Are Individuals Rational and Self-interested? From the Perspective of Behavioral Economics†

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Economics attempts to explain the relationships between economic phenomena that relate to any aspect of human behavior and to analyze how scarce resources have been or should be allocated (Wilkinson & Klaes, 2012). In a standard economic framework, an individual is characterized with self-interest and economic rationality. It is dubbed Homo Economicus. The economic agents are assumed to maximize their own utility through a rational decision-making for their self-interest. However, there has been some controversy over these unrealistic traits of humans that standard economics approach cannot substantially explain. As a sub-field of traditional economics, behavioral economics attempts to identify how behavior differs from the standard model and to analyze why this behavior is important in economic contexts (Mullainathan & Thaler, 2000). Ogaki and Tanaka (2014) define behavioral economics as a study of economics that is not based on the assumption of rationality and self-interest of humans. Behavioral economics is not attempting to abandon or replace the standard framework but rather increases the explanatory power of economics with more realistic psychological foundations (Camerer & Loewenstein, 2004). The main purpose of this article is to explain how behavioral economics deviates itself from traditional economics with regards to self-interest and rationality of individuals and to introduce the author's related papers that have employed the behavioral economics approach.

First, self-interest is emphasized as the primary motive in traditional economics, although economic theory does not rule out an individual's selfless behavior, such as altruistic behavior. Extant research analyzes how selfless behavior is observed in controlled laboratory experiments and what the results imply in relation to the traits of humans. Main finding of the related literature is that individuals often cooperate in public goods and refuse unfair offers in economic experiments. In order to understand the selfless behavior of humans, Ogaki and Tanaka (2014) introduce the ultimatum game experiment. In this game, there are two players. Player 1 makes a take-it-or-leave-it offer and player 2 accepts or rejects the offer. More specifically, player 1 decides how to divide a sum of money. Player 2 either follows the way that player 1 proposes or rejects the proposal. If player 2 accepts the offer, both players receive the revenues according to the player 1's proposal; on the other hand, if player 2 rejects the player 1's offer, both players receive nothing. If the player 2 is a rational agent, s/he will accept any positive amount, because it would be better than nothing. Player 1, who can anticipate this rational choice to be made by player 2, will offer the smallest amount. This also leads to maximizing player 1's own utility. However, this does not always happen in the laboratory. Player 1 proposes substantially large amount, and player 2 rejects even the positive amount if it was thought to be an unfair offer. Using a meta-analysis of 37 papers

with 75 results, Oosterbeek et al. (2004) find that on average the proposer offers 40% of the given money to the responder while on average 16% of the offers is rejected. It suggests that people do not necessarily go through a rational decision-making process to choose the best option only for their own self-interest.

What should be noted is rationality is different by or within the disciplines. In economics, rationality is not simply an ability to use the reason in general terms. It is not a term that is contrasted to emotional and unconscious instinct. Rationality in economics (or "economic rationality") assumes that we are fully aware of all the pertinent information necessary for our decision-making process; that we can calculate the value of the different options and rank the options in accordance with preferences; and that we have a cognitive ability to weigh the effects of each potential choice and make a rational choice of the most preferred course of action (Ariely, 2010). As an example to explain economic rationality, Ogaki and Tanaka (2014) use the prisoner's dilemma. Two suspects are interrogated by the police in separate rooms. Each can either confess or keep silent. If both keep silent, they will serve 2 years in prison, while if both confess, both will serve 10 years. If only one of them confesses, the one who betrays the partner will only serve 1 year and the other one will serve 15 years in prison. Because betraying offers a greater reward, two suspects will end up with confessing, which is called Nash equilibrium. This result is obtained from the assumption that each player is a rational agent who knows the equilibrium strategies of the other player.

In contrast, it has been found that in addition to probabilities, psychological factors such as ambiguity and familiarity affect an individual decision making under uncertainty (Chew et al., 2012). In their experimental setting, 325 Beijing subjects were asked to choose between betting on whether the temperature on a historic day in Beijing was even or odd versus betting on the Tokyo temperature for the same day: the latter pays 20% more. Even if two probabilities are equal and betting on Tokyo's temperature pays better, 39.6% chose the bet on Beijing's temperature which suggests subjects prefer betting on a more familiar source of uncertainty. With less strict assumption on rationality, behavioral economics takes this view that individuals fail to make a rational choice, because we may have incomplete knowledge or inability to process of information within given time constraints: these failures are often described to "bounded rationality" (Wilkinson & Klaes, 2012). Ohtake and Yanagawa (2014) discuss that although a failure of rational choice can also be explained as a result of incomplete information under the standard economic models, in some cases, it can be too complicated to explain complex human behavior within one model. Behavior economics approach could instead explain it more explicitly and easily (e.g., myopic loss aversion). This suggests that the analyses of economic phenomena in relation to human behavior can benefit from both traditional economics and behavioral economics approaches.

Departures from rationality can be captured by the fact that human do not always choose the optimum. It means that, although individuals know what would be the best choice for them to maximize the utility, they fail to choose it. It can be explained by inconsistent preferences and self-control problems. While standard economics assumes the consistency of an individual's preference, behavioral economics pays attention to the endogeneity of the individual's preference (Ogaki & Tanaka 2014). In other words, traditional economics analyzes how preferences, which are determined exogenously and are assumed to be

consistent within an individual, affect to maximize the utility, whereas behavioral economics more focuses on the traits of preference itself and its change within an individual. As one of the example of inconsistent preferences, this article introduces how an individual's tendency to procrastinate and an individual's inconsistent time preferences are associated with the choice of temporary agency work (TAW).

TAW is believed to facilitate to avoid labor inflexibility to some extent by matching between firms and job searchers, which results in shortening the unemployment and job search duration[2] On the other hand, as firms hiring temporary workers have less incentive to train them, TAW may act as deterrents to workers moving into regular employment. Investments in one's career involve a trade-off between immediate costs and future rewards. These inter-temporal choices in different time periods are measured for an individual's time preferences (or discount rates). In standard economic models, under which agents are assumed to discount future costs and benefits exponentially, individuals with higher discount rates tend to be impatient at a constant rate.[3] However, the effect of impatience on job search can differ if an individual has time-inconsistent preferences, which can be explained by quasi-hyperbolic discounting models (Laibson, 1997).[4] As an alternative to the standard exponential discounting model, these models consider the fact that individuals may not have well-formed plans about costs and benefits and thus displays time-inconsistent preferences. More specifically, their time preferences are inconsistent over inter-temporal choices, with higher discount rates noted in the near future than in the distant future. Lee and Ohtake (2014a) examine the effect of TAW experience on employment transitions in the Japanese labor market, focusing on individual time preferences. The results indicate that those who display hyperbolic discounting are likely to engage in the TAW sector, and those who have held temporary jobs are less likely to move into regular job positions. This suggests that behavioral economics approach gives us new insights into an individual's career choice, which has not been explained by the standard economic model.

The aforementioned literature suggests that behavioral economics approach extends rational choice and equilibrium models (Ho et al., 2006). Furthermore, as Ogaki and Tanaka (2012) explain, behavioral economics investigates a human's behavior with consideration of human limitations and complications, by combining with concepts of other disciplines, such psychology, sociology, cultural anthropology, and cognitive neuroscience. There has been some reluctance in economics to use subjective indicators, which have been developed and widely used in other disciplines, as the determinant for the economic outcomes because of their ambiguity and the difficulty associated with their measurement. However, several studies in the field of economics have attempted to elucidate how a variety of economic outcomes can be predicted by some behavioral factors, such as individual beliefs and culture (for a survey, see Guiso et al., 2006), subjective happiness (Clark et al., 2008), and personality traits (Lee & Ohtake, 2014b). Lee (2014) explains how a measure of non-cognitive skills (the so-called Five Factor Model), which has been developed and broadly accepted as a model of personality in psychology, can be used to analyze the economic preferences. Using the Five Factor Model, Lee and Ohtake (2014b) attempt to investigate the extent to which non-cognitive skills explain the variance in later life outcomes, in comparison with the effect of cognitive skills. As suggested by the previous literature in this article,

behavioral economics is attempting to analyze the human behavior with less strict assumptions on rationality and self-interest. It also considers some behavioral and cultural factors as determinants for outcomes, by adopting a theory of other disciplines. This approach, in some cases, allows a more precise analysis of the economic phenomena, which cannot be fully explained by standard economic models. Thus, using new insights from behavioral economics, together with traditional economics, is expected to help us to understand human behavior better.

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Notes

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2 Part of this paragraph is an excerpt from Lee and Ohtake (2014a).

3 The exponential discounting model can be expressed by the following inter-temporal utility function: $U^t(u_t, u_{t+1} \dots, u_T) = \sum_{k=0}^{T-t} \delta^k u_{t+k}$, where $\delta^k = (1/1+\gamma)^k$. The individual's well-being at time $t+k$ (u_{t+k}) multiplied by his/her discount function (δ^k) is further expressed by the discount rate (γ) (Paul, 1937).

4 $U^t(u_t, u_{t+1} \dots, u_T) = u_t + \beta \sum_{k=1}^{T-t} \delta^k u_{t+k}$, where $0 < \beta < 1$. In this model, the β parameter is newly introduced; if β equals one, it is equivalent to the exponential discounting function. The implied discount factor from the current to the subsequent period is $\beta\delta$, while the discount factor in the sufficiently distant future is simply δ. In other words, the per-period discount rate between the current and the subsequent period is $(1-\beta\delta)/\beta\delta$ and the per-period discount rate between any two distant future periods is $(1-\delta)/\delta$. The former is higher than the latter, implying that agents prefer a greater reward in a sufficiently distant future than a smaller one at the moment.