominal inertia has also been observed in strategic environments when subjects are prone to money illusion (Fehr and Tyran, 2002). Because nominal values are more salient, simpler, and quite precise in the short-run, its large weight given in judgment and decision-making compared to real values comes naturally as a heuristic that in most occasions works well, but that might also lead to systematic deviation from the standard definition of rationality.

As a second cause of price stickiness, the literature has also pointed out to social preferences. In a seminal paper, Akerlof (1982)
suggested the existence of a positive relationship between wage levels and worker effort levels to explain why some employers pay employees more than the market-clearing wage. Fehr et al. (1993) was the first to use experiments to test this hypothesis. He created a setup with excess supply of labor, in order to achieve a low wage equilibrium. Employers, as the first-movers, had to offer a wage to a worker; employees then observed the wage and decided the level of effort to perform. Although the employees did not have any monetary incentive to provide a level of effort above the minimum in any situation, in most cases employers offered a wage higher than the market-clearing wage, and workers responded to that by offering higher levels of effort, a combination that generated a Pareto superior outcome compared to the Subgame Perfect Equilibrium of the game. This result was subsequently replicated in numerous other papers (Fehr et al., 1998; Van der Heijden et al., 2001; Hannan et al., 2002).

The Social Preferences explanation, on the other hand, assumes that people are neither completely selfish nor completely altruistic, but reciprocal: they are willing to cooperate with others if others are also cooperating, even if there is a monetary incentive to free ride, but at the same time they are willing to punish those who violate the social norm, even if it is costly to do so (Bowles et al., 2003). In the labor market case, reciprocity implies that workers are predisposed to provide higher levels of effort if the employer offers a high wage, and are inclined to shirk for a low wage. Obviously, the definition of what is a high or a low wage will depend on the reference point of the workers, although in general the reference point is assumed to be either the current wage or the worker’s fallback position. Thus, if workers receive a wage cut and this cut is perceived as a violation of the social norm, they will reduce their level of effort as a way of punishing the employer. If this mechanism is correct, employers will anticipate this and therefore will be reluctant to reduce wages.

The behavioral economics literature, using the concepts of money illusion and social preferences, has provided insights into Keynes’s analysis of price stickiness. Even though the macroeconomic implications of this rigidity through the lens of behavioral economics is still unclear, it seems that Keynes anticipated its existence early on, and that his description of nominal rigidities is in accordance with the empirical and experimental evidence.

2.6. Expectations

Surprisingly, little work has been done in trying to explain how expectations are formed in general. Keynes considered this issue to be one of extreme importance, but was not able to provide a complete and structured framework on which to base his views about the role of expectations. Shackle (1955) criticized him for not totally breaking up with the classical tradition, adopting a static approach to expectations. One exception was the economic psychologist George Katona, who devised a survey after World War II to show how people viewed the country’s prospects and their own, asking them about their plans for purchases and general attitudes towards the economy. It was based on the assumption that expectations are inherently uncertain, and that they reflected the knowledge and attitudes of people, as well as their behavior in preparing for events in advance. It basically asked questions on intentions to buy a car, a house, and household appliances using representative samples of American adults, as well as questions on attitudes towards general economic trends, like “Do you think that a year from now you will be better off financially, or worse off, or just about the same as now?” Despite its simplicity and directness, this survey was more successful than any other instrument used at that time to forecast and explain macroeconomic data, leading to the birth of the Index of Consumer Sentiment and the Indexes of Producer Sentiment and Intentions. Specifically, about 6–9 months following the observation of a downturn in the Index of Consumer Sentiment, a recession set in (Katona, 1979). Its success, however, was not the same for individual data; while the Index generated reliable macroeconomic forecasts of general economic conditions, it was not possible to predict, for example, whether an individual who stated in the survey that she was thinking about buying a car in the near future actually bought a car or not. The index predicted more accurately for the general level of purchased commodities than for the specific commodities in which the inquiries were made (Schwartz, 1998).

Fifty years later, it is astonishing how small the impact of psychology in explaining the dynamics of economic expectations is. The role of attitudes and moods, for example, in changing people’s perceptions for relevant decisions has had difficulty in having contact with economic theory. It is still uncertain, for example, how temperament, fashion, panic and hysteria influence behavior and expectations. These psychological features connected with the role of emotions have been underprovided in behavioral economics, especially when compared to all the research done in preferences and utility theory. A full understanding of the Keynesian view of waves of optimism and pessimism will probably require a more complete study of the relationship between enduring emotional states and expectation formation.

2.7. Marginal propensity to consume

Keynes’s analysis of the marginal propensity to consume (MPC) identifies a series of reasons why consumers spend their money according to their level of income. Nevertheless, two factors now extensively covered in the behavioral literature were not considered by him, and that may have a significant impact on the MPC. The first is Conspicuous Consumption: the relative position of a consumer in her reference group influences positively her consumption of positional (status) goods. Empirical evidence shows that status-seeking behavior is a widespread phenomenon (Frank, 1985; Chao and Schor, 1998). But since status is a good with a fixed supply (it is impossible for everybody to have high status), positional externalities will be generated, because in the end the determination of one’s status is dependent on one’s relative position instead of one’s absolute level of consumption.

An interesting aspect of history of economic thought is that, even though Keynes did not mention conspicuous consumption, several economists before him had written about it. Adam Smith and Karl Marx briefly mentioned the existence of such behavior, and Thorstein Veblen was the first economist to explicitly analyze this effect, in his classical The Theory of the Leisure Class (1899), more than thirty years before The General Theory. Keynes never cited Veblen, but he probably knew his work. Nonetheless, the fact that there is no mention of status-seeking behavior in Keynes’s work is seen by us as a shortcoming of his analysis of the psychological foundations of the MPC. Conspicuous Consumption does not necessarily contradict Keynes’s assertion that the rich will save more, but it suggests that the MPC might at least generate important non-linearities in its behavior.

A second effect that may influence the MPC and it was only partially considered by Keynes is the so-called “hyperbolic discounting” in intertemporal choices: the tendency that people have to make relatively far-sighted decisions when planning in advance – when all costs and benefits will occur in the future – but to make relatively short-sighted decisions when some costs or benefits are immedi-

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12 There was no real task involved in this experiment. The effort level was a number, and there was a monetary costs to the employee for choosing a higher number, whereas the employer received a monetary gain from a higher number selected by the employee.
This behavior leads to dynamic inconsistency, in which only the passage of time will cause people to reverse their preferences (1964, p. 157):

“Human nature desires quick results, there is a peculiar zest in making money quickly, and remoter gains are discounted by the average man at a very high rate.”

Obviously, the passage only argues that people are very impatient in the short run, and it does not say anything about different rates of discount over time, which is the main feature of hyperbolic discounting. But it is not far fetched to assume that Keynes meant that people have a “hyperbolic” discount rate when making intertemporal decisions. The systematic changes in decisions produced by hyperbolic time discounting create a time-inconsistency in intertemporal choice not present in the exponential model (Thaler, 1992). Exactly how this effect changes the MPC is also unclear, so only an explicit analysis could help understand the degree of its impact. Obviously, other psychological factors may enter into the behavior of the MPC. For instance, the dependence on reference points would suggest that the MPC is correlated with changes in wealth instead of the absolute level of wealth, following the same analysis that Kahneman and Tversky did in Prospect Theory. This argument alone, if evidenced as true, would imply the necessity of a reassessment of Consumption Theory.

3. Conclusion

This paper presented evidence of Keynes’ insightful and rich analysis of individual economic behavior. The necessity to overcome the classical theory and to propose a new economic perspective led him to take individuals as they actually behave under conditions of uncertainty, anticipating many features of modern behavioral studies. The existing evidence provided by research in behavioral and experimental economics suggests that Keynes’ theory was indeed broadly consistent with individual behaviors found in real world situations. The use of heuristics or, in Keynes’ words, ‘useful mental habits’, the adoption of conventional behavior, the role of animal spirits in carrying out investment plans, the existence of nominal rigidities based on money illusion and social preferences, among others, so important for the consistency of the new field of ‘behavioral macroeconomics’, are all embedded in the Keynesian revolution. Of course, the microfoundations of macroeconomics is still an unsettled issue, and the fallacy of composition has not been satisfactorily overcome by the profession. Nonetheless, Keynes’ characterization of the aggregate behavior of advanced capitalist economies as prone to financial instability and crises, recurrent bouts of high unemployment, cyclical fluctuations of investment, speculative spurs, and several other features leading to unnecessary waste of resources, has in its realistic treatment of individual behavior the cornerstone upon which a solid microfoundation can be built.

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