

# Neuroeconomics: Promises and Pitfalls for Islamic Economics

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## **1. Introduction**

Understanding more about human brain for sure will help us to better understand decision making and behavior. How significant the help would be? That is a matter of debate among experts. Some argues that neuroeconomics already made a significant contribution to conventional economics while others argue that we should wait and see.

With the recent development in functional neuroimaging, neuroeconomics provides a unique opportunity to unlock the black box of human nature and understand human behaviors through mapping and measuring certain brain activation in respect to particular stimulus. In this paper, I will first review promises and pitfalls of neuroeconomics conventional. Then, I will present Islamic economics as an alternative economic paradigm with Tawhidi paradigm with its distinctive economic axioms and hypotheses. Finally, I will discuss the promise of neuroeconomics for Islamic economics sharing our ongoing research project, in collaboration with Dr.Brewer from Yale University, on meditation and gratitude using fMRI.

## **2. Defining Neuroeconomics**

Neuroeconomics is a relatively new interdisciplinary field of economics dealing with microeconomics issues such as choice, preferences, utility through exploring the underpinning brain interactions behind human decisions. The field pursues an integrative approach to study human behaviors through collaborative works of psychology, economics, and cognitive neuroscience (McCabe 2002; Glimcher and Rustichini 2004). Economists are interested in neural activities behind human choice and preferences while neuroscientists are interested in biological structure, connections, and activities of neurons which produce/support cognitive skill. Both neuroeconomists and neuroscientists use brain stimuli and response mechanism to capture brain activities. However, they differ in terms of their interest in and inferences of these activities (McCabe 2008). Neuroeconomists want to measure activities themselves while neuroscientists want to measure messages supposedly carried through those activities. Likewise, neuroeconomists want to understand subject strategies from the presumed messages, while neuroscientists want to understand neural mechanism behind neural activation.

Particularly, with the recent development in functional neuroimaging, the field provides a unique opportunity to unlock the black box of complex human decisions through mapping and measuring certain brain activation in respect to particular stimulus. Currently, many top universities Duke, NYU, University of Pennsylvania, George Mason, and Stanford have research centers on neuroeconomics.

## **3. How Do We Measure Brain Activity?**

Neuroscience currently provides three tools to explore brain activities related to economic decisions: Positron Emission Tomography (PET), Electroencephalography (EEG), and functional Magnetic Resonance Imaging (fMRI).

PAT scan captures images of the brain activities through the absorbed radioactive “tracers” in the bloodstream. These tracers are attached to compounds like glucose which is used at higher rate when certain part of brain is activated. The PAT images capture the activated parts of brain as subjects go through experiments.

EEG is the recording brain electrical activity (voltage fluctuations due to ionic current flows within neurons) along the scalp. Multiple electrodes are placed on the scalp of subjects for usually 20-40 minutes to capture electrical activity. Even though it is widely used for the case of epilepsy, it is also good tool for research involved in brain activity. Its advantages over the PAT and fMRI scans include

low-cost and relatively higher tolerance to subject movement during experiment. On the other hand, it has relatively low spatial resolution and less penetration to deep level neural activity.

fMRI scan capture brain activity by the changes in blood oxygenation and flow that happen when certain part of brain is activated. This is due to the fact that greater brain activity requires greater consumption of oxygen which is delivered by hemoglobin. fMRI scanning is used to reveal activation maps in line with certain mental process. Hemoglobin gains greater magnetic property when oxygenated. Thus, fMRI scan captures the Blood Oxygen Level Dependent Response (BOLD response) by measuring changes in magnetic resonance signals due to the changes in oxygenation level. Generally, the change is measured as BOLD differences in two slightly different stimulus-response experiments to examine brain activation in relate to certain activity. The spatial and temporal data are subsequently analyzed using the General Linear Model. Currently, most standard whole-body scanners produce 1.5 to 3 teslas magnetic field to capture brain activity. Recently reported that a new generation of MRI scanner with 11.75 teslas will come out within a year<sup>1</sup>. Current MRI scanners cover about 10K neurons with a spatial resolution of nearly 1 mm while the new MRI scanner will cover about 1K neurons with resolution of 0.1 mm. The new scanner can capture changes as fast as one tenth of a second.

Even though fMRI is safer to use, PAT scan provides great flexibility in experiment design. It is important to note that PET scan and EEG are increasingly used alongside with fMRI to capture more reliable data.

#### **4. (How) Can Neuroeconomics Help Conventional Economics?**

Neuroeconomics potentially can offer a great help to conventional microeconomics particularly, behavioral economics, experimental economics, and game theory. However, the work is still in progress. The magnitude of contribution is a matter of debate, at least for now. This is partly because neuroeconomics is less than fifteen years old, and partly because the complexity in modeling and capturing neural computation behind complex human decisions. The ultimate usefulness of neuroeconomics will be determined by our knowledge of human brain which is perhaps the most complex machine in the universe in terms of how we measure its functions and relates to human decisions. The current pace of technological advancement might eventually lead us to reveal the nature of human preferences including optimal decision making, inter-temporal choice, risk taking, reward, motivation, altruism, and utility.

Neuroeconomics deals with several issues at the heart of economic studies. Textbook definition of economics is that it is the study of scarce resources to meet unlimited human wants (both needs and desire). This suggests that economics is interested the source, expression, and fulfillment of wants through limited resources. For that matter, any help to better understand human wants shall be welcomed.

##### **4.1 Contributions to Behavioral and Experimental Economics**

Economics as a field began with assumption that we are rational and self-interested. Thus, we decide on the best options to maximize our interest. Economists long gave up this idea accepting that we are not always rational. Indeed, recent studies in behavioral economics reveal that we are predictable irrational. Neuroscience might shed light on how why we make irrational decisions. It might also help us how to reshape our preferences.

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<sup>1</sup> <http://spectrum.ieee.org/biomedical/imaging/the-worlds-most-powerful-mri-takes-shape>, accessed on November 10, 2013

Neuroeconomics adds another layer to experimental studies which have made major contributions to the understanding of economic decision making. Particularly experimental design in neuroeconomics greatly benefits from game theory which aims to understand how people maximize their interest among competing strategies given the fact they face tradeoffs/opportunity cost no matter what they choose. Neuroeconomics seek to find those strategies through brain activities assuming that they are encoded in the brain (McCabe, 2008). Particularly, when an economic theory fails to predict consumer behaviors, deep knowledge of decision making would help to refine the theory.

Neuroeconomics could be helpful particularly to game theory which studies strategic decisions behind goal-directed human behaviors. Facing opportunity costs for every action, human beings engage in coordinated emotional and cognitive activity to decide on a goal-maximizing choice. Neuroscientists explore neural activities during goal-directed decisions. For instance, in monkeys, Schultz et al. (1997) report positive correlation between the release of midbrain dopamine neurons and goal-directed learning. Once the reward is linked to a stimulus, the dopamine release begins when the stimulus introduced not when the reward is given. O'Doherty et al. (2004) confirmed the findings in human subjects by observing activation of same brain regions through BOLD response when subjects either received or anticipated to get juice rewards. Knutson et al. (2000, 2001) came up with similar findings for monetary reward.

McClure et al. (2004a) examined the influence of brand names on product selection. They first conducted blind test of two soft drinks (Coke and Pepsi) by giving subjects the drinks in an unlabeled cup. The subjects were likely to say the preferred Pepsi to Coke which contradicted with their claimed preferences. They put same brand drink in two cups one with label and the other without, they were much more likely to say they preferred the labelled Coke compared with the unlabeled Coke. Then, they put subjects in the scanner to see brain activity during decision making process. In the first session, they gave subjects soft drink through a plastic tube following a colored light (one for each brand). In the second session, they replaced the light for Coke with its picture. In the first session, they found the reward region of brain being activated. In the second session, when the subjects were shown the Coke image, additional areas of the brain were activated. The researchers interpreted the difference as the area which is activated for bias preferences with brand name information.

McClure et al. (2004b) study BOLD activations in making intertemporal choices between immediate (money today) and distant monetary reward (money in the future). They found that the limbic system is activated when choosing immediate reward. On the other hand, when the distant reward is preferred, the lateral prefrontal and parietal areas of the brain got more activated.

## **4.2 Contributions to Game Theory: Rational vs. Moral Agent**

Experiments such as dictator, ultimatum, and investment games in game theory provide great insight about human decision making. In the dictator game, there are two players, the proposer who decide on how to allocate endowment such as cash prize and the responder who is passive recipient of the prize given by the proposer. Thus, the proposer is the sole decision maker. He is expected to keep the full prize for himself. Ironically, it seems like this is not the case. For instance, Forsythe et al. (1994), in an experiment, gave \$10 to the proposers in room A and asked them to split with anonymous subject in room B. They were told they could decide to give all or none as they like. Their decision would be the final. Surprisingly, only 21% of the proposers kept the whole money for themselves while 21% of them shared evenly. Overall, the proposers kept 77% and sent 23% to the responders in room B. Then, why the proposers negate rational expectation? Neuroeconomics might shed some light on such issues by

revealing neural activity difference in those who share versus those who act selfish. Indeed, Spitzer et al. (2007) found out that the brain activation of dictators who are likely to be punished is much greater than that of those who would not.

### **Fairness Studies**

The ultimatum game single shot game between two players who are given certain endowment to share as they like. The first player proposes how to divide the endowment while the second player can accept or reject the offer. If the second player rejects the offer, both players would not receive anything. If the second player accepts the offer, the money would be split according to the proposal. Many studies (Guth et al. 1982, Forsythe et al. 1994) confirmed that the proposal would likely include even split of money between the two players due to the power of second player to reject the proposal completely. Irrespective of the monetary amount, any offer less than 20% of the total has about 50% chance of being rejected. This is counterintuitive because no matter how small the amount is it is still better than getting nothing.

Why do rational people prefer nothing over something? It is clear that they are acting to punish their counter players who engage in major unfair behavior. In a fMRI study, Sanfey et al. (2003) scanned 19 subjects who were in the role of the responder in the Ultimatum Game. They wanted to see whether the brain activation is different when the responder faces unfair offers. They played 10 rounds of one-shot play with ten human partners via computer interface and 10 rounds with computer partners. In each round, the players were given \$10 to split. Half of offers by both human and computer partners was fair (split the money even) while the remaining half was unfair offers. The behavioral patterns were similar to general findings in Ultimatum Game experiments. Responders accepted all fair offers while rejecting unfair offers from human partners at a significantly higher rate. They found that unfair offers activate anterior insula (responsible for emotion) and dorsolateral prefrontal cortex (responsible for cognition). Furthermore, they observed greater activation in the emotion area for rejected unfair offers. Rilling et al. (2004) conducted a similar study and confirmed the different response when subjects received unfair offers from computer partners rather than human partners.

In another related study, when researchers interrupted dorsolateral prefrontal cortex activity through Transcranial Magnetic Stimulation (TMS), the responders were more likely to accept unfair offers (Knoch et al., 2006). A similar study which allowed responders to express their anger during the game found that it is more likely for responders to accept unfair offers when they express their anger at their partners (Xiao and Houser, 2005). This means that responders consider rejection of unfair offers as a form of expressed anger at and punishment of their partners. It also shows that people value fairness even more than monetary gain. Rabin (1993) even developed “fairness equilibrium” on the basis of findings from economics that people are willing to sacrifice their wellbeing to return kindness and punish unkindness. Singer et al. (2006) explore gender difference in responding unfair offers. They found out that even though both genders equally punish unfairness, men enjoy punishing more than women as revealed by higher activity in the reward area of the brain.

### **Trust Studies**

The Trust Game (also known as the Investment Game), designed by Berg et al. (1995), is the experiment in which two players are given certain amount of money to share. The player one is told that he should send whatever the amount he decides to the paired anonymous second player. He can decide to keep all the money and send nothing. However, he chooses to send money, the experimenter will triple the amount and give it to the second player. Then, the second player will be told to decide how to share the

money. He can also keep all or share as he likes. The initial transfer to the second player is called “trust” while the transfer back to the first player is called “trustworthiness”. According to the rational choice theory, the self-interested first player should keep all money because there is no reason for rational reason for the second player to send money back to him. The experiment results have consistently negated the rational economic prediction. In the original Trust Game involved thirty two game shots, Berg et al. found that thirty of them were contradicting standard economic theory. Many subsequent studies (McCabe and Smith, 2000; McCabe et al. 2003) confirm that first players generally share the money and the second players return the amount even greater than originally sent.

Kosfeld et al. (2005) and Zak et al. (2005) conduct a trust game to see whether oxytocin has any leverage in trust relationships among players. They found out that subjects who inhaled the oxytocin were more likely to trust their partners and sent money (invest) in the game. Zak et al. (2007) also reported positive correlation between oxytocin and generosity.

In a study by King-Casa et al. (2005), researchers scan subject’s BOLD responses during the repeated trust game. They found out the caudate nucleus of the second player was greatest when the first player sent even more money in response to trusty response from the second player during the first round of the play. Krueger et al. (2007) further explore the brain activation during the trust game. They argue that two different brain parts might be involved in the development of trust, paracingulate cortex (cognitive) and the septal region (oxytocin receptor).

### **4.3 Contributions to Wellbeing Studies**

While economists care about what individuals choose between competing alternatives, psychologists assess the impact of such choice on subjective wellbeing, doctors tell its health impact of choice, philosophers and religious scholars debate its moral dimension. They all contribute to our understanding of subjective wellbeing when we make a certain choice.

Utility in modern economics gain extended meaning. Some researchers measure utility through revealed preferences in the form of choices made by individuals (Hausman and MacPherson, 2009). This form of utility is known as “decision utility”. Some researchers measure it as hedonic experience reflecting experienced pain and pleasure. This is known as “experienced utility” (Kahneman, 2000). The second type is divided into three categories: instant utility, remembered utility, and anticipated utility. For that matter, it does not really care about the black box behind choices assuming that people choice what is best for their wellbeing. At least, their preferences show predictable consistency. Even though revealed preferences provide good information about wellbeing, it is hard to say it tells the whole story.

Indeed, it seems like people can consistently make bad decisions because they frequently fail to predict the full outcome of their choices (Kahneman and Sugden, 2005). Binmore (2007: 111) argues that modern economics make some assumptions about choice without knowing its true nature: “The modern theory of utility makes no attempt to explain choice behavior. It assumes that we already know what people choose in some situations and uses this data to deduce what they will chose in others – on the assumption that their behavior is consistent.” This is where neuroscience might contribute. Neuroscience can reveal additional layer of picture to better understand how we make decisions to maximize our wellbeing. Indeed, this is the third form of utility known literature as “neural utility”. From this perspective, utility can be defined as neural desirability signal which can be measured through activation of relevant part of brain (Camerer et al., 2004, Glimcher 2009, Kable and Glimcher 2009). A meta-analysis of recent fMRI studies revealed that the sub-regions of the ventromedial prefrontal cortex/orbitofrontal cortex encode decision values for multiple reward types (Levy and Glimcher 2012).

In short, although neuroimaging is not a panacea for determining true utility, it certainly provides helpful complementary data for better understanding of utility.

## 5. Promises of Neuroeconomics

Considering ample recent evidence on irrational decisions we make, neuroscience might help us to ourselves, our decisions as well as others. It might help us learn how we could better control ourselves one comes to irrational choices. Economists began with speculation about why people do what they do. Then, we moved to observation stage trying to understand human behaviors based on observable evidence. Then, we began conducting experimenting to better understand complex decision making. With the help of neuroscience, we are now directly scanning brain to read minds of individuals as we can. In other words, economic methods of gaining information about human decisions have gone through four stages: speculating, observing, experimenting, and scanning.

An advantage of laboratory with scanning is that extraneous aspects of an experience can be controlled, and the unique effect of a stimulus on individuals' experiences can be evaluated. Participants will be exposed to an experience, such as being exposed to loud noises or watching a film clip. They will be provide a continuous indication of the hedonic quality of their experience in real time by manipulating a lever that controls a marker on a scale, which is usually defined by extreme values such as very pleasant and very unpleasant and by a neutral value. The participants in such experiments generally respond to the stimulus in a reasonable way and provide profiles that are similar, both in level and in shape. The results of these kinds of experiments grant opportunities to see difference between experienced and remembered utility; that is, the way people feel about experiences when it happens and the way they remember their experiences after they are over. The results can be measured through brain activity in addition to already available means.

In an article titled as "how neuroscience can inform economics", Camerer, Loewenstein and Prelec (2005) argue that neuroscience provides "entirely new set of constructs to understand economic decision-making" (p.10). They argue that neuroscience would not just provide additional data for existing economic theories, it would reveal and repair some of its shortcoming. They mention how we could modify our understanding of want and like through findings of neuroeconomics:

"Economists usually view behavior as a search for pleasure (or, equivalently, escape from pain). The subfield of welfare economics, and the entire ability of economists to make normative statements, is premised on the idea that giving people what they want makes them better off. But, there is considerable evidence from neuroscience and other areas of psychology that the motivation to take an action is not always closely tied to hedonic consequences. Berridge (1996) argues that decision making involves the interaction of two separate, though overlapping systems, one responsible for pleasure and pain (the "liking" system), and the other for motivation (the "wanting" system). This challenges the fundamental supposition in economics that one only strives to obtain what one likes." (p.37)

Camerer (2008) argues neuroimaging might provide three contributions to economics. First, it might only provide mental image of already known theory such as rational choice theory. Second, it might help us to decide which mathematical representation of human behaviors is likely to be accurate. For instance, it might support data for two competing theories such as expected utility theory and prospect theory. The neuroscientific studies might be used to abandon certain microeconomic models as neurobiologically impossible. Third, it might inspire us to find new determining factors behind human decisions including willpower, emotion, belief, etc.

Caplin and Dean (2008) argue neuroscience can provide “fundamental economic insights” (p.669) by revealing neural map of decision utility. Levy and Glimcher (2012) argue the neural signals related preferences can set “a neurobiological foundation for standard economic theory” (p.1).

Yokum and Rossi (2009) predict that neural data will provide another constraint to any theory related to human behavior. Once the field is established, theories of decision making cannot be set just with behavioral observation; they have to overlap with relevant brain activity. Furthermore, neural data might reveal unknown motivation behind certain behavior such as charity. Indeed, many studies already measured brain activity during charitable activity (Moll et al. 2006 and Harbaugh et al. 2007)

Smith (2007) makes the following prediction about the future of neuroeconomics: “Neuroeconomics will not achieve distinction in a focus confined to correcting the ‘errors’ believed to pervade professional economics of the past, an exercise of interest to a narrow few. Nor will notoriety likely stem from better answers to the traditional questions. Rather, neuroeconomic achievement more likely will be determined by its ability to bring a new perspective and understanding to the examination of important economic questions that have been intractable for, or beyond the reach of, traditional economics. Initially new tools tend to be applied to the old questions, but [ . . . ] their ultimate importance emerges when the tools change how people think about their subject matter, ask new questions, and pursue answers that would not have been feasible before the innovation. Neuroeconomics has this enormous nonstandard potential, but it is far too soon to judge how effective it will be in creating new pathways of comprehension.”

## **6. Pitfalls of Neuroeconomics**

The main shortcoming of neuroeconomics comes from our limited understanding of brain activity at this stage. To improve our understanding of how the brain processes information, more knowledge about the interactions of activated brain areas, that is, functional integration is needed. A model-free approach to study integration is to investigate the correlation between measured time courses of different brain areas, which has been referred to as functional connectivity. However, functional connectivity is ambiguous with respect to the underlying directed interactions that generate the observed correlations. Effective connectivity defined as the influence one neuronal system influences over another attempts to resolve this ambiguity by defining explicit statistical models of directed neuronal interactions.

Several concerns have been raised by economists as well as neuroscientists in terms of using neuroimaging data to understand human preferences. For instance, Coltheart (2004) argue that studying brain images can tell us nothing about information processed within: “The assertion is that this aim, i.e., the aim of using neuroimaging data to test between cognitive models, is impossible to achieve in principle, because facts about the brain do not constrain the possible nature of mental information-processing systems.” (888, p.22). This is a typical mind and matter question. Critics of neuroeconomics argue that as we cannot understand algorithm behind complex software by studying hardware, we cannot understand mind by studying brain. Marr (1982) uses the following analogy to make point about the misleading inference from neuron:

“Trying to understand perception by studying only neurons is like trying to understand bird flight by understanding only feathers: It just cannot be done. In order to understand bird flight, we have to understand aerodynamics; only then do the structure of feathers and the different shapes of birds’ wings make sense.” (p.27)

Gul and Pesendorfer (2008) strongly deny any contribution of neuroeconomics arguing that positive economics is based on preferences irrelevant to physiology or process of the brain. Since in conventional economics what matters is preferences, not the underlining neural process, neuroscience cannot add

anything to economic understanding. In other words, economists do not really care about what is going in the brain, they care about revealed preferences. After all, Gul and Pesendorfer argue, economics has grown into prestigious field without any reference to brains.

Gul and Pesendorfer (2005) goes much further in their criticism arguing that neurobiological activities provide no useful information to economic understanding of rational behaviors: “Rationality in economics is not tied to physiological causes of behavior and therefore the physiological mechanism cannot shed light on whether a choice is rational or not in the sense economists use the term” (Gul and Pesendorfer 2005, p.24) Thus, since economics understand and model human behaviors from the observed choices, there is no need for neural data. Revealed choice data are perfectly sufficient.

Harrison (2008) raises sample size problem in neuroeconomics studies. He argues that it is hard to generalize the findings when sample size is less than ten or rarely exceeds a dozen. Furthermore, he maintains that “the unit analysis is not actually the brain: it is a spatial location in the brain firing per unit of time. So we end up with a data set in which a few brains contribute many observations at each point in time, and in a time-series.” (p.312) Harrison (2008) believes that neuroeconomists do not add insight to “already-confused experimental designs”, but “just covered up those confusions and promoted one plausible story over another” (p.339).

Harrison (2008) also argues that epistemological basis of neuroeconomics is very weak. He disputes the findings of such studies claiming they are built on poor experimental and statistical foundations rather than providing actual substance. One comes to welfare, Harrison argues that economists do not and should not care about neural utility, but welfare based on revealed preference.

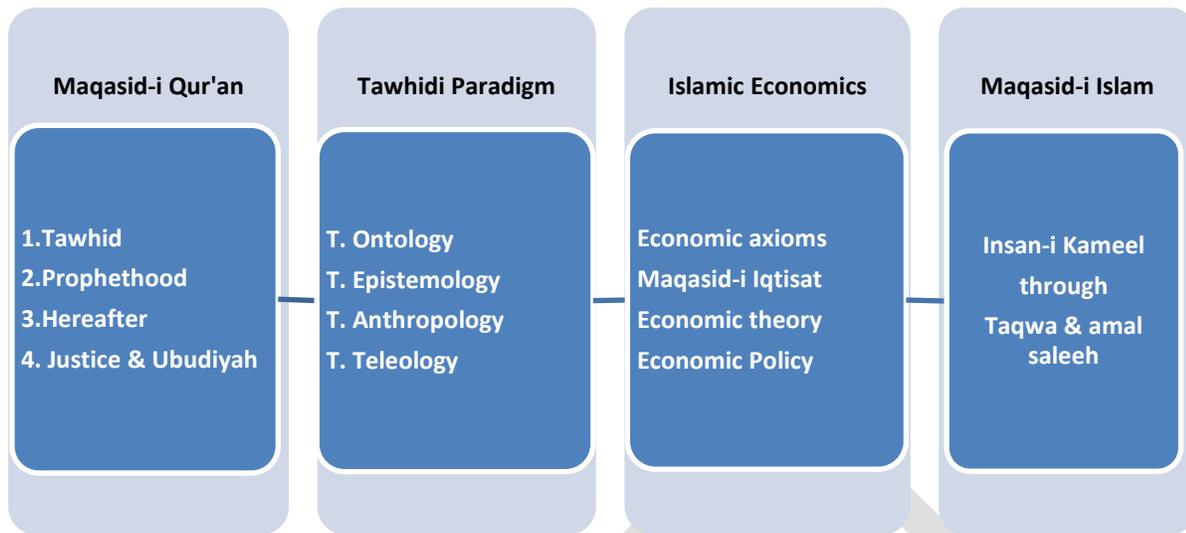
## 7. Islamic Economics as a New Paradigm, not Old Capitalism

The difference between Islamic economics and free market capitalism is not limited to the prohibition of interest and haram activities. It is not instrumental; rather it is fundamental factors requiring Islamic economics to be a new economic paradigm. As Gregory and Stuart rightly states “in order to distinguish one economic system from another, we need to focus on and compare their fundamental elements.”<sup>2</sup> In my view, defining Islamic economics as a new economic paradigm, we first need first start with *maqasid-i Qur'an*. Second, we need to outline Tawhidi paradigm based on *maqasid-i Qur'an* with its ontological, epistemological, anthropological, and teleological worldviews. Third, we need outline axioms of Islamic economics, *maqasidi iqtisad* with its economic theories and policies. Fourth, we need to define the ultimate desired outcome of Islam and the path to its realization.

Nursi(1996) defines the four essential goals of Qur'an as follows: divine unity (al-tawḥīd), prophethood (al-nubūwwah), the resurrection of the dead (al-ḥashr), and justice (al-adālah). Tawhid means the oneness of God with His works, names and adjectives. He is the One behind everything. He is the Real and source of reality. Prophets have been sent since the first person to convey message from God to humanity informing them about their Divine mission and setting best example on how to fulfill such mission. Al-hashr is eternal life in which people will be rewarded or punished according to their deeds in this life. Finally, *adalah* is to be just in our relations with each other and with God. In other words, *adalah* is to give everyone their rights whatever they might be. In Nursi's view, worship is part of *adalah* because it is paying the rights of God.

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<sup>2</sup> Gregory, P. R. and Stuart, R. C. (1985). *Comparative Economic Systems*. Houghton: Mifflin, p.12.



## 8. The Tawhidi Paradigm and Islamic Economics

Free market capitalism did not emerge in vacuum. It is the product of the western materialist worldview. In order to identify any differences between Islamic economics and its counterparts, it is important to understand the Islamic worldview which is based on the Qur'an, Hadiths, and views of Muslim scholars. Islam is not a marginal religion dealing with dealing spiritual life alone. It is a religion providing guidance and well-being for both this life and the hereafter. Therefore, the word *falāh* (real well-being) and its derivatives have been used in the Quran many times. In the five time daily azan (call to prayer), people are also invited to *falāh*. Islam aims to achieve its goal through its value-based and God-centered moral and spiritual worldview (Aydin 2013, 1-34; Aydin 2013, 13).

Is there objective reality? What is this? Is there objective truth? What is the purpose of life? Is there universal characteristics of human nature? Answers to those questions in Islam are central around the concept of Tawhidi, the existence of one God. According to the Tawhidi paradigm, God is not the product of human imagination; He is necessary existence behind the existence of everything. The knowledge about God is the highest objective truth verified by both revealed books and the book of the universe. Human is not a random product of evolutionary process, he is God's greatest project.

### 1) Tawhidi Ontology

Ontologically speaking, God is real and the source of reality. We know about His existence through his words and works. For that matter, knowing God is different than believing in the existence of God. While the latter is a form of belief in the existence of God, the former is much more than belief in God. It is to getting to know God. In this context, belief is a means which "connects man to the All-Glorious Maker". In other words, belief is not acceptance, "it is a relation" (Nursi, *The Words*, 23<sup>rd</sup> Word, p.319). It connects human to God. In contrast, "unbelief severs the relation", it leaves human alone in the universe. Nursi follows Islamic tradition not talking about the nature of God because it is beyond the comprehension of human mind in this world. However, Nursi details essential quality (*shu'unat*), attributes (*sifaat*), and names (*isim*) of God who is one, eternal, necessary existent, self-sufficient, all-good, all-knowing, all-powerful, all-wise, most-merciful, most-kind, etc. Nursi argues that the reality of everything in the universes are the Divine

names. The names come from the Divine attributes and the Divine attributes come from the Divine quality (shu'unat).

## 2) Tawhidi Epistemology

For the Tawhidi paradigm, objective truth does exist. God is Truth and source of Truth. While the secular paradigm relies on the light of human mind alone in its ontological and epistemological worldviews, the Tawhidi paradigm relies on both reason and revelation. Islam does not ask people to shut down their minds and blindly follow the Divine revelation. Indeed, it is important to note that the very first message from God to the Prophet Muhammed (pbuh) (and humanity) was not "believe!" or "worship!". It was "iqra (read!)". In other words, the prophet (and humanity) was not asked to accept the ontological reality regarding God. He was first asked to pursue epistemological reality through using reading.

From an Islamic point of view, it can be said that God makes Himself known to humanity through His words and works. If we listen to the Divine Revelations and read His works in the universe, we will know His attributes. We should begin our reading from the self because the knowledge of the self will help us to know God. Once we understand that we are absolutely impotent and needy, we will realize that nature could not produce anything on her own. Everything from an atom to galactic systems is the works of God and under His control at every moment. He is not the god of gaps. He is the God of everything at every moment according to the Quran. Therefore, becoming a believer is nothing more than the recognition of and participation to the universal submission. In this regard, belief is not a blind acceptance; it is an affirmation and bearing witness (shahadah) to the manifestation of God.

## 3) Tawhidi Anthropology

From the Islamic perspective, knowing self is even more important, as the Prophet says, "he who knows himself knows his Lord." In other words, knowing self is the key to know God. However, as Ghazali points out, knowing self is not an easy job. Human nature is composed of complex characteristics. It contains animal character in terms of eating, drinking, sleeping, and reproducing. It contains beast character like harming others for his benefits. It contains Satanic and angelic characters. Each of these potential characters is developed through certain nutrition: "Each one of these qualities has its own distinct food that nourishes it, sustains and promotes its growth, resulting in the promotion of goodness and the approved behavior." (Ghazali 2001, p.2) In other words, human conveys propensity to become animal, Satan, and angel. Animal are two kinds, good and bad ones. If a person only pursues animal desires, he would be like a good animal. If he pursues his interests at the cost of others, he will become like beast. The goal is to become like angels "to behold the glory of Allah" and to be "freed from immoral sensual pleasures and arrogant anger on your fellow men." (Ghazali 2001, p.4) Every person has a potential to become like animal, beast, Satan, or angel.

Inspired largely by the writings of some Muslim scholars such as Al-Ghazali and Nursi, I recently developed a new theory of human nature: "A Grand Theory of Human Nature (GTHN)", using the palace and resident metaphors that follow (Aydin 2012). If we compare the human body to a luxury recreational vehicle (RV), the following elements of human nature would be the companions on this vehicle: *King*, *Judge*, *Wazir*, *Elephant*, *Showman*, *Dog*, and *Driver*. The *King* is the spiritual heart that is the source of love and inspirational knowledge. The *Judge* is the conscience that is the source of positive feelings after performing "good things" and negative feelings experienced after doing "bad things". The *Wazir* (*prime minister*) is the mind. The *Elephant* is the animal spirit, which is the source of animalistic desires. The *Showman* is the self-centric ego that pursues power and possession to show its importance to others. The *Dog* is an inner drive for protection of personal belongings with potential to

oppress others for their possessions. The *Driver* is the deciding self (free will) that drives that the vehicle under the influence of the residents.

From the perspective of the Tawhidi anthropology, we cannot talk about our needs and desires with a singular voice. They are originated from six different sources. Our authentic happiness depend on how fulfill the needs and desires of the key elements of our nature. From the Islamic perspective, we could not reach happiness by pursuing the interests of animal soul and self-centric ego. Rather, we should give priority to our spiritual, intellectual and moral needs. We should learn the ways to control our animal and egoistic desires.

#### 4) Tawhidi Teleology

From the Islamic point of view, as everything in the universe is created for certain purposes, human being is also created for certain purposes. The main purpose of human is not to boost the self, turning him to an inner god. The purpose is also not to serve the elephant, as becoming his slave. Rather, the purpose is to understand our nature embedded with infinite impotence and poverty, and act accordingly. It is to disclose our almost infinite potential by relying on the Divine power and mercy through understanding our true nature. In other words, the purpose is to excel spiritually, intellectually, and morally and be “*insan-i kamil* (perfect human) by disclosing our human potentiality as much as we can.

The Qur'an clearly states the purpose behind the creation of human beings: “I have not created the jinn and humankind but to (know and) worship Me (exclusively).” (The Quran, 51:56) As described by Ghazali, the transcendental achievement would be possible through God-centric life: “The purpose of life is to reach the ‘*Martaba*’ the status of tawhid (oneness of Allah), understand it, inculcate it in his being to follow His dictates to reach the pedestal of the *Akhlaq Alaia* (the grandeur of conduct). It would mean a singular achievement of transcending from the *Bashari’at* (Being a human being: fallible) to the ‘*Maqame Haqiqat*’ i.e. the position of verity and the truth sublime.” (Ghazali 2001, p.747) From the Qur'anic perspective, human being is a (perhaps the) major project of God. The Islamic worldview is built upon this project. In short, from the Tawhidi teleology, the purpose of life is to pursue God's pleasure by fulfilling our mission as desired and designed rather than pursuing self-pleasure. However, from the Islamic perspective, well-being in this life and in the hereafter will be realized as byproduct of God's pleasure.

#### 5) Redefining Islamic Economics

Islamic economics has been a key subject matter among diverse pool of Muslim scholars such as commentators of the Quran, jurists, historians, and social, political, and moral philosophers. In a recent paper, I define Islamic economics based on the Tawhidi paradigm, particularly its ontological, epistemological, and teleological differences from the materialist worldviews as follows: **“Islamic economics foresees an economic system based on the Islamic worldview aiming to realize spiritual, moral, intellectual, social, and material well-beings of individuals in this life and the hereafter through allocation and distribution of scarce resources in a morally guided market system.”** (Aydin 2013, 1-34) Thus, the answers to the core questions could be as follows: what to produce? Produce goods and services which help human beings to excel spiritually, intellectually, morally, and socially. What to produce? Produce the basic goods and services for everyone, but others for those who could afford. Accumulate spiritual, moral, and social capital in addition to physical and financial capital. How to produce? Produce through efficient and fair market mechanism. Likewise, Islamic financial instruments should be based on the Tawhidi paradigm. Their sharia compatibility should not be defined

only according to riba, haram, gambling, and speculation. Rather, they should be assessed based on their ultimate outcome in terms of their contribution to human moral, intellectual, and spiritual excellence.

## **9. Fundamental Axioms of Islamic Microeconomics**

### **Axiom 1: The ultimate end (goal) for consumers is not “self-pleasure”, but “God’s pleasure”**

As well-argued by Aristotle, the ultimate end or final good is what we should care about. For that matter, it is important to understand how the final good in Islamic economics differs from that of conventional one. Islamic economics offers God-centered (G-donic) happiness model, rather eudonic, or hedonic models. G-donic happiness model is based on the comprehensive understanding of human nature from the Islamic perspective. Understanding and commanding our inner nature are very important in pursuit of happiness. As Toynbee argues that “the command over nonhuman nature, which science has in its gift, is of almost infinitely less importance to Man than his relations with himself, with his fellow man, and with God.”(Toynbee, Royal Institute of, and Somervell 1946, p.99) In fact, Toynbee goes to the extent of saying that “a crushing victory of science over religion would be disastrous for both parties; for reason as well as religion is one of the essential faculties of human nature (*Ibid.*, p.99)

From Islamic perspective, happiness is not a destination to reach. It is the experience while driving on the happiness highway. Happiness is the byproduct of living according to the God’s pleasure. Using the analogy of RV for body and residents for element human nature, we can define happiness as overall life satisfaction for the residents of the RV while driving on the straight path (sirattal mustakim). In other words, happiness is to drive the RV under the collaborative command of the King (heart), Judge (conscience), and Wazir (mind). It is to drive toward excellence in sincere spiritual, intellectual, and moral intentions and actions. It is to keep the Elephant (animal soul), Dog (anger), and Showman (egoistic self) under the command of the King, Wazir, and Judge.

While the G-donic model provides guidance to nourish heart, mind, and intellect, it also highlights the danger of being slave to the animal soul, ego, and anger. It warns people that if not trained, the elephant, showman, and dog will dominate the RV and urge for certain irrational actions despite any objection from the king, wazir, and the judge. The G-donic model provides nourishment for the King who has the capacity for love, compassion and inspiration. It guides people on how to find authentic and lasting love in life for the fulfillment of the King. It discusses the role of loving mates, children, friends and jobs in the pursuit of happiness. The G-donic model notes that the inner Judge (conscience) always makes judgment about what we do to others. If we treat someone unfairly, he causes us to be aware of this injustice and feel guilty for being unfair. If we treat others fairly, we receive spiritual pleasure experienced through the fulfillment of the judge. The G-donic model presents the food station for the Wazir who is thirsty for knowledge and meaning. Finding meaning in life is very important for the Wazir because as the navigator, he needs to know where to go. Life without meaning is like driving without knowing the destination. The G-donic model also offers a guide on how to keep the animal soul, showman, and god under control. It suggests moderation in consumption and warns about the poisons present in some food. It makes some recommendations for pleasure maximization under restraints of the “law of diminishing marginal utility,” “adaption principle,” and the “hedonic treadmill.”

### **Axiom 2: Wealth is “not necessary means, but preferred indifference” utility maximization**

In the G-donic model, it is necessary to have basic means for nurturing the body and soul. However, it is not necessary to be wealthy even though there is nothing wrong to be so.<sup>3</sup> For that matter, wealth is “preferred indifference.” In other words, for the desired outcome of life, wealth is not necessary because it is just a means. As it is stated by the Prophet (pbuh), at the end what really matters is the deeds: “Certainly God looks not at your faces or your wealth; instead He looks at your heart and your deeds”<sup>4</sup>

If it is available, wealth might be desired because it provides certain convenience in this life. Of course, one could argue for the importance of wealth particularly at this time to help people learning and pursuing sincere and virtuous deeds. We are talking about wealth as means for convenient worldly life. For instance, working to be rich and live a virtuous and sincere life is possible. Abdurrahman bin Avf, a companion of the Prophet, was very rich before becoming Muslim. He kept doing business and earning enormous amount of wealth even after converting to Muslim. He was one of ten companions who had been told by the Prophet that they would go to the Paradise. This means that wealth is not obstacle for the best outcome in life. However, it is important to note that Abdurrahman bin Avf did not want and use wealth mainly for his personal convenience. He used for himself and his fellows to flourish in moral, spiritual, and social aspects.

Ibn al-Qayyim says since the life is a test and trial, it does not matter whether the questions come through the form of poorness and wealth. As the possession of wealth is not a sign of God’s favor, the lack of wealth is also not the sign of His disfavor.<sup>5</sup> In other words, the goal in life is not be rich, rather it is to live a virtuous and sincere life to earn God’s pleasure. According to Ibn al-Qayyim, wealth is preferable provided that it accompanies thanksgiving to Allah and help to fulfill one's duties and obligations towards fellow human beings.<sup>6</sup>

Another reason for wealth being preferred indifference is the ability of achieving high level of happiness in this life even without wealth. For instance, according to Ghazali, happiness is a skill of making gold from chemicals. Therefore, the happy person is the one who knows the alchemy of making gold. Such a person does not need gold. He could make gold whenever he needs. He could turn everything into gold. Even if he is in prison, he could establish a palace for himself and live happy life. If a person “retain the alchemy of happiness with him, he would get out of the status of the animals and reach the stature of the angels. But if he comes a prey to the world and the worldly desires, the dogs and the swines would be better than him, because they would be dissipated but the man would remain submerged in Azab (the punishment).” (Gaz, p.47) Nursi agrees with Ghazali. He would argue that the alchemist is the one with real and verified belief in God. Since God is All-Present, All-Powerful, Most Merciful, Most Kind, the one who establishes relationship with God could get whatever he wants and needs. Furthermore, God as described in the Qur’an is the sole power over everything. Therefore, Nursi considered himself perfectly happy even when he was in prison.

### **Axiom 3: Human decision is not driven by self-interests, but selves-interests**

In my view, “self-interest” in conventional economics consists of two key elements of human nature. “Self” refers to “ego (the showman)” and “interest” refers to the desires of “animal spirits (the elephant)”. According to Adam Smith, the market mechanism determines what and how much to

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<sup>3</sup> Wealth is defined in Merriam Webster dictionary as “An abundance of valuable material possessions or resources”.

<sup>4</sup> Muslim, v. 4, p. 1987: 34

<sup>5</sup> Islahi, Abdulazim: Economic Thought of Ibn Al-Qayyim, International Centre for Research in Islamic Economics, 1984, p.2

<sup>6</sup> Islahi, Abdulazim: Economic Thought of Ibn Al-Qayyim, International Centre for Research in Islamic Economics, 1984, p.4

produce if we simply let everyone act based on his or her “self-interest.” Individuals will demand and supply the optimum amount of goods and services to boost their ego and fulfill the desires of their animal spirits. Thus, supply and demand driven by self (ego) and (animal spirits’) interest work like an invisible hand pushing the market mechanism toward an efficient production and consumption. From an Islamic perspective, we could talk about different interests, not just one single interest (self-interest) due to its comprehensive understanding of human nature. What is called self-interest in capitalist free market economy includes only the interests of animal soul (elephant) and ego (showman). Islamic worldview cares about the intellectual, spiritual, moral, and social interests more than animal and egoistic interests. Indeed, it suggests controlling animal and egoistic interests if they are in conflict with other interests.

The rational “economic man” of capitalist system is urged to free pursue his self-interest. “Individual self-interest in turn became identified with the maximization of wealth and want satisfaction, independent of its impact on the well-being of others.”<sup>7</sup> Chapra argues that it is Adam Smith first equating self and social interests by arguing the pursuit of self-interest in a competitive market serves best to the well-being of the whole society. Indeed, since the late nineteenth century, the dominant assumption in conventional economics is the following: human beings are essentially utility-maximizing creatures whose pursuit of individual self-interest somehow yields mutually beneficial outcomes and produces both personal and collective welfare” (Pabst, p.1)<sup>8</sup>

The capitalist system considers the distribution through free market system as the best way to use scarce resources efficiently; therefore, it “gave little attention to redistribution in the sense of reaching a certain level of social justice and equity.”<sup>9</sup> The socialist system considers free market capitalism as exploitative and unjust, but offers central planning as an alternative solution for social justice and equity. Al-Jarhi and Zarqa argues that Islamic economics provides optimum balance between self and social interests while dealing with exploitation and injustice in free markets through its moral and justice principles.<sup>10</sup> In their views, it is not possible to redistribute wealth in free market capitalism due to the fear of efficiency loss. They think Islamic economics requires redistribution in favor of the least

Islamic economics gives high priority to the fulfillment of basic needs for everyone. Any person who fills his stomach while his neighbor is hungry is not a true Muslim.<sup>11</sup> This Hadith clearly sets social responsibility to eradicate poverty. The fulfillment of the fundamental needs is necessary condition for the success of God’s human project. According to Ghazali, the basic needs are three, food, cloth, and shelter. The maqasid al Shariah are defined by many Muslim scholars based on the Quran and the Hadith. Imam Ghazali outlines the objective of the Shariah as the promotion of “the well-being of the people, which lies in safeguarding their faith (*dīn*), their self (*nafs*), their intellect (*‘aql*), their offspring (*nasl*), and

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<sup>7</sup> (Chapra, Umar: What is Islamic Economics, IDB Prize Winner Lecture Series No.9)

<sup>8</sup> Adrian Pabst: *Beyond well-being and happiness: The moral market and the 'good life'*, presented at the conference on Market and Happiness, Università Milano, June 8, 2011 – June 9, 2011

<sup>9</sup> Al-Jarhi, Mabid Ali and Muhammad Anas Zarqa (2007), “Redistributive Justice in a Developed Economy: An Islamic Perspective”, in Advance in Islamic Economics and Finance, Volume I, Proceedings of 6<sup>th</sup> International Conference on Islamic Economics and Finance, IRTI, p.44.

<sup>10</sup> Al-Jarhi, Mabid Ali and Muhammad Anas Zarqa (2007), “Redistributive Justice in a Developed Economy: An Islamic Perspective”, in Advance in Islamic Economics and Finance, Volume I, Proceedings of 6<sup>th</sup> International Conference on Islamic Economics and Finance, IRTI, pp.43-68.

<sup>11</sup> Al- Bukhārī *Al-Adab al-Mufrad*, p. 52, No. 112.

their wealth (*māl*). Whatever ensures the safeguard of these five serves public interest and is desirable, and whatever hurts them is against public interest and its removal is desirable.”<sup>12</sup>

From Islamic perspective, helping others does not necessarily result in the decline of well-being for the helper. From the anthropological perspective of Islam, those who help others help themselves in both this world and in the hereafter. This is because of comprehensive nature of human being which enjoys acts of compassion and fairness.

#### **Axioms # 4: We are spiritual beings having physical experience**

Materialist worldview denies spiritual reality while moralist paradigm separates spiritual and material reality and creates duality. The Islamic worldview rejects duality in favor of spirituality.

There is no duality in Islam in terms of materialist and spiritual domains. All human efforts are considered spiritual as long as they are done within the value system of Islam. They are directly or directly serving to the maqasid-al Sharia. Working for livelihood is a form of worship as long as it is done to support a moral life. Likewise, spending for family member is considered charity. For that matter, the whole life of a believer has spiritual outcome if it is spent within the moral and spiritual guidance of the Quran and the Sunnah. Ideal behavior does not mean pursuing spiritual interest at the expense of material interest. It means to pursue the interest of all elements of human nature in balanced and harmonious manners.

Max Weber argues that `Protestant ethics` is the spirit of capitalism because of it unites material and spiritual dimensions. He claims that capitalism emerged when the Protestant ethic influenced people to consider work as a moral duty, rather than secular acts. Affected by reformation, large number of people in northern Europe engaged in business development, trade, and accumulation of wealth through investment. In other words, Protestant ethics (particularly Calvinism) eliminated the dichotomy of Orthodox Christianity in terms of secular and religious dimensions of life. People began considering working for this life as sacred as working for the hereafter. That is why, according to Weber, capitalism emerged in Christian Europe, rather than Buddhist China, or Muslim Middle East.

In my view, Weber was not accurate on his assessment of Islam. Indeed, from Islamic perspective, there is no dichotomy between this life and hereafter or secular and spiritual life. They are like two faces of same coin. Therefore, there is no need to separate life into secular and spiritual domains. A Muslim who adheres to the Quranic principles and Prophetic tradition (Sunnah) does not need to compromise between his/her worldly life and hereafter. Indeed, the prophet of Islam was a business man. His wife was a business woman. The Quran clearly states that “human has only that for which he works” (The Quran, 53:39). It also encourages business: “O you who believe! Do not consume one another's wealth in wrongful ways (such as theft, extortion, bribery, usury, and gambling), except it be dealing by mutual agreement; and do not destroy yourselves (individually or collectively by following wrongful ways like extreme asceticism and idleness. Be ever mindful that) God has surely been All-Compassionate toward you (particularly as believers).” (The Quran, 4:29) The prophet confirms that same message through his acts and words. For instance, he said, “It is better that a person should take a rope and bring a bundle of wood on his back to sell so that Allah may preserve his honor,

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<sup>12</sup> Al-Ghazālī, *al-Mustasfā min ‘ilm al-uṣūl*, 1937, Vol. 1, al-Maktabah al-Tijārīyah al-Kubrā, pp 139-40, quoted from the following study: Chapra, Umar (2008): *The Islamic Vision of Development in the Light of the Maqāsīd Al-Sharī‘ah*, IRTI/IDB, Jeddah, p.5

than that he should beg from people, (regardless of) whether they give to him or refuse him.”(al-Bukhari and Muslim.) He also said, "Charity is halal neither for the rich nor for the able bodied." (al-Tirmidhi.)

It is important to study the Quranic verses and hadith in totality in order to understand true Islamic perspective of worldly life. Otherwise, one might see Islam with strict duality between secular and religious life. As stated by Said Nursi, there are three dimensions of the worldly life. The first one is the reflection of the names of God manifesting the Divine names. In this regard, everything is a mirror in which the beautiful Divine names are manifested. The second dimension looks to the hereafter in terms of being farm for the eternal life producing outcome for the hereafter. In other words, since life is trial, everything is a test question. People are supposed to answer them through the guidance of Quran and Sunnah. The third dimension is the playground for the nafs. The verses and hadiths denigrating the worldly life are related to third dimension. In other words, people could pursue and love the worldly life in terms of its first two dimensions; however, they are warned about the third dimension while fulfilling their mission in this life.

Working for this life is considered to be a kind of worship as long as one stays within the boundaries of Quran and Sunnah. The outcome of his/her works is considered charity no matter as stated in the following hadiths: “when a Muslim plants a plant or cultivates a crop, there is no bird or human being eats from it without its being accounted as a (rewardable) charity for him.” (al-Bukhari and Muslim) “when a Muslim plants a plant, anything eaten of it or stolen from it, until the Day of Ressurrection, is accounted as a charity for him.” (Muslim) Once when the Prophet was sitting with his companions and they happened to see a young man busy working in the early hours of the morning. The companions watched him and commented on how beneficial it would be if he put his effort in worshipping Allah instead. When he heard this, the Prophet said to them: "Do not say that! Because he is working to be independent and self sufficient, it is in the way of Allah. Even if he were striving to earn a living in order to support his family, it would still be a noble act. It is only when a person takes pride in his efforts and money that he is working in way of Shaytan." (Taberani) Ghazali defines abstention from the world based on the following quote attributed to Ali, the fourth Qaliph of Islam : “if a man obtains the wealth of the whole earth of Allah Almighty (with the objective and ) for the sake of Allah, he is an abstinate (zahid); despite being the most rich of the world; and if he discards the wealth of the whole earth but not for the sake of Allah, he is not an abstinate although outwardly he remains attentive to worship and the hereafter.”<sup>13</sup>

As working is considered to be a form of worship, even eating is considered worship if it is done for thanksgiving rather than pure sensual pleasure. According to Ghazli, it is done for the sake of God, “all acts like taking food, drink, and even going to ease oneself become acts of worship. Hence intention should correct and valid.”<sup>14</sup> That is why a Muslim is supposed to begin eating with zikr by saying bismillah. By doing so, he would remind himself that the sustenance comes to him from Al-Razzak (the Provider). While eating, he would contemplate on whatever he is eating to better comprehend the power, mercy, kindness of God. At the end, he would say Al-hamdullillah (All praise is due to Him alone) offering his sincere thanksgiving for His bounties and blessing. Thus, his act of eating would be a form of worship producing good deeds for him. For that matter, a believer is supposed to seek pleasure not for the sake of pleasure, but for the sake of experiencing the Divine bounty and offering sincere thanksgiving. By doing so, his entire life would be worship earning good deeds for him.

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<sup>13</sup> Ghazali, pp.973-4

<sup>14</sup> Ghazali, p.974

## **Axiom # 5: Not all desires are good**

As stated before, Islam offers different perspective from anthropological point of view compared to capitalism. There are two sides of human nature and capabilities, one serves for goods while the other desires for bads. Muslims are supposed to control the negative sides and enrich the positive one. For that matter, nafs, animal soul, is considered the greatest enemy of humankind along with Satan. Nafs is the source of negative desires; therefore, it is supposed to be controlled, rather than obeyed. The struggle against the desire of nafs is considered to the greatest Jihad according to the following narration: When the Prophet was coming back from the Battle of Badr, the most important battle of Islam, he told his companions that they are now back to the bigger jihad, the one against the nafs. According to Ghazali, there are three reasons that the jihad with the nafs is greater than the conventional jihad. First, jihad with the nafs lasts for the whole life while the other jihad lasts only for a certain period. Second, jihad with the nafs is done with the inner enemy while the other with the outer enemy. Third, if you lose the jihad the enemy by getting killed, you will be martyr. However, if you lose the jihad with nafs, you lose eternal happiness.<sup>15</sup>

According to the Quran, no one including the prophets was not safe against the evil desires of nafs. When the Prophet Joseph was tempted by a woman, he did not say that I am a prophet; therefore, I am not going to do any wrongdoing. Rather, he said, "Yet I do not claim myself free of error, for assuredly the human carnal soul always commands evil, except that my Lord has mercy (which saves us from committing evil acts). Surely my Lord is All-Forgiving, All-Compassionate (especially toward His believing servants)." (The Quran, 12:53)

Islam provides certain methods to train nafs and control its desires. This is one of wisdom behind one month mandatory fasting every year. During this month, Muslims are required to stay away from even permissible (halal) and necessary desires of nafs such as eating and drinking. They are also forbidden from sexual relationships with their partners. The Quran mentions fasting as mandatory worship for all believers since the first human and prophet. Great scholars observe fasting in other months as a way to control their nafs and make spiritual advancement. Indeed, sufism (tasawwuf), the mystical dimension of Islam, requires fasting and abstainion from social from social life in order to overcome the evil desires of nafs. According to Ghazali "taming the 'Nafs' is like taming the eagle. In doing so his eyes are blind folded sot that he remains away from the home, unaware of its confines at a safe distance from its inmates. Then his food is gradually increased, so that he may become used to his master, till he can fly aloft to greater heights to find its designated prey."<sup>16</sup> In other place, Ghazali presents the similarities between illness of body and that of soul. He argues that their treatments also bear some resemblance. "Just as cold is the antidote for heat and heat for the cold, in the same manner a person who is suffering from arrogance should take the potion of fear Allah and meakness."<sup>17</sup>

Capitalism does not make any distinction among human desires. Indeed, one of the secret of capitalism comes from its service for nafs. Capitalism ignites animal soul and offers toys and tools to please it. It prepares five star hotels/gazinos to please nafs with every kind of entertainment rather than placing in a cave to train it. Capitalism offers carnal pleasure as paradise to its followers while Islam puts emphasize on spiritual and moral pleasure.

Islam is a holistic religion dealing with every aspect of life. Islamic law (the Shariah) deals with human-God and human-human relationships. Muslim scholars mention several goals pertaining to these domains. The first and foremost goal is to understand the Oneness of God (Tawhid) and live

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<sup>15</sup> Ghazahli (Translation by Abdulhalik Duran), Kalplerin Kesfi, Yeni Safak Kultur Armagani, 2005, p.39-40.

<sup>16</sup> Ghazali, p.751

<sup>17</sup> Ghazali, p.741

accordingly. This is not just a simple acceptance of God's oneness. It is rather confirmation and bearwitnessing as clearly stated in the Shahadah statement (declaration of faith). A person is supposed to first bearwitness the signs (ayat)/ evidences for the existence and oneness of God and then confirms and adheres it as a believer. As God governs the universe through His laws He ordains laws to govern human life too. According to Muslim scholars such as Ghazali and Nursi, human being is created with certain potential to do good and bad as he wills. Three key faculties such as reason, animal soul, and anger are not naturally restrained. Islam provides guidance to bring them to moderation.

The moderation for the nafs which is the source of animal desires is to desire what is permissible (halal) and stay away what is not permissible (haram). The moderation for the anger is to fight for his essential human rights without any fear while fearing the Divine punishment in order to not transgress his rights. The moderation for the mind is to seek for wisdom and avoid demagoguery and falsehood. Since there is no natural constraint on these faculties, from the Islamic perspective, the Shariah which comes from All-Knowing provides the best guidance on how to achieve moderation. According to Ghazali, "The middle course is the best course. To go overboard, indulge in extremism and ignore the norms of prescribed behavior is very harmful."<sup>18</sup> However, it is not easy to strike the middle. Only with the Divine guidance and restriction, it would be possible to keep animal soul and anger under control and live with harmony with others: "By using the Quvate Ilm' (the power of knowledge and learning) and Khashm (authority and control), over the undesirable traits, specially over Shahwat (sensual urges: the base desires) to establish 'Adl' (justice) and its resultant unbiased humane behavior with one and all, to give the term 'Husne Akhlaq' (the beauty of character and behavior) its meaning of pleasing conduct with human beings."<sup>19</sup>

### **Axiom # 6: we are "predictable irrational"**

Free market capitalism assumes that individuals make rational decisions to maximize their interests. In other words, they use their minds to make the best decisions for themselves. A rational person will choose the desirable option if he is provided the freedom to do so. In other words, if such a rational person thinks action A will result in X and action B will result in Y, and if X is more desirable (or more valuable) in the eyes of that person, he will choose A over B. It will not be rational for that person to choose B. The capitalist system assumes both consumers and producers are rationally seeking to maximize their utility in the market system. They reveal their rational decisions through their own preferences. Indeed, according to the rational choice theory, people only take drugs because drugs maximize their utility. Since the time of Adam Smith, David Ricardo, and Alfred Marshall, the capitalist system has assumed that competition in the marketplace among economic participants is governed by their rational self-interest. Therefore, they are against government intervention with a few exceptions.

Rational choice theory suggests that our preferences are the outcome of our rational deliberations for maximizing our expected utility. It assumes that we weigh the expected benefits and costs of the choices we have and choose the one that brings the highest net expected benefit (utility). Subjective expected utility takes this assumption further and argues that consumer behaviors are a function of expected outcomes and their assigned values. Rational choice theory is widely used across many social science fields, including economics, in which cost-benefit analysis and utility maximization are nothing more than a quantitative form of the Rational Choice Model.(Becker 1978; Elster 1986)

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<sup>18</sup> Ghazali, Alchemy of Happiness, p.735

<sup>19</sup> Ghazali, Alchemy of Happiness, p.733

The mainstream economic theory of consumer preferences assumes that consumers rationally maximize their utility in the market based on the available income, price of goods, and their tastes. (McConnell and Brue 2008) The theory suggests that consumers are rational in their decisions. This is the same assumption embedded in the Rational Choice Model. The Rational Choice Model is also used to explain consumer preferences for non-marketed goods, such as time, gifts, appreciation, charity, etc.

Beginning with the works of Nobel laureate Herbert Simon debates erupted among economists about whether or not people are actually rational in their decisions. (Simon 1982-) Ultimately, they would move from perfect rationality to “bounded rationality” under certain circumstances. Bounded rationality means that people are not perfectly rational. Their rationality is limited by the information they have, the cognitive limitations of their minds, and the time they have to make decisions. Even though eventually most economists acknowledge that we are not always rational, they have resisted incorporating this change into economic modeling and expectations. With the works of some psychologists such as Dan Ariely, it seems like we are moving further away from rationality theory. Ariely argues that we are not only irrational but that we are “predictably irrational.” (Ariely 2008)

As discussed before, from the anthropological perspective of Islam, it is not hard to conclude that human beings are not rational always. Indeed, due to the recognition of animal souls and ego, Muslim scholars have made strong cases regarding the predictably irrational of human beings. Islam provides some guidance to overcome the influence of animal soul and ego and follow the heart and mind in decision making.

## **10. Maqasid-i Iqtisad (MI) in Islamic Economics**

### **MI # 1: Islamic Economics aims to accumulate social, moral, intellectual, and spiritual capitals**

Due to its understanding of human nature, Islamic economics includes moral and spiritual capital in the list of resources needed for individual and societal well-being. In other words, from an Islamic perspective, human is not just animal with higher thinking ability. Human has multiple dimensions including intellectual, moral, and spiritual ones. Therefore, moral and spiritual values are as important as physical resources in the goal of fulfilling the needs and desires of humans. From this perspective, ignoring moral and spiritual needs would have economic consequences as seen in the recent crisis.

According to Ghazali, intellectual and spiritual nourishment, particularly the knowledge and belief in God, are necessary food for human happiness. Those who lost their desire for such food and pursue sensual and egoistic pleasure resemble “a sick person who has lost his appetite and instead of having a regular meal wants to eat dust.... Such wretched persons are sure to die. Also, since all the desires and the components of their satiation emanate from the body, hence these desires and their sensations will cease to exist as soon as he dies. As such, all his hard work and labor for the fulfillment of these desires will be wasted away. The ecstasy of the Marafat of Allah is related to the heart and engrained in it, hence it does not die, rather it is doubled after the death of the man.”<sup>20</sup>

Ghazali also claims that spiritual pleasures are the most supreme among all other pleasures. He again makes his argument from anthropological perspective. According to Ghazali, human being is

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<sup>20</sup> Ghazali, p.40.

created with a certain nature search for the truth. He likes to know about the reality of things he is interested in. "When he comes to know it he feels really happy and proud of it. For example, if one likes to learn to play chess. It may perhaps not be in his interest to do so but he feels highly pleased and proud when he learns to do so." The more the object of interest is desired, the more pleasure will be experienced in learning about it. "Hence, since Allah is the most Supreme of all things and the Grand Emperor of all kingdoms of the universe, all beauty and beneficence emanate from Him. The Wonders of all the worlds are on account of Him. Hence, obviously the 'Marafat' of other thing than of Him can be more pious and more blissful to the heart. The thought of His 'Deedar' surpasses everything coveted."<sup>21</sup>

## **MI# 2: Islamic economics requires moral and spiritual filters for market system**

Islam is not against free market system as long as it functions under certain spiritual and moral filters. There are several reasons for the conformity of free market system with Islamic economics. First, private ownership is the main pillar of free market system. Second, price is determined by demand and supply in the free market. If morally guided, free market system is efficient tool for well-being of individuals and society. Third, profit motive is recognized by Islam. Indeed, the prophet of Islam himself was a businessman. People are allowed to buy and sell in market for making profit as long as they avoid any form of cheating and fraud. This is because profit is a great incentive for people in terms of using scarce resources efficiently. As Asutay states "Market exchange is the main feature of economic operation in the Islamic system; however, this system is filtered through an Islamic process that produces a socially concerned environmentally friendly system."<sup>22</sup>

Islamic economics does not reject the right of private property as done by communism nor does it prevent individuals from pursuing their self-interest through free market economy. However, it provides moral and spiritual filters in addition to market filter.<sup>23</sup> Moral filter aims to shape human preferences and tastes before being exposed to the price filter. For instance, morally guided consumers would not demand wasteful and unnecessary products. They would not ask for spiritually and physically harmful goods and services. Chap

ra urges that the moral filter needed because "harmony does not necessarily exist between self-interest and social interest, as erroneously assumed by conventional economics. The moral filter tries to create such harmony by changing individual preferences in accordance with social priorities and eliminating or minimizing the use of resources for purposes that do not contribute to the realization of normative goals"<sup>24</sup>

Schweitzer, a Nobel Laureate, has rightly emphasized that "if ethical foundation is lacking then civilization collapses even when in other directions creative efforts of the strongest nature are at work".<sup>25</sup> Therefore, according to him, "moral control over men's disposition is much more important than control over nature." Schweitzer, Alfred (1949), *The Philosophy of Civilization* (New York: Macmillan. pp. 76, pp. 92-93.

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<sup>21</sup> Ghazali, pp.39-40.

<sup>22</sup> Asutay, Mehmet (2007): A Political Economy Approach to Islamic Economics: Systemic Understanding for an Alternative Economic System, *Kyoto Bulletin of Islamic Area Studies*, 1-2(2007), p.12.

<sup>23</sup> The following verse clearly states the boundary set by God: "O you who believe! Do not hold as unlawful the pure, wholesome things that God has made lawful to you, and do not exceed the bounds (either by making forbidden what is lawful, or by over-indulgence in the lawful). God does not love those who exceed the bounds." (The Qur'an, 5:87)

<sup>24</sup> (Chapra, Umar: What is Islamic Economics, IDB Prize Winner Lecture Series No.9), p.24

<sup>25</sup> Schweitzer, 1949, p.xii.

In one of his recent papers, Aydin argues the 2008 financial crisis was essentially a moral crisis of capitalism with its root going back as far as the Enlightenment. He forcibly asserts that during the crisis, the “invisible hand” of free market turned to “stealing hand” through market games driven by the irrational and irresponsible behaviors of politicians, creditors, and consumers. He concludes with that “As the Great Depression revealed the imperfection of free market economy and forced economists to redefine the role for government, the 2008 financial crisis also revealed the predictable irrational and immoral aspects of individuals and forced us to acknowledge the need for moral values for efficient market system.”<sup>26</sup> Chapra also points to the important role of government in bringing morality to market: “unless there are moral checks on individuals accompanied by effective regulations by a morally oriented government, competition may not necessarily eliminate the inefficient, reward socially useful behavior, enforce social and economic justice and foster an equitable distribution of income.”<sup>27</sup>

As explained before, human nature consists of several competing elements. From Islamic point of view, it is not right to assume that human beings follow their minds and choose whatever they think is good for them. The animal soul, ego, and anger are not checked, a person could do injustice to others for his/her own benefits/pleasures. The understanding of laissez faire from the secular perspective does not leave any room for moral sentiments in preference formation. However, if the Islamic perspective on human nature is true, then, freedom does not mean only to be free from external oppressors, it would also mean to gain freedom from the internal ones. As constitutional laws protect human freedom from external aggressors, moral and spiritual laws (filters) should protect human freedom from internal aggressors such as animal soul and ego.

Islamic economics perceives spiritual and intellectual pleasure as the highest kind of pleasure. Therefore, it guides individuals toward spiritual pleasure rather than sensual pleasures. Thus, the spiritual filter takes precedence over the market filter in shaping preferences. According to Gazhali, the contentment of the heart is possible through the knowledge, belief, and remembrance of Allah. The spiritual pleasure is greater than any bodily pleasure. For every faculty of human being, there is certain duty. Their pleasure is within their fulfillment according to their nature. “For instance, the pleasure of eyes from beautiful things is greater than the pleasure of nose from nice scent. Similarly, within the heart of human, there is a faculty called to nourish or intellect. This is an ability to understand what is beyond sighting and hearing. The nature of intellectual power is to comprehend the unknown by eyes and ears. Its pleasure is in with its fulfillment in this way. The pleasure of heart is greater than the pleasure of body and senses. The evidence for this is the following: a person who plays chess might not eat anything for the whole day while playing. If he is told to give up playing and eat, he would reject it. This means that playing chess could give pleasure greater than the pleasure of eating. This is clear from the player’s preference. The evidence for greater pleasure between two things becomes clear when they both are offered to a person. A rational person would choose whatever provides greater pleasure” (Gazali, turkce, s.917-919). If a person is offered the choice of delicious food or conquering enemy and becoming king, he would choose the latter. This means that the pleasure of honor is greater than the pleasure of eating. Likewise, pleasure of learning is greater than other pleasures. The highest knowledge is the knowledge about Allah (marifetullah). The highest pleasure lies in gaining such knowledge. According to Gazhali, the pleasure of marifetullah is even greater than sensual pleasure of Paradise.

### **MI # 3: Islamic economics curbs conspicuous consumption**

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<sup>26</sup> Aydin, Necati (2011): 2008 Financial Crisis: A Moral Crisis of Capitalism, African Journal of Business Management,

<sup>27</sup> Chapra, Umar: Objectives of the Islamic Economic order, 1979, p.26

No doubt that capitalism has been successful in production and consumption. However, it failed to bring the promised paradise. Indeed, free market capitalism driven by self-interest and pursuit of pleasure has resulted in many paradoxes. This is what some called the “progress paradox” or “American paradox”. According to Karl Polanyi (1944), free market system dehumanizes human beings by turning him and his natural environment to “fictitious commodities”. He argues that the system alienates and separates human beings from both their surroundings and from their own powers that they exercise in their life activity. This commodification process turns human beings in society homo-economics. In other words, the free market system destroys the noneconomic and social nature of man and turns him to an individual who acts on the basis of only two motives, the fear of starvation and the hope of profit.

The Means-End Chain Theory suggests that consumer behavior is either consciously or unconsciously goal-directed (Reynolds, Gutman, & Institute for Consumer Research., 1986). Consumers buy goods to achieve certain goals that are shaped by personal, social or moral values such as to belong, to protect, to be useful, not just to be happy. The attributes of goods are the “means,” and values are the “ends” that consumers would like to achieve. People choose goods with certain attributes which will help them to reach the "ends". The Theory of Reasoned Action suggests that consumers behave according to their attitudes and beliefs about the outcome of their behavior. They assign relative importance to the outcome based on their related belief. (Fishbein & Ajzen, 1975).

Some consumer scholars divide consumption into two parts, functional and positional. In their views, we do not consume goods just to fulfill our functional needs, but for what they represent for us and others. The goods play a vital symbolic role in our lives in communicating personal, social, and cultural messages (McCracken, 1988). For that matter, consumption becomes part of our personal and collective identity as stated by William James: “A man’s Self is the sum total of all that he can call his, not only his body and his psychic powers, but his clothes, his friends, his wife and children, his ancestors, his reputation and works, his lands and yacht and bank account...” (James, 1950, p.291-292).

Indeed, in global consumer society, people across the world are engaged in constant process of re-constructing their identity through material consumption in the form of positional symbols. As Cushman (1990, 599-611), consumer culture is constantly filling up the "empty self" of consumer through increasing material consumption. Global companies are working hard to deliver positional goods and services to conspicuous consumers. They do not sell products only, they sell dreams, status, visions, and prestige (Klein 2001).

Despite some objections, mainstream consumer theory still assumes that individuals rationally maximize their utility through consumption (Aydin, 2010 & 2011). Jeremy Bentham (1748–1822), the father of capitalist consumer theory, argued the main purpose of consumers is to maximize pleasure and minimize pain (Bentham, 2007). He came up with a utility calculator to help people in estimating their pleasure and pain to maximize their utility through material consumption. The formula for his hedonic happiness model is quite simple: the more you consume goods and services, the happier you will be. Exploiting the greedy nature of the animal soul and prestige-seeking ego in human nature, consumer culture creates unsustainable consumption trend which threatens both health of human being and physical nature.

Islamic economics provides antidote for material indulgence and conspicuous consumption.<sup>28</sup> There are many verses of the Qur’an and hadiths of the Prophet (pbuh) warning believers against the

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<sup>28</sup> Islam is not against making money if it is not done at the cost of human’s main mission. Indeed, the Qur’an clearly states that believers should seek for their share in this world as well: “Eat and drink of that which God has provided, and do not go

danger of material indulgence. For instance, Suratul Takaathur first mentions about the greedy nature of human being: "Rivalry in worldly increase (seeking and then boasting of the acquisition of things, wealth, pedigree, and posterity) distracts you (from the proper purpose of life), Until you come to the graves." (The Qur'an, 102:1-2). Another surah also explicitly warns about the ultimate price of material indulgence: "O you who believe! Let not your wealth nor your children (distract and) divert you from the remembrance of God. Those who do so, they are the losers." (The Qur'an, 63:9).

Likewise, the Prophet warns believers for material indulgence in hadiths. For instance, once the Prophet (pbuh) was asked about the state of Muslims in the future, he replied as follows: "after me a people will raise up who would eat multiple kind of delicious food and wear multiple kind of fine dresses and will be fan of beautiful woman and will make arrangement of very valuable horses. Their bellies will not fill by eating a little. They will not be content even on much. All of their struggle will be spent in seeking the wealth. They would make the world their goal and will do everything for its sake. I, Muhammed, command you that whosoever amongst your children come across such people should neither extend salutations nor go to ask for their patients nor join the funeral prayer, nor respect the elders of such people. Whosoever did not follow this recommendation, he would be considered as their helper in the dertion of Islam." (Gazali, p.924) The Prophet said that "all things relating to man become old but the desire to have long life and the passion of love of wealth always remain young." He also said "if a man possesses gold of the quantity of equal to two valleys, he will be still greedy of the third valley. It is the dust alone that fills his bally." (Gazali, p.940)

Ghazali also refers to a saying of Prophet Mohammed (pbuh) to address the trap of material indulgence for believers: "Holy Prophet (pbuh) has said that on the Day of Judgment, the angels will present this world in the shape of an ugly old woman for all to behold and learn a lesson. Her eyes will be green and she will have uncouth protruding teeth. People will see her and exclaim "God forbid. Who is this black faced ugly women?" The angels will answer, "this is the same world symbolized for you which you liked so much, for which you used to be jealous and quarrel with each other." Then this world, will be thrown in to Hell. The Hell will ask God "where are my friends?" Then they will also be thrown into it." (Gazali, p.84)

Ghazali resembles wealth to the snake that possesses both poison and the panacea. He argues that those who do not know how to handle it will end up hurting himself. He refers to the following Hadith to support his argument: "Two hungry wolves do not create mischief in a herd of goats as the love of esteem wealth destroys the faith of man." (Gazali, p.924) Ghazali mentions the knowledge of why wealth is created as the main antidote for the poison material indulgence. He argues that as those who use appetizers end up harming their bodily health, those who overindulge in sensual pleasure will damage their soul and eternal life. He argues that people will not be satisfied with material gains no matter how much they acquire: "The Prophet Isa, the Holy Christ (pbuh), has said that the seeker of this world is like that man who has his lips attached to the shore of the sea and he is eagerly absorbed in quenching his thirst from it unabatedly. His thirst seems to increase. The more he drinks the more he desires to do so. Ultimately he dies in this useless pursuit, yet unsatiated." (Gazali, p.86)

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about acting wickedly on earth, causing disorder and corruption." (The Qur'an, 2:60) "And when the Prayer is done, then disperse in the land and seek (your portion) of God's bounty, and mention God much (both by doing the Prayer and on other occasions), so that you may prosper (in both worlds)." (The Qur'an, 62:10) ""But seek, by means of what God has granted you, the abode of the Hereafter (by spending in alms and other good causes), without forgetting your share (which God has appointed) in this world. ... " (The Qur'an, 28:77)

The negative impact of indulgence in material consumption is confirmed by many studies in recent decades. Some studies found out that relatively strong extrinsic aspirations is negatively associated with mental health indicators while relatively strong intrinsic aspirations is positively correlated with the same indicators (Kasser T and Ryan RM 1993, 410-22; Kasser and Ryan 1996, 280; Kasser 2002; Sheldon KM and Kasser T 1995, 531-43; Williams et al. 2000, 1756). Studies also reported positive correlation between intrinsic aspirations and subjective well-being and negative correlation for the negative aspirations and subjective well-being (Sheldon & Kasser, 2008, Kasser & Ryan RM, 1993, and Kasser, 2008). Another study (Brown, Kasser, Ryan, Alex Linley, & Orzech, 2009) found that higher mindfulness lessens financial desire discrepancy, thus creating greater subjective well-being. The same study also showed that with mindfulness therapy, it is possible to decrease financial desire discrepancy and increase subjective well-being.

In one of our recent studies<sup>29</sup>, we conducted a comprehensive survey among a spiritual Muslim group to measure the level of their aspiration for material well-being and hedonic pleasure versus intellectual and spiritual pleasure. The questions were designed to capture the values and goals of individuals within 14 different domains. This measurement allows for the assessment of the relative centrality of particular goals/values within an individual's personal goal/value system. The study found that the more people involve in spiritual activities the less they pursue materialist and hedonic goals. Similarly, the more they advance in spirituality the more they become satisfied with their life.

#### **MI # 4: Islamic economics offers antidote against alienation and animalization**

As initially claimed by Karl Marx and later argued by critical theorists, capitalism results in alienation. Following Kantian concepts, we can talk about two outcome of capitalist culture: First, by killing morality for the sake of profit maximization, it turns human being to animality. Second, by solely focusing in skill development while ignoring or destroying moral development, it turns human being to robotic means used in the production and consumption process. Adorno eloquently points out the dire consequences of capitalism for humanity: “It has long ceased to be a matter of the mere sale of the living [that is, of living labor]. Under *a priori* saleability the living has made itself, as something living, a thing, and equipment. The ego consciously takes the whole man into its service as a piece of apparatus. In this re-organization the ego as business-manager delegates so much of itself to the ego as business mechanism, that it becomes quite abstract, a mere reference-point: self preservation forfeits itself. Character traits, from genuine kindness to the hysterical fit of rage, become capable of manipulation, until they coincide exactly with the demands of a given situation. With their mobilization they change. All that is left are the light, rigid, empty husks of emotions, matter transportable at will, devoid of anything personal” (Adorno 1974, p.230).

Indeed, what capitalism offers is not progress for humanity, it is regress toward animality. Even though the system is credited for great economic and technological advancement, it is also being blamed for moral, spiritual, and social regress. From the Islamic perspective, this is not success, it is big failure for humanity. In this regard, it is not just alienation project, it is animalization project. It focuses upon the animal side of human beings and ignores our spiritual side. It serves the animal spirit while it is killing the human spirit. It offers a life style not much different from that an animal's life. For that matter, even the evolution theory is a scientific declaration of this animalization project.

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<sup>29</sup> Aydin, Necati and Eron Manusov (2010):

Islamic economics could not aim for what capitalism aims as ideal outcome. If it does, even if it succeeds in economic and technological term, it is big failure in the Qur'anic terms. For that matter, free market capitalism offers nice looking and apparently pleasant “animal pills” and “robotic pills” which taste nice in the short term, but convert those who take them regularly to animals and/or robots in the long-run. Indeed, the Qur'an points to human regress toward animality and says that those who pursue animal and egoistic pleasures, but ignore learning the truth and living by it will be even worse than animals: “... They have hearts with which they do not seek the essence of matters to grasp the truth, and they have eyes with which they do not see, and they have ears with which they do not hear. They are like cattle (following only their instincts) rather, even more astray (from the right way and in need of being led). Those are the unmindful and heedless.” (The Quran, 7:179)

According to the Qur'an, human is created in the best form and superior to all creatures. This means that our characters should be superior to theirs too. For that matter, we could not compete with animals in eating and fighting. For instance, “the camel is well known for its quality to consume huge quantities of food and water, whereas the pig and the sow have above-normal carnal capabilities. How come then that the man is regarded higher in status to them? Also the drive overcome and subjugate others is due to a rising temper, the anger. This nature's phenomenon is also present, it may be argued, in the grazing animals and wild creatures of the forests. Hence, again how come the man is superior to them? Where is the difference, the distinction? The answer is self explanatory vis despite it, the redeeming quality the man has in comparison is, that the man in Supra-Creation is blessed with ration, with which he also recognizes his Supreme Master, Allah. It also enables him to voluntarily appreciate and admire His handiwork, His creative genius. It also helps him to defeat his mortal enemies, the human wrath and the greed. These are the characteristics of the angels. Their very qualities make him rise above the birds, the beasts and the animals. He is superior to all things created.” (Gaz, p.18)

Capitalism makes people to prefer being animal satisfied rather human being human but dissatisfied. Those who are affected by conspicuous consumer culture perceive fun/pleasure as primary, if not only, purpose of their life. For Muslims, being human being is always preferable even if that means a life full of misery because the purpose is self-pleasure, rather God's pleasure through sincere and virtuous deeds. In his famous hypothetical thought experiment, Nozick asks us to imagine a machine which could make us to feel whatever desirable or pleasurable experiences we would like to have.<sup>30</sup> After all, according to neuroscience, feeling is just the outcome of chemical reactions in our brain. Assuming that neuropsychologists find out a way to stimulate our brain to create pleasurable experiences which are not different than the ones induced by real-life experiences, Nozick then asks, would we prefer to hook in the experience machine over real life experience? Nozick argues that if we value pleasure as the only desired outcome from life, we would prefer the machine. However, he says, there are something more than pleasure people pursue in life, therefore, they would choose the machine. I do not think we need to be hypothetical anymore because capitalism has created not one, but many experience machines such as circus, concerts, musical theatre, amusement park, funfairs, film, theme parks, discotheques, broadcasting media, video games etc. Many people around the world are hooking these machines every day. They are not connected 24/7 for two reasons: First, for now there is not a single machine providing every kind of pleasure. Therefore, people have to surf among different machines. Second, people to work to make money first in order to be given the privilege to access these machines.

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<sup>30</sup> Nozick, Robert. *Anarchy, State, and Utopia*. Basic Books, New York, 1974, pp. 42–45.

## **11. (How) Can Islamic Neuroeconomics Help Islamic Economics?**

Islam places a major emphasis on human nature (fitrah). Knowing self is essential to know both God and His creation. Aydin (2012) recently came up with a grand theory of human nature from an Islamic perspective. He argues that we have multiple selves with competing interests. Thus, unlike conventional economics which assume unified self pursuing self-interest, Islamic economics assumes divided multiple selves pursuing competing interests. Neuroimaging provides a unique opportunity to test Islamic economic theories including the one on human nature. Indeed, findings from neuroscience already support that we have multiple brain systems involved in our decision making (Cohen, 2005).

For centuries, economists rely on observations to understand human behaviors. It is first ever we have opportunity to actually get of inside of brain and read the mind. Even two decades, it was beyond human imagination that we could track every single individual on the planet, now it is a reality though it is killing privacy while providing valuable information. Likewise, in the near future, we might have portable mind-reading machine scanning mind of people while they are making thinking. It is not surprising to see great marketing business has a great interest in neuroeconomics. They hope to use the findings of neuroeconomic studies to redesign their marketing strategies to appeal the mind for their products.

We all derive pleasure (utility) from eating and drinking. Islam considers food and drink as special gift from God. With the help of neuroscience we could test the Divine gift effect on personal utility. If we find greater activation in the part of brains associated with reward and pleasure, we can present it as scientific evidence to support our utility hypothesis from Islamic perspective. Of course, similar study can be done through survey as well. However, considering biasedness among mainstream scholars toward religious subjects, neuroimaging evidence might be more compelling. Furthermore, there could be multiple reasons for our choice. Neuroimaging might reveal the contribution of each cause trough measuring brain activation (Jamison, 2008).

### **11.1 Exemplary Two Experimental Studies of Islamic Economics using fMRI**

In recent years, researchers have come to better appreciation of multidisciplinary study to understand human experience due to complexity of human nature. We have seen increasing collaboration between psychologists, economists, and neuroscientists. They have realized that only by combining the mathematical rigor and behavioral precision of economics with the biological inferences drawn from neuroscience can behavior be understood. Particularly, the use of functional imaging (fMRI) has allowed for the measurement of brain activation associated with discrete cognitive experience such as decision making and reward evaluation. fMRI is a great tool for observing brain activation in response to certain stimulation such as sounds, visual, touching, even drinking.

We are currently conducting experimental studies to measure and compare different kinds of experienced pleasures while being stimulated during the MRI scanning. We control for other relevant variables while measuring the impact of a particular factor in the laboratory setting. Subjects will be exposed to certain stimulus for pleasure such as drinking, watching, contemplating, listening, reading, etc. A functional model of brain activity will be defined and correlated to certain pleasures. Ultimately, a biopsychosocial approach to happiness will be defined using the hierarchy of pleasures as the model. Levels of happiness can affect multiple biological systems from the nervous to the cardiovascular system. There are neuroanatomical changes demonstrated in hedonic hot spots in the brain such as the accumbens and pallidum (Burgdorf & Panksepp, 2006). These same spots interact with other brain structures that can result in increased well-being.

## Experiment Design and Topics

**Subjects:** Subjects will be chosen from practicing Muslims who pursue spiritual as well as moral and sensual pleasures. We might have same subjects for two related experiments. Having same subjects will allow us to compare the findings across experiments.

**The experiment protocol:** The subjects will be given instruction about the nature of the study and health consequences of being scanned by fMRI. They will be assured about their privacy right and protection of their identity. They will be asked to sign a consent form before taking part in the experiment.

**Pro- and post-experiment surveys:** The subjects will be given pre- and post-surveys to control for certain variables affecting the experiment. They will be given proper instruction before the experiment.

**Proposed experimental studies:** We will conduct the following several experimental studies. We will review the similar experimental studies and set up several meeting among team members including the consultants to come up with proper experiment design.

- **Measuring Spiritual Pleasure:** The subjects will be asked to listen to the Qur'an in contemplative state while going through the scanning.
- **Measuring the Divine Gift effect in sensual pleasure:** The subjects will be given their favorite drinks and asked to consider it as Divine Gift while drinking during the scanning.

### 11.2 Experiment 1: Measuring Spiritual Pleasure in Contemplative Listening of the Qur'an

We will conduct several interconnected experiments. We would like provide detail information about one of those experiments as an example.

**Hypothesis:** Listening to the Qur'an in contemplative manner makes believers to enter into khushu' and experience spiritual pleasure. In the Islamic literature, khushu' means "to be captivated by the thing one is facing so much that he/she will go unaware of his/her existence." In the state of khushu, believers find the tranquility of the heart and the calmness of the organs. The Qur'an describes believers as follows: "They are those (the mu'minun – believers) who enter into khushu' in their prayers."

**Subject Selection:** Following the subject selection criteria and procedure mention in this proposal, we will choose subjects for the spiritual pleasure experiment among practicing Muslims who recite the Qur'an frequently and claim to enjoy listening to the Qur'an in contemplative manner.

**The experimental design:** The experiment will be designed in a way to capture khushu' while going through the scanning. The experiment will consist of the following steps:

#### Outside the scanner:

1. **Mental preparation for the experiment:** the subjects will be given 30 minutes reading and reflection materials on khushu' before starting the scanning.

#### Inside the scanner: No more moving!!!

2. Anatomical/Structural scan (10 min.), eyes open / closed, as subjects prefers
3. Experiment, 3 conditions:

- a. control 1: resting mode (blank screen, doing and thinking nothing, just looking with eyes open!)
- b. control 2: listening news clip (neutral news clip, not emotionally arousing -: The emotional effect of news clip will be tested before the experiment with some subjects to make it is neutral one)
- c. test condition: listening surahs from the Qur'an (control after the experiment: asking subjects what emotions they felt during listening the surahs: positive – less positive - neutral – a bit negative - negative. Was there one of their favorite surahs? One of their least favorite surahs? etc.)

Duration: 45 min, 5 min each block (each condition 3 times, in randomized order!)

Stimuli: control 1: none, blank screen  
 control 2: 3 different neutral audio news clips (presented in randomized order, the order should change for each subject!)  
 test condition: 3 different audio Quranic surahs (Presented in randomized order)

4. Analysis:
  - a. Comparison control 2 vs. control 1 ( $c1 < c2$ ),
    - i. results should show areas engaged in listening (audial but no limbic structures)
  - b. Control 1 vs. test condition ( $c1 < test$ )
    - i. Probably a lot of limbic and subcortical structures but also audial areas!
  - c. Control 2 vs. test condition ( $c2 < test$ )
    - i. results should show no audial areas since during both conditions the subjects have been listening. we will get rid of the audial areas which cover the real interesting activation:
    - ii. results will show the emotional engagement of the brain during *Khushu'*

We can perform the analysis above in at least two ways:

1. Comparison control 1 vs. control 2 ( $c1 < c2$ ): results show the **stronger activation during control 1** compared to control 2  
OR
2. Comparison control 2 vs. control 1 ( $c2 < c1$ ): results show the **stronger activation during control 2** compared to control 1

### 11.3 Experiment 2: Measuring the “Divine gift” effect in sensual pleasure

**Hypothesis:** Perceiving food and drinks as special Divine gifts increase one’s sensual pleasure from eating and drinking.

**Subjects:** Subjects will be chosen from practicing Muslims who believe that food and drinks are God-granted special gifts.

**The experiment protocol:** The subjects will be given instruction about the nature of the study and health consequences of being scanned by fMRI. They will be assured about their privacy right and protection of their identity. They will be asked to sign a consent form before taking part in the experiment.

**The experiment design:** The subjects will be asked to come to the experiment with full-stomach. They will be given water to drink before scanning to control for thirst. They will be given their favorite drink while going through the scanning. The experiment will consist of the following steps:

- ✓ They will be given their favorite drink while watching news clip. For the control block, they will be shown blank screen to get to the resting state. For the experiment block, they will be asked to sip their drink while watching the news clip. Each block will last 50 seconds with the total of ten blocks in total.
- ✓ **Mental preparation:** the subjects will be given 30 minutes reading and reflection materials on the Divine gift and thanksgiving before starting the scanning.
- ✓ There will be second scanning. This time, they will be given their favorite drink while watching and thinking about the Divine gift. For the control block, they will be shown blank screen to get to the resting state. For the experiment block, they will be asked to sip their drink while watching the presentation and thinking about the Divine gift. Each block will last 50 seconds with the total of ten blocks in total. In the second block, they will be shown a brief presentation about the Divine gifting of drinks and asked to drink by saying bismillah at the beginning, then thinking about the value of the gift, and offering appreciation from the heart to the Gift Giver. The PowerPoint presentation will help the subjects to think that drinks are specially made for them by God. They could not be made by anyone else because it requires almost infinite knowledge and power. They are granted by God not because He owes us or needs to do so, it is only because of His Kindness and Mercifulness. We could not survive without drinks. Therefore, they are not just ordinary gifts, they are absolutely needed gifts. Thinking this manner should lead a whole-hearted appreciation and thanksgiving. The presentation will also show harmony between tongue and taste, vitamin and body need, color and eyes, and smell and nose, flesh and teeth. It will compare human gift with God's gift in terms of its package, color, name, content, etc.
- ✓ We will compare the results from the step one and three to test our hypothesis.

## 12. Conclusion

When first emerged, experimental economics encountered major resistance from mainstream conventional economists. Over time, it moved to the core economic field and recognized its importance through Nobel Prize. Neuroeconomics currently faces similar challenges and promises. With the development of more powerful fMRI scanners, it might lead to groundbreaking studies and produce next generation Nobel Laureate. The eventual success of neuroeconomics will be determined by its help to understand and even predict human decisions under certain circumstances.

It is not right to reduce complex human decisions to neural activation in the brain. Furthermore, it is hard to claim that we will eventually locate "utility center" in the brain accurately measuring subjective wellbeing. It is also not right to suggest that we should drop out revealed preferences and consider neuroimaging data alone to understand human behaviors. Rather, we think that neuroeconomic data, if incorporated with the findings of conventional microeconomics, might help us to better understand decision making.

Neuroeconomics could particularly be promising for Islamic economics as an alternative paradigm. Even though free market capitalism has been very successful in the use of scarce resources, the ultimate outcome of capitalism is not progress toward human excellence as projected by the God's human project in the Qur'an, rather it is regress toward animality. This is why the system has failed to bring authentic happiness. Indeed, the more progress it makes, the more it takes us away from such happiness. Islamic economics could be a viable alternative if it is developed on holistic Islamic worldview.

It is important to note that despite few decade works, scholars of Islamic economics still have a long path to go in order to present Islamic economics as a new economic paradigm. Furthermore, recent

rise of Islamic finance is moving toward “disguised capitalism” rather than the new economic system based on Islamic values. There are many tasks ahead of those who work to develop Islamic economics and finance into an alternative economic paradigm. First, they need to go beyond the existing paradigm and create their own concepts and models whenever it is necessary. They need to go beyond narrowly defined *maqasid-i sharia* by establishing Tawhidi paradigm based on Islamic ontological, epistemological, anthropological, and teleological perspectives. Second, they need to begin from microeconomics. They need to establish “a separate theory of consumer behavior and a separate theory of firm in the context of Islamic economics.”<sup>31</sup> Third, they need examine the existing empirical and theoretical studies to gather evidence for new concepts and models of Islamic economics and finance. Fourth, they need to conduct experimental and empirical studies to gather data and test economic assumptions and models from Islamic perspective. Most of existing papers on Islamic studies do not offer any scientifically acceptable evidence for their arguments. Therefore, they are more rhetorical, rather than scientific. Scholars of Islamic economics now have more measurement tools to gather qualitative data in order to test concepts, assumptions, and models from the Islamic economics. Fifth, they need to comparatively study the impact of materialist versus spiritual and moral values to provide evidence regarding virtuous and moral life being the path to happiness in this world as well. It is even possible to use functional MRI to examine the brain activities of people with different life styles to see the impact of moral and spiritual values on subjective well-being.

### 13. References

- Ariely, Dan. 2008. *Predictably irrational : The hidden forces that shape our decisions*. 1st ed. New York: Harper.
- Aydin, Necati. 2013. Redefining islamic economics as a new economic paradigm . *IRTI Journal of Islamic Economic Studies* 21 (1): 1-34.
- . 2013. Secular vs. sacred paradigms in science, technology and economics: Crisis of the enlightenment and search for an alternative paradigm. *The Journal of Revelation and Science* 3 (1): 13.
- . 2012. A grand theory of human nature and happiness. *Humanomics. International Journal of Systems and Ethics* 28 (1).
- Becker, Gary Stanley. 1978. *The economic approach to human behavior*. Chicago; London: University of Chicago Press.
- Berg, J., J. Dickhaut and K. McCabe. 1995. Trust, reciprocity, and social history. *Games and Economic Behavior* 10: 122–42.
- Binmore, K. 2007. *Playing for real. A text on game theory*. New York: Oxford University Press.

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<sup>31</sup> Ahmad, Khurshid, “Problems of Research in Islamic Economics with Emphasis on Research Administration and Finance,” in IRTI (1986), p.79

- Camerer, C., G. Loewenstein and D. Prelec. 2005. Neuroeconomics: how neuroscience can inform economics. *Journal of Economic Literature* 43: 9–64.
- Camerer, C. 2008. The Potential of Neuroeconomics, *Economics and Philosophy*, v.24, p.369-379.
- Camerer, C. F., G. Loewenstein and D. Prelec. 2004. Neuroeconomics: why economics needs brains. *Scandinavian Journal of Economics* 106: 555–579.
- Caplin, A. and M. Dean. 2008. Dopamine, reward prediction error, and economics. *Quarterly Journal of Economics* 123: 663–701.
- Cohen, J. D. 2005. The vulcanization of the human brain: A neural perspective on interactions between cognition and emotion. *Journal of Economic Perspectives* 19(4): 3–24.
- Coltheart, M. 2004. Brain imaging, connectionism, and cognitive neuropsychology. *Cognitive Neuropsychology* 21: 21–5.
- Cushman P. 1990. Why the self is empty. toward a historically situated psychology. *The American Psychologist* 45 (5): 599-611.
- Elster, Jon,. 1986. *Rational choice*. Washington Square, N.Y.: New York University Press.
- Forsythe, R., J. Horowitz, N. Eugene Savin and M. Sefton. 1994. Replicability, fairness and pay in experiments with simple bargaining games. *Games and Economic Behavior* 6: 347–69.
- Fumagalli, R. (2013). The futuli search for utility, *Economics and Philosophy*, 29, pp 325-347
- Ghazali, Imam. 2001. *Kimiyay-i saadat (alchemy of happiness)* . Trans. Muhammed Asim Bilal. Lahore, Pakistan: Kazi.
- Glimcher, P. W. and A. Rustichini. 2004. Neuroeconomics: The consilience of brain and decision. *Science* 306: 447–52.
- Glimcher, P. W. 2009. Choice: towards a standard back-pocket model. In *neuroeconomics: Decision Making and the Brain*, ed. P. W. Glimcher, C. Camerer, E. Fehr and R. Poldrack, 503–521. London: Elsevier.
- Gul, F. and W. Pesendorfer. 2005. The case for mindless economics. Working Paper. Princeton, NJ: Princeton University.
- Guth, S., R. Schmittberger and B. Schwarze. 1982. An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior and Organization* 3: 367–88.
- Harbaugh W. T., Mayr U., & Burghart D. R. (2007) Neural responses to taxation and voluntary giving reveal motives for charitable donations. *Science* , 316, 1622-1625.
- Hausman, D. M. and McPherson, M. S. 2009. Preference satisfaction and welfare economics. *Economics and Philosophy* 25: 1–25.
- Jamison, J. 2008, “Well-being and Neuroeconomics”, *Economics and Philosophy*, v.24, p.407-418
- Kable, J. W. and P. W. Glimcher. 2009. The neurobiology of decision: consensus and controversy. *Neuron* 63: 733–745.

Kahneman, D. 2000. Experienced utility and objective happiness: a moment-based approach. In *Choices, Values, and Frames*, ed. A. Tversky and D. Kahneman, ch. 37. New York: Cambridge University Press and Russell Sage Foundation. Available at <http://www.cepr.org/meets/wkcn/3/3503/papers/kahneman.pdf>

Kahneman, D. and R. Sugden. 2005. Experienced utility as a standard of policy evaluation. *Environmental and Resource Economics* 32: 161–181.

Kasser T, and Ryan RM. 1993. A dark side of the american dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology* 65 (2): 410-22.

Kasser, Tim. 2002. *The high price of materialism*. Cambridge, Mass.: MIT Press.

Kasser, Tim, and Richard M. Ryan. 1996. Further examining the american dream: Differential correlates of intrinsic and extrinsic goals. *Personality & Social Psychology Bulletin*. 22 (3): 280.

King-Casa, B., D. Tomlin, C. Anen, C. Camerer, S. Quartz and P. Read Montague. 2005. Getting to know you: Reputation and trust in a two-person economic exchange. *Science* 308: 78–83.

Klein, Naomi,. 2001. *No logo*. London: Flamingo.

Knoch, D., A. Pascual-Leone, K. Meyer, V. Treyer and E. Fehr. 2006. Diminishing reciprocal fairness by disrupting the right prefrontal cortex. *Science* 314: 829–32.

Knutson, B., A. Westdorp, E. Kaiser and D. Hommer. 2000. FMRI visualization of brain activity during a monetary incentive delay task. *NeuroImage* 12: 20–7.

Knutson, B., C. M. Adams, G. W. Fong and D. Hommer. 2001. Anticipation of increasing monetary reward selectively recruits nucleus accumbens. *Journal of Neuroscience* 21(RC159): 1–5.

Kosfeld, M., M. Heinreichs, P. Zak, U. Fishbacher and E. Fehr. 2005. Oxytocin increases trust in humans. *Nature* 435: 673–6.

Krueger, F., K. McCabe, J. Moll, N. Kriegeskorte, R. Zahn, M. Strenziok, A. Heinecke and J. Grafman. 2007. Neural correlates of trust. *Proceedings of the National Academy of Sciences, USA* 104: 20084–9.

Levy, D. J. and P. W. Glimcher. 2012. The root of all value: a neural common currency for choice. *Current Opinion in Neurobiology* 22: 1–12.

Marr, D. 1982. *Vision: A computational investigation into the human representation and processing of visual information*. New York: W. H. Freeman & Company.

McConnell, Campbell R., and Stanley L. Brue . 2008. *Economics : Principles, problems, and policies*. Boston: McGraw-Hill.

Moll J., Krueger, F. Zahn, R. Pardini, M., de Oliveira-Souza, R., & Grafman, J. (2006) Human fronto-mesolimbic networks guide decisions about charitable donation. *Proceedings of the National Academy of Sciences* , 103 (42), 15623-15628.

- McCabe, K. 2002. Neuroeconomics. In *Encyclopedia of Cognitive Science*, ed. L. Nadel. London: Nature Publishing Group.
- McCabe, K. 2008, "Neuroeconomics and the Economic Sciences", *Economics and Philosophy*, v.24, p.345-368
- McCabe, K. and V. Smith. 2000. A two person trust game played by naïve and sophisticated subjects. *Proceedings of the National Academy of Sciences, USA* 97: 3777–81.
- McCabe, K., D.Houser, L. Ryan, V. Smith and T. Trouard. 2001. A functional imaging study of 'Theory of Mind' in two-person reciprocal exchange. *Proceedings of the National Academy of Sciences, USA* 98: 11832–5.
- McCabe, K., M. Rigdon and V. Smith. 2003. Positive reciprocity and intentions in trust games. *Journal of Economic Behavior and Organizations* 52: 267–75.
- McClure, S., D. Laibson, G. Loewenstein and J. Cohen. 2004b. Separate neural systems value immediate and delayed monetary rewards. *Science* 306: 503–7.
- McClure, S., J. Li, D. Tomlin, K. Cypert, L. Montague and R. Montague. 2004a. Neural correlates of behavioral preference for culturally familiar drinks. *Neuron* 44: 379–87.
- Nursi, Said. 1996a. *Sign of miraculousness*. Trans. Sukran Vahide, Sozler Publications.
- Nursi, Said. 1996b. *Words*. Trans. Sukran Vahide, Sozler Publications.
- Nursi, Said. 1996c. *Letters*. Trans. Sukran Vahide, Sozler Publications.
- O'Doherty, J., P. Dayan, J. Schultz, R. Deichmann, K. Friston and R. J. Dolan. 2004. Dissociable roles of ventral and dorsal striatum in instrumental conditioning. *Science* 304: 452–4.
- Rabin, M. 1993. Incorporating Fairness into Game Theory and Economics. *American Economic Review*, 83, 1281-1302.
- Rilling, J. K., A. G. Sanfey, J. A. Aronson, L. E. Nystrom and J. D. Cohen. 2004. The neural correlates of theory of mind within interpersonal interactions. *NeuroImage* 22: 1694-703.
- Sanfey, A., J. Rilling, J. Aronson, L. Nystrom and J. Cohen. 2003. The neural basis of economic decision making in the Ultimatum Game. *Science* 300: 1755–1758.
- Schultz, W., P. Dayan and R. Montague. 1997. A neural substrate of prediction and reward. *Science* 275: 1593–9.
- Sheldon KM, and Kasser T. 1995. Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology* 68 (3): 531-43.
- Simon, Herbert A. 1982-. *Models of bounded rationality*. Cambridge, Mass.: MIT Press.
- Singer, T., B. Seymour, J. P. O'Doherty, K. E. Stephan, R. J. Dolan and C. D. Frith. 2006. Empathic neural responses are modulated by the perceived fairness of others. *Nature* 439: 466–9.
- Smith, V. L. 2007. *Rationality in economics: Constructivist and ecological forms*. New York: Cambridge University Press.

Spitzer, M., U. Fischbacher, B. Herrnberger, G. Gron and E. Fehr. 2007. The neural signature of social norm compliance. *Neuron* 56: 185–96.

Toynbee, Arnold 1889-1975, International Affairs Royal Institute of, and D. C. (D Somervell. 1946. *A study of history. abridgement of volumes I-X by D.C. somervell*. London ; New York: Oxford University Press.

Williams, Geoffrey C., Elizabeth M. Cox, Viking A. Hedberg, and Edward L. Deci. 2000. Extrinsic life goals and health-risk behaviors in adolescents. *Journal of Applied Social Psychology*. 30 (8): 1756.

Xiao, E. and D. Houser. 2005. Emotion expression in human punishment behavior. *Proceedings of the National Academy of Sciences, USA* 102: 7398–401.

Yokum, D. and F. Rossi. 2009. A Neuroeconomic Perspective on Charitable Giving, *Humana. Mente*, Issue 10, July 2009.

Zak, P. J., A. A. Stanton and S. Ahmadi. 2007. Oxytocin increases generosity in humans. *PloS ONE*, 11: e1128, 1–5.

Zak, P. J., R. Kurzban and W. T. Matzner. 2005. Oxytocin is associated with human trustworthiness. *Hormones and Behavior* 48: 522–7.