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DOES RELIGIOSITY AFFECT PHENOMENONS OF PRESENT BIAS AND
IMPATIENCE?

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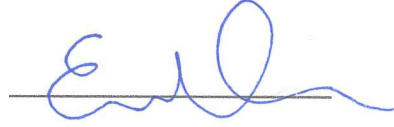
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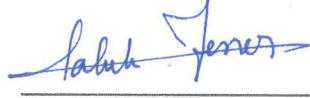
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ABSTRACT

Behavioral economics illuminates entities like self-control problems, inter-temporal decisions, tendency of present biased attitudes and derivations of rational behaviors. A rational planner looks after one's benefits, desires to maximize one's utility and tries to minimize one's losses. An individual avoids taking any risk and prefers to make decision under open and obvious conditions rather than making decision under uncertainty. Also, we know that a rational human should exhibit consistent behaviors, i.e. if an individual makes any decision now, man should behave identically in future time. We define it as time consistency on our paper. The reverse of time consistency is time inconsistency, which denotes variability among inter-temporal choices. Also, the irrational human decisions are closely related with self-control. Self-control problems don't exist not only in economic attitudes, rather reflecting across various human decisions, e.g. diet, smoking, wake up earlier, exercise so on. Many people frequently have self-control problems in certain time of their life. Even they know that they should not delay their plans, it is difficult to struggle with hedonistic motivations. Most of several motivations promote the people to enjoy the moment. The religion is a phenomenon, which recommends us to be not hedonistic. The religion rules shape thoughts, emotions and decisions. The impact of religion would make sense if human attitudes and decisions are investigated in daily life. We aim to find a relation between the impact of religion and present bias in study because many religions and beliefs recommend to be patience and to struggle with hedonistic desires. How religions affect people, who follow their teachings? The respond of this question is required to conceive and analyze the impact of religion in individual decisions.

Keywords: Present-bias, Time Consistency, Self-control, Patience, Religiosity, Quasi Hyperbolic Discounting Model

ÖZET

Davranışsal Ekonomi otokontrol problemleri, insanların değişen karar ve tercihleri, anlık memnuniyete dayalı tercihlere eğilim ve rasyonel davranışlardan sapmaları açıklamaya çalışan bir alandır. Rasyonel bir planıcı kendi çıkarlarını gözetir, faydasını arttırmak ve zararını azaltmak ister. Rasyonel olduğu varsayılan birey risk almaktan kaçınır ve belirsizlik altında karar vermektense bilinen koşullar altında karar vermeyi tercih eder. Ayrıca rasyonel kişi tutarlıdır. Örneğin, içinde bulunduğu zaman diliminde herhangi bir konuda bir karar alan kişinin farklı zaman dilimlerinde aynı konu hakkında benzer kararlar alması gerekir. Biz bunu zamansal tutarlılık olarak adlandırıyoruz. Zamansal tutarlığın tersi zamansal tutarsızlıktır ve farklı zamanlarda verilen seçimlerin değiştiğini gösterir. Rasyonel olmayan insan kararlarının otokontrolle de ilişkisi vardır. Otokontrol problemleri sadece ekonomik kararlarda değil bilakis birçok karar anında kendini gösterir. Bunlar diet yapmak, sigarayı bırakmak, erken kalkmak ya da egzersiz yapmak gibi konular olabilir. Birçok insan hayatının belli dönemlerinde sıklıkla otokontrol problemi yaşar. İnsanlar planlarını ertelememesi gerektiğini bilseler bile hazcı duygularıyla mücadele etmeleri zordur. Birçok hazcı güdü insanları anlık keyiflere teşvik eder. Din bizi hazcı olmamaya çağıran bir olgudur. Din düşünceleri, duyguları ve kararları şekillendirir. Dinin etkisi insanların günlük hayattaki davranış ve kararlarının incelenmesiyle anlaşılabilir. Biz bu araştırmada dinin etkisi ile şimdiki ana yanlılık arasında ilişki bulmayı hedefledik çünkü birçok din ve inanç sabırlı olmayı ve hazcı duygularla mücadele etmeyi öğütler. Din onu takip eden insanları nasıl etkiler? Bu soruya cevap bulmak bireysel kararlarda dinin etkisini öngörmeyi ve analiz etmeyi gerektirir.

Anahtar Sözcükler: Şimdiki Ana Yanlılık, Zamansal Tutarlılık, Otokontrol, Sabır, Dindarlık, Quasi Hiperbolik İndirgeme Modeli

INTRODUCTION

Behavioral economics increases the illuminating power of economics by improving it with psychological analyses. The psychological approaches can help us to understand better individual decisions. Thus, behavioral analyses promote to make better predictions. The most common biases in traditional approach could be related to homo sapiens and their degrees of rationality which is assumed as unbounded power. Certainly, this judgment is partly correct. Human mind has inexpressible mental and emotional activities. We face difficulties and complicated thoughts in daily life, however the human who is always accepted as rational individual cannot choose the right way. Sometimes, it might be impossible to maximize his benefits.

We investigate present biased decisions as a self-control problem using a survey, which measures responsiveness to delay time of monetary reward. The survey is implemented by Meier and Sprenger (2011) earlier. There may be several reasons, which lead to weak self-control and inconsistent behaviors. Moreover, there may be several phenomena, which promote to exhibit consistent behaviors. Keynes (1936) compare human motivation with animal spirit. Animal spirits lie behind hedonism; therewith an individual tends to satisfy one's desires immediately. The animal instinct resembles on that sense to human motivation. For instance, the people desire to consume instead of saving money, because saving requires self-control and patience, especially long run savings, e.g. retirement period. However, even many people desire to save money or invest on future time they cannot achieve it.

The religion is a thought, a belief and a system of values, which have affected many people for ages. The religion can give any shape to human life and behaviors. The religion teachings include many forbidden and commands, those religious members obey to rules using their intuitions. The teachings affect individual thoughts and behaviors and people make decisions considering religious commands. There are many important questions to understand better for human behaviors, especially theoretical information can illuminate some phenomenon, but not all. The religion as a normative phenomenon may explain causes of some complicated behaviors.

Max Weber (1958) was the first to define the substantial impact that religion affects in social life. He gives the Protestant Reformation as an example, which lead to entity modern communities. He investigates communal results of religion teaching, e.g. Capitalism. After Weber, many scholars investigate impacts of religion teachings on humans or communities such as the influence of religiosity, income and consumption on saving behavior (Abdullah et al. 2009); religion, self-regulation, and self-control: Associations, explanations, and implications (McCullough and Willoughby, 2009); Religious attitudes and home bias (Leroch et al. 2014); Religion, Economic Attitudes and Household Finance (Renneboog and Spaenjers, 2011); local religiosity and bank risk taking (Adhikari et al. 2015).

1. LITERATURE REVIEW OF PRESENT BIAS: NOW OR LATER

Present bias boosts individual's desire for a short-term satisfaction and thus, people borrow more for his instant utility. Present bias encourages to consume more and borrow more for instant pleasure (Coller and Williams, 1999).

Present bias analysis has been argued in context of behavioral economy recently. The behavioral approach can be used to explore cause of several individual attitudes, e.g. credit card borrowing (Meier and Sprenger, 2012). A research on credit card borrowing indicates that some individuals have excessive credit card debt. Moreover, there is an unbalanced debt distribution among credit card clients. Some individual's credit card borrowing is excessive, while some people have no debt at all. Many studies claim that present bias leads to excessive borrowing (Laibson, 1997; Fehr, 2002; Heidhues and Köszegi, 2010).

Erdem and Can (2013) study present bias and impatience, considering different income groups. They find that income level affects individual's time preferences. The research proposes to elicit relation between present bias and income level. The findings indicate that the people in low income group tend to make present biased choices. The people who have low income desire to gain today regardless of future gain. These individuals prefer to gain immediately, even though prospect of future gain seems higher than today's gain. Some people focus on short run goals while others focus on long run goals. Some may be present biased while others may be future biased. However, what exactly affects an individual's attribute is still at a debate. For instance, if man has to prefer between sooner smaller offer and larger longer offer, this decision may change to individual's behavioral attributes. Moreover, man could make different decision in different time points. Shefrin and Thaler (1981) claim that most of people prefer sooner smaller offers instead of larger longer option.

Thaler (1981) tries to measure whether subjects wait until later for larger reward or take smaller reward immediately. Hence, the subjects are suggested various amount of money for different time points. The amount of money suggested to subjects increases while length of time required to wait increasing and the discount rate decreasing. For example, subjects are indifferent between \$15 today and \$60 after a year, \$250 today and \$350 after a year, \$3000 today and \$4000 after a year. The discount rates are 139%, 34% and 29% respectively. Moreover, the results of the Thaler's study indicates subject's impatience, however more importantly, it is shown that there is a time inconsistency among subject's responds. Time inconsistency contradicts with rational human act.

Thaler (1981) claims, that subjects were, on average, indifferent between taking \$15 immediately and \$60 one year later. They were also indifferent between receiving \$3000 immediately and taking \$4000 one year later. The discount rates are %139 and %29 respectively. Thaler explains that subjects are more patient toward larger rewards. If the monetary reward increases, subjects may be show more patience order to make more profit. While reward is increasing, agents show more patience. Therefore, the measured patience becomes higher performance. This situation is known as magnitude effect in literature.

$$U(m,t) = \delta(m) \cdot u(m); \delta(m) \in (0,1)$$

m represents monetary reward.

Many people prefer the sooner smaller reward instead of larger longer reward. One reason for this can be the uncertainty of future (Fehr, 2002). The distinction between today and tomorrow will be perceived higher than the distinction between one year from now and one year plus one day from now. As the delay to the larger reward increases, it leads to decline marginal price of waiting for reward (Thaler, 1981). For example, if people have to choose between small reward due today and larger reward due tomorrow, they tend to choose small outcome. Nevertheless, they have to choose between small reward due one year and larger reward due one year and one day, then many people prefer to larger outcome (Fehr, 2002). The most people prefer sooner smaller offer than larger longer offer and they even know that larger longer offer is more beneficial than sooner smaller offer. The cause of this is concerned with affective system (Abrams and Hogg, 1999).

An individual makes a plan in any field, however man sometimes do not abide by his plan or put off doing to another time. Such behaviors could be related to self-control so that the economists like to explain present bias as related to self-control (O'Donoghue and Rabin 1999). For instance, borrowing and saving are related to present bias analysis. Some people tend to consume immediately, therefore they have extreme credit card borrowing. Some people have no debt or they consider further options than present current situations (Meier and Sprenger, 2012). Likewise, many people think that they cannot save enough for retirement period even they are beware of saving's significance (Fehr, 2002).

1.1. TIME INCONSISTENCY

World Bank database indicates that saving ratio has been decreasing almost all over the world recently, especially in developed countries. Despite the people living longer compared to past, they cannot save money. The life expectancy is increasing, therewith the retirement period is increasing, however, saving tendency is declining. Fehr (2002) points out this contradiction in his study. For example, in a 1997 poll in the United States, over 75% of respondent believed that they should save more for their retirement period. More than 50% of respondents thought that they cannot make adequate saving for their retirement, only 6% of them believed that their savings is going ahead better as planned. Fehr evaluated this report's findings in his paper. The people in developed countries know that they have to make long term plans, however they delayed their planning. The cause of this, the long-term planning requires to delay pleasure, e.g. saving for retirement, eat healthy foods, exercise regularly, and quit smoking. This may be related to impatience. Moreover, it is difficult to establish a model, which indicates differ between short and long term discount rates (Fehr and Peter, 2008). Many people tend to choose short-term outcome. This attribute requires using different discount rates for short and long term behavior, because many researches concerning finance, economics, and psychology indicate that the individual's decisions change over time. The individual's choices involve dynamic inconsistency for a time horizon (Erdem and Can, 2013). Thaler (1981) claim that short-term discount rates are higher than long-term discount rates. Fehr points out reason of time inconsistency in his research. According to him, a reason of time inconsistency is ambiguity. Future involves uncertainty, therefore many people consider present outcomes even future outcome is more gainful than present outcome. Moreover, it may be difficult to predict further options, which consist in different probabilities for individual. Therefore, the uncertainty may lead to short-sighted acts and dynamic inconsistency.

1.2. INTERTEMPORAL CHOICES

Decisions that lead to different results in various time points can be defined as intertemporal choices. The most recognized discount function is exponential, however exponential discount function is inadequate to explain intertemporal choices. Thus, instead of exponential function we prefer to quasi-hyperbolic function in our study. Higher discount rates are related to hedonistic desires like gambling, smoking and risky health treatments. On the contrary, low discount rates are related to powerful self-control.

Several techniques have been used to measure discount functions. One of them is a sequence of questions which is implemented by Meier and Sprenger (2012). The questions include trade-offs between a sooner, smaller utility and a later, larger utility. The kind of sooner and later utilities are same item or money. For instance, we asked to respondent: ‘Do you prefer 60 TL today, or 80 TL in one month?’

The obtained results may conflict with available biases. Also, variety of techniques and observations may lead to different conclusions. Many studies aim to estimate the relationship between individual discount rates and several attitudes and behaviors. Strotz (1955) give an example that can help explain intertemporal choices:

A. Choose between: A.1 One apple today.

A.2 Two apples tomorrow.

B. Choose between: B.1 One apple in one year.

B.2 Two apples in one year plus one day.

Some people inclined to choose A.1, however they choose B.2 instead of B.1. Strotz (1955) aim to elicit dynamic inconsistency in multiple time periods. The responses will change inversely with the length of time to be delayed. Thaler and Shefrin (1981) reached similar result. They find that discount rate is related with inversely the length of time to be waited.

1.2.1. Loss Aversion

The rational individual desires to minimize his losses. Even though the probability of losses is slight, most of people don't take a risk under uncertain conditions. The people tempted to avoid loss. Kahneman and Tversky (1979) claim that losses loom larger than gains. The disadvantages of the loss have greater impact on preferences than the advantages of the gain. Several studies denote that many people feel same impact on preferences.

The loss aversion is associated with endowment effect. Thaler (1980) claim that the people are tempted to demand much more to give up an object than they will to pay to obtain it. The value of an object to an individual seems to be higher when the object is perceived as good that could be lost.

Tversky and Kahneman (1992) construct several experiments and they evaluate results in their studies. They aim to explain better prospect theory. The few of their examples and evaluations:

Example 1: Would you accept this gamble?

50% chance to win \$150

50% chance to lose \$100

Would your choice change if your overall wealth were lower by \$100?

There will be few takers of the gamble in Example 1. The experiment denotes that most people will reject a gamble, unless the probability of win is at least twice the size of the probability of loss.

Example 2: Which would you choose?

lose \$100 with certainty

or

50% chance to win \$50

50% chance to lose \$200

Would your choice change if your overall wealth were higher by \$100?

The results of Example 2 denotes that most of subjects seek risk on preferences. (Kahneman and Tversky, 1979). The change of \$100 in possession doesn't influence individual preferences considerably.

1.2.2. Framing Effect

The gain and loss could be perceived different by many people even though benefit is equal. When people faces with identical decision problems, the frame of gain is perceived positively while frame of loss is perceived negatively. People inclined to avoid risk when a positive frame is offered, however they seek risks when a negative frame is offered. Prospect theory (Kahneman and Tversky, 1979) denotes that a loss is more remarkable than the equivalent gain. Their research concerning the relative effectiveness of gain-framed and loss-framed presentation shows that if the outcomes of individual decisions are expressed in terms of gains, people's preferences will be risk-averse, however if the outcomes are expressed in terms of losses, people choose riskier suggestion. Framing effect denotes when the same offer is presented using different ways, the individual decisions and behaviors could change.

They (1981) introduced framing effect with the following problem:

Example 3: Imagine that the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two options to challenge with the disease have been offered. Assume that the exact estimates of the results of the options are as follows:

If option A is implemented, 200 people will be saved.

If option B is implemented, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

The results denote that the most of respondents prefer option A to avoid risk. Then the question is asked to respondents by a different explication of the alternatives:

If option A' is implemented, 400 people will die.

If option B' is implemented, there is a one-third probability that no people will die and a two-thirds probability that 600 people will die.

A significant majority of respondents choose option B' due to seeking risk. Although there is no remarkable difference between question forms, the impact of loss is perceived larger than the impact of gain. The results that are certain are over weighted relative to results of a probability (Kahneman and Tversky, 1979). The presentment of an offer influences perceptions of people, thus framing could affect individual decision and behaviors.

1.2.3. Magnitude Effect

The people don't like to wait, however if an attractive offer is presented to respondents, they might prefer to wait. Certainly, the length of the wait and the benefit which will be received at the end of waiting time are substantial for them. In researches of the willingness to wait, respondents are offered trade-off questions. It is expected to make decision from respondents between a smaller sooner utility versus a larger longer utility. When the waiting time increases, the respondents tend toward receiving immediate reward. The researches of the magnitude effect show that people prefer to wait when the sooner and later outcomes increase (Green et al., 1997). For example, many people would rather take \$5 today than \$10 in 6 months, however people prefer to wait if the offer is between \$2 million today and \$3 million in 6 months. The magnitude effect is highly effective on individual preferences.

The experiments show that animals often choose smaller sooner rewards over larger longer rewards. Therefore, they cannot maximize their total benefit. Many people behave similarly (Fehr, 2002). The individual decisions about savings, borrowing, several habits and even marriages lead to positive or negative results in the future. For people, future is uncertain. The future might bring risk to human. Thus, the human applies several discounts to future outcomes and behaves inconsistently depending on the time frame. The discount rate for today is much higher than for further events (Loewenstein et al., 2002).

Thaler and Benartzi (2004) convince a US company to offer its employees the opportunity which promotes them to save more in the future as salary increases. Most employees don't exhibit disposed behavior to save more out of their present salaries, however most are willing to save more in the future. After only 28 months the average savings rate increases from 3.5% to 11.8% of income. The research indicates that people are more patient in their long-term plans.

2. SEVERAL APPROACHES ON UTILITY AND RATIONALITY

“Rationality are fundamental element of human life.”

Kirman et al. (2009), Rationality and Emotions

Many researchers bring a perspective to the utility analysis as a substantial part of economic theory (Samuelson, 1947). The utility theory argues that the consumer tries to maximize his aggregate utility under a given level of income. Due to limited their income people consume less than they desire. According to traditional approach, it is possible to assume that the consumer makes rational decisions to meet for his needs. The rational individual is assumed to maximize his utility from consuming goods and services. Many researchers are unsatisfied with such a merely constitutional expression of rationality. Also, it must be required to define desire which should have by humans to explain the rationality. A system ought to define the desires considering biological needs and the most effectual ways of satisfying them.

Bentham (1948) tries to measure the total effect of an act. However, the individual variation is barrier to measure utility and it is a problem to make an objective comparison among people. Kahneman (2000) brings a perspective which is known as experienced utility theory. The theory which is based on empirical observations. The central problem of rationality is choices and desires which should have by people. Most revealed models are attributed on the utility maximization assumption that people act rationally to get the maximum benefit from the decision made, hence expected utility theory (EUT) (Von Neumann and Morgenstern, 1953). It uses Bayesian method as a basis, which is also known as Bayes rule. However, the axioms of Expected Utility Theory are not complete to explain the rational expectations exactly. Ultimately, the economic behaviors related to human motivations. Therefore, economists have traditionally used, as initial point, behavioral and cognitive approaches behind economic actions.

Despite the common use of expected utility theory, researchers in behavioral studies notice several anomalies in axioms of EUT and these improvements lead to non-expected utility theories like prospect theory. Kahneman and Tversky (1979) claim that experienced utility is measurable. It is a measure of hedonic and affective experiment.

Kahneman is very aware of many problems with the application of the theory of experienced utility. This theory is based on the opinion that there is a measurable utility that is separable from the preferences humans make. Kahneman evaluates the utility under two headings as experienced utility and decision utility. Decision utility and experienced utility could not be same. For example, a person decides to eat a dessert, because he or she desire to eat a dessert. It denotes decision utility. Actually, the person know that dessert has high-calorie, because he experienced to eat dessert. It denotes experienced utility. Decision utility is measured through personal choice, however experienced utility is measured through psycho physical ways.

An individual who have normal cognitive capabilities cannot maximize his decision utility considered in the future. The given options in search process are uncertain or may have a certain probability. The people don't desire losing, therefore they prefer to avoid risk regardless of results. Bentham (1948) claim that utility could be measured considering pain and gratification. The people desire to maximize their satisfaction and to minimize their pain. However, temporal decisions cause to contradiction. The people in different time periods could make different decisions. For example, we offer a trade-off to a respondent and the subject chooses one option, however if we ask in different time, the subject might choose other alternative. The inconsistency is a barrier which makes difficult to measure utility. The satisfaction and dissatisfaction are attributes of each time periods of experience however, the outcomes are independent from individual values.

Human intellect has a finite capacity. The people always behave not fully rational while they making decision in daily life. Fully rational individual may be a fantastic character or mystic hero, but it could be possible in theory, not in real time. The arguments presented in our research corroborate this judgment. True, human cognitive capabilities are finite. The individual always cannot make rational decision and cannot optimize his satisfaction but the fact remains, that what completely several researchers mean by rationality is open for discussion. According to Ariely (2010), human behaviors could be irrational at different times, however predictably.

3. THE IMPACT OF RELIGION ON PRESENT BIAS AND PATIENCE

Several researchers investigate the relationship between present bias and various personal behaviors and attitudes like saving or borrowing. However, the studies concerning the relation between religion and present bias are limited. Hence, present bias is closely related with self-control, therefore self-control and present bias can be perceived similar. Religion rules give shape to human being and subsume self-control. Several forbidden impede individual's desire and willingness. Therefore, religious people make decision concerning religion law. Besides individuals having high self-control, also illustrate impatience. There are many external and internal drivers. For instance, income level may affect self-control. The individual's priorities may change his responds. Also, an agent may give different response at different time points. This indicates the time inconsistency.

We propose to elicit a relation between religion and economic attitudes. The central question is whether religiosity affects behavioral preferences. Religion influences much of the behavior like trust, honesty, helpfulness, impatience, tolerance and so on. Certainly, personal attributes, therewith decisions and behaviors depend on countless demographic and emotional determinants like age, gender, education level, ethnicity and beliefs. There are many studies that investigate the relation between religion and behavioral or economic factors. McCullough and Willoughby (2009) show that religion affects self-control positively. Guiso et al. (2006) claim that religious affairs influence income growth. According to his study, Christians are more positively related with economic growth than other religion groups. Porter and Steen (2006) document that 79% of American investors consider themselves as religious and 69% of them consider religion teaching on their financial decisions, on the other hand, nonreligious investors explain that their financial decisions are shaped by individual characteristic rather than religion teaching.

Renneboog and Spaenjers (2011) study on Dutch households by using survey method in their work. The authors propose to find a difference between religious and nonreligious people in financial decisions. According to survey, religious households tend to make longer plan and save more for their future than nonreligious households. The effect of religion has not only been observed in micro-size economic matters. Also, religion could influence macro-economic structure such as industrial reformation. Max Weber (1958) points out that Protestant work ethic influences economic growth positively in Europa. Max Weber claims in his study called “The Protestant Ethic and the Spirit of Capitalism” that Protestant Ethic affects the spirit of industrial society. After Reform, all developed countries concerning economic growth are protestant. (Holland, England, Germany) The Protestant’s religion teachings encourage to endeavor for somethings. On the other hand, the relation between religion and communal reformation may not give same equation. The religion may not lead to economic reformation nowadays, because the drivers changes which conducts economic growth. Religion’s teachings are assumed that affects prosocial behavior. Paciotti et al. (2011) claim that religious individuals are more generous and more cooperative than agnostic individuals. Prosocial behavior could be motivated by religion. Religion is a significant effect in individual’s ethic rules. Hence, the ethical rules give a shape to personal feelings, thoughts and behaviors. Economic attitudes could be impressed by religion teaching.

4. DATA AND METHODOLOGY

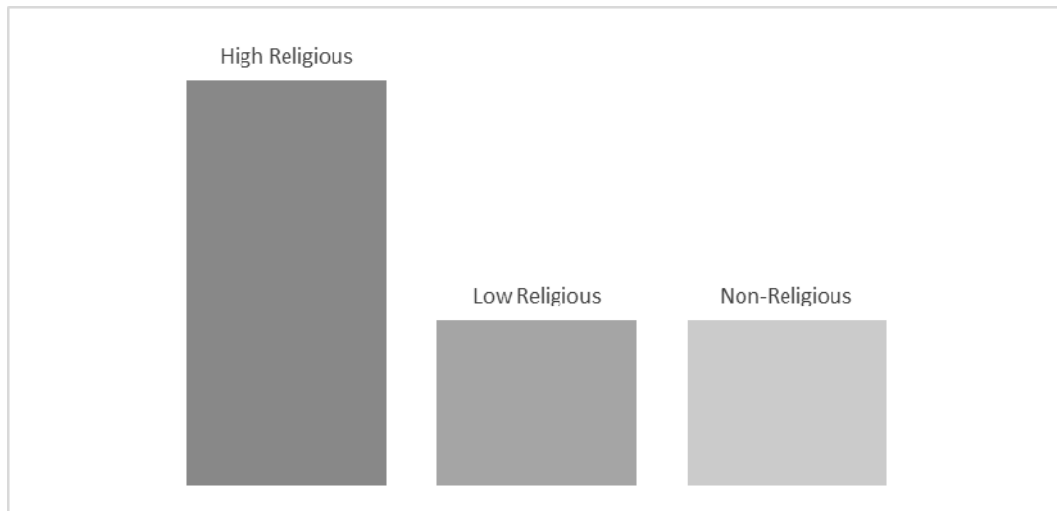
4.1. Data

We use a survey which consists of three main parts. First section includes demographic questions, second is about the religion scale while third section includes present bias questions. We use payment questions to measure present bias which are examined by Meier and Sprenger (2012). The survey is managed in Turkish and is answered by 119 persons. We classified the subjects into two main cluster consider their religion levels. We distinguish between high religious and low religious.

The agents are asked whether they find religious themselves exclusively, because opinion and attitude may be not same. The opinion which is stated, sometimes contrasts with human's attitudes or decisions. Therefore, a religion scale is used order to measure attitudes, also their opinions are asked with an additional question.

The subjects who define themselves as high level religious is 54.23% of all respondents (Figure 1). The subjects who define themselves as low level religious is 22.88% of all respondents. The percent of nonreligious subjects is 22.88% of all respondents. The subjects who give answer to religiosity questions is 76.27 % of all respondents. However, religiosity scale indicate that the percent of high religious subjects is more than the percent of subjects who define themselves as high level religious. Even the subjects are high level religious, they usually prefer to define themselves as medium level religious, so we accept the subjects as high religious who define themselves as medium level religious.

Figure 1. Religiosity Level



The ages of the respondents between 18 and 55 with average of 28.42 and a median age of subjects is 28. The percent of subjects who are under 30 age is 69% of all respondents (Figure 2).

Figure 2. Age



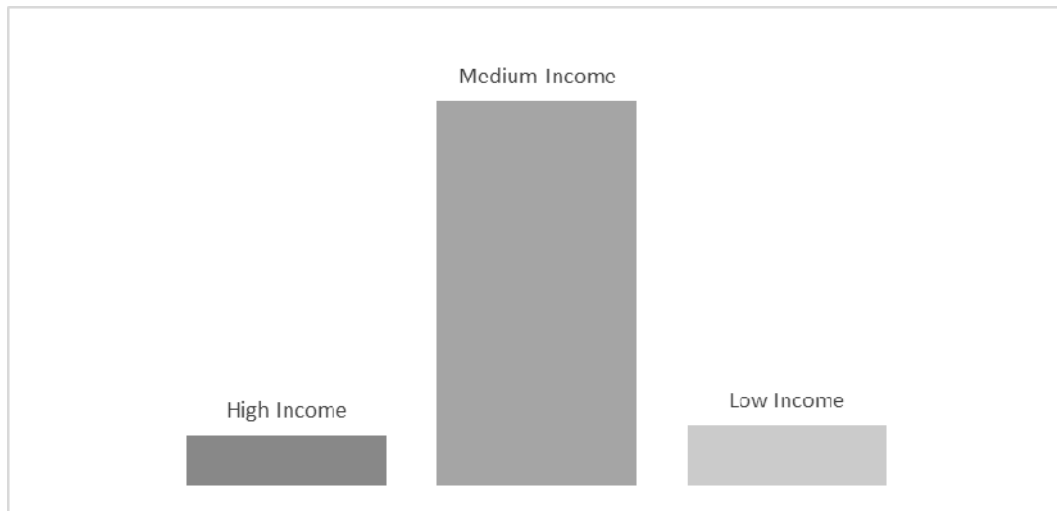
The 52% of respondents is man, remain of subjects is woman (Figure 3).

Figure 3. Gender



The 77.31% of all respondents have medium economic power, the 10.08% of all subjects have high level economic income, remain of respondents have low economic level (Figure 4). Economic power and religiosity level affect saving's ratio positively, however we find that the correlation is slightly.

Figure 4. Income



The third part consist three sub groups with two options (Appendix A). The first sub group represents payment options between today and one month later, the second sub group represents options between today and six months later and the third sub group shows options between six months and seven months. The first and third groups indicate time inconsistency. For instance, a respondent may switch different point in first and third sub groups. This different switch points lead to dynamic inconsistency. Also, some of agents always choose first option in every question (such as a respondent who always prefer the earlier reward, then there is indifference between sooner and later reward) and some of agents always prefer to second option in every offer (those who always take later payment regardless of time and reward impacts). This result may lead to biased impact on results.

4.1.1. Measures of Religiosity

The central aim of our paper is to explain causally if there is a relation between present bias and religiosity. The existence of religion is a controversial topic and involves various interpretations likewise religiosity or spiritualism. The understanding of religion involves more than a straightforward logic; therefore, it is difficult to develop a scale which measures religiosity objectively. Despite of several religiosity scale in literature, it is open for discussion whether reliable or not. There are several conditions like validity and reliability to develop scale. Also, the categorization of religion beliefs is not same as classifying of other human attributes like gender, age, occupation, ethnicity or education level. The religion beliefs may be depending on several internal and external impacts what we don't know yet. There is no only one reason behind human attitudes and everyone may have influenced from various motivations while making decision (Kiesler et al, 1969). Definitely, it would be required a complex study to understand better it.

Many scholars investigate that the rationality and how can be explained rational attitudes, however either the definition of rationality neither understanding of rational attitudes is straightforward. The intelligence is center of rationality and rational attitudes can be understood by means of intelligence and the decisions of rational human can be explained by the human intellect. On the other hand, human intellect has a finite capacity, also it is not enough to explain human decisions. The irrational decisions or the deviation from rationality promote to consider different concepts instead of positivist approaches. The one of concepts may be religion. Religion may be a heuristic driver that affects human decisions. The function of religion is to give a spiritual meaning to world and to initiate system of values which regulates human life. The religion has a power impact on recent communities and this power promotes to examine that there is relation between religion and human decisions. Micro size issues follow the lines of macro size issues; therefore, individual decisions should be understanding by institutional structures.

Undoubtedly, there are several scales which are assumed to measure religiosity. The one of them is religious oriented scale (ROS), which have developed by Allport and Ross (1967). They aim to measure religiosity as internal and external religiosity and find out to separate pure religiosity from the need for social approval. Moreover, it is the most well-known religiosity scale in literature. However, the target audience is Christians, therefore items have prepared considering Christians beliefs and worships. Hence, various modifications involve more neutral terms, for instance, instead of church, saying temple or gathering. However, the modifications cause that wording loses their meanings. We don't aim at certain denomination or religion, however we know that the religious subjects affiliate with Islam in our study. Therefore, we prefer to use a scale which is prepared for Muslim (Appendix B). The religiosity scale which is developed by Mutlu (1996), consist of 14 items. The internal consistency of scale is 0.94. This value indicates that scale is one dimensional measurement and the result of item analysis have found that each of these items is address same purpose. Several researchers endeavor to develop a religiosity scale. Some of them are Religious Orientation Scale, Quest Scale, Intrinsic Religious Motivation Scale, Literal Anti-Literal Mythological Scale, Duke Religion Index (Table 1). Our research considers several dimensions like commitment, behaviors and thoughts. We expect to measure individual's religiosity level by using a scale. While there are many religiosity scales in literature, we prefer a scale which is implemented by Mutlu (1996).

Due to ethnicity the major of respondents who define as religious believe in Islam. Thus, we don't classify among different religions, only we consider religiosity's level.

Table 1. The Measurements of Attitudes and Orientation for Religiosity

Researcher	Measurement
Allport and Ross (1967)	Religious Orientation Scale
Batson and Schoenrade (1991)	Quest Scale
Hoge (1972)	Intrinsic Religious Motivation Scale
Hunt (1972)	Literal, Anti-Literal, Mythological Scale
Koenig, Patterson and Meador (1997)	Duke Religion Index
Poppleton and Pilkington (1963)	Religious Attitude Scale

General measurements of religiosity aim to indicate its intensity, emphasis or significance level on individual behaviors. In several researches, religiosity level is measured with an item asking for self-express on individual significance of religion or belief, e.g., ‘Do you consider yourself religious’.

Koenig et al. (1988) claim that there are central measurable dimensions of religiosity. These dimensions are faith, rituals, experience, knowledge and community. The faith refers to acceptance of religious teachings and traditions. The rituals refer to the religious practices which are practiced alone or with a group. The experience is associated with spiritual feelings. The dimension of religious knowledge indicates level of knowledge which is related to holy scriptures and worships. Finally, the dimension of community is related to degree of faithfulness towards a religious denomination.

The measurements that consider religious commitments and involvements are classified in Table 2.

Table 2. The Measurements of Commitment for Religiosity

Researcher	Measurement
Altmeyer and Hunsberger (1992)	Religious Fundamentalism Scale
Stark and Glock (1968)	Religious Commitment: Belief, Ritual, Experience, and Knowledge
Pfeifer and Waelty (1995)	Religious Commitment Scale
Roof and Perkins (1975)	Salience in Religious Commitment
Sethi and Seligman (1993)	The Religiousness Measure: The effect of religious fundamentalism on optimism

4.1.2. Measures of Present Bias

The difference of hyperbolic discounting from exponential discounting model is an additional β parameter. According to formulation, t represents present time, $t+1$ is future time, T consists of all time periods. For discrete time;

$$U = u_t + \beta \sum_{k=1}^{V-t} \delta^k w_{t+k}$$

Equation 1: Hyperbolic Utility

U represents the utility of monetary reward in t point which denotes now and $T-t$ denotes future decisions. β coefficient represents present bias parameter.

In the quasi-hyperbolic discounting model, we have one discount factor and one present bias parameter which are calculated in sub group 1 and sub group 2 (δ_1 and β_1). Also, we calculate one discount factor and one present bias parameter in sub group 1 and 3 (δ_2 and β_2). The average of the two discount factors indicates δ and the average of the two present bias parameters shows β . δ consider future offering and illustrates the long run discounting of the subjects.

Example: We asked to respondents “Do you prefer to receive 75 TL now or 80 TL one month later?” in first sub group. Assume, that the respondent prefers to take money today and he or she continues to choose today until the reward decreases to 50 TL. Further reward is always constant and 80 TL. The respondent changes his decision in 5. question in first sub group, thus we determine $(60+50)/2$ as critical point. The critical for this example is 55. The respondent chooses offer 2 instead of offer 1 in sub group 2 while the offer switches from 50 to 40. The critical point is 45. The respondent always chooses offer 2 in the last sub group, thus critical point is 75 TL. The discount factor (δ_1) and the present bias (β_1) are indifference in the questions in sub group 1 and sub group 2. The first 6 questions are discounted by $\delta_1\beta_1$ and the next 7 questions are discounted by $\delta_1^6\beta_1$. The discount factor and the present bias parameter discounted by the indifference received from the questions in sub group 1 and the questions in sub group 3.

The first 6 questions are discounted by $\beta_2\delta_2$ and the last 6 questions are discounted by δ_2 . $\delta_1 + \delta_2 / 2$ is the average of discount factors and $\beta_1 + \beta_2 / 2$ the average of present bias parameters. An agent with self-control problem prefers to receive smaller monetary reward today in sub group 1 and sub group 3. When delaying time increases, self-control problem increases. Therewith, there may exist time inconsistency, so that the agent prefers to first option in sub group 1, while an agent choosing second option in sub group 3. The agent with present-bias represents a more delayed switch from first option to second option 2 in sub group 1 rather than in sub group 3. Whereas, delaying time is same both periods, i.e., one month.

The working of formulation in sub group 1 and sub group 2: (Discounting parameter: δ_1)

$u_0 = \beta \times \delta_1 u_1$ in Part 1; $u_0 = \beta \times \delta_1^6 u_6$ in Part 2

Then, $\beta \times \delta_1 = u_0/u_1 = 55/80$ and $\beta \times \delta_1^6 = u_0/u_6 = 45/80$

$$\beta \times \delta_1^6 / \beta \times \delta_1 = \delta_1^5 = u_1/u_6 = \delta_1^5 = 45/55$$

$$\delta_1 = 0.960$$

For β_1 ; $u_0 = \beta \times \delta_1 u_1$ We use δ_1 and find β_1 .

$$\beta_1 = u_0 / (\delta_1 \times u_1). \text{ Thus } \beta_1 = 55 / (\delta_1 \times 80) = 0.71$$

The working of formulation in sub group 1 and sub group 3: (Discounting parameter: δ_2)

For sub group 3:

$u_6 = \delta_2 \times u_7$, which implies that $75 = \delta_2 \times 80$. Therefore $\delta_2 = 0.937$

Part 1 and Part 3: $u_0 = \beta \times \delta \times u_1$ and $u_6 = \delta \times u_7$. We use δ_2 and find β_2

$$\beta_2 = (u_0/u_1) / (u_6/u_7) = (55/80) / (75/80). \text{ Therefore } \beta_2 = 0.733$$

The average discounting parameter of the agent is $\delta = (\delta_1 + \delta_2) / 2 = 0.948$

The average present-bias parameter of the agent is $\beta = (\beta_1 + \beta_2) / 2 = 0.724$

4.2. METHODOLOGY

Samuelson develops discounted utility theory to devise model which indicates intertemporal choices. (Frederick et al., 2002) However, the axioms of discounted utility theory are not adequate to explain the individual's preferences nowadays. The superiority of Samuelsonian model is ease of mathematical calculation, therefore it is most common dynamic general equilibrium model. The fundamental point in Samuelsonian theory is to model a dynamic choice which consists of more than two periods.

c_t shows consumption on t time point, cumulative time is T :

$$(c_t, c_{t+1}, \dots, c_T) \text{ or } \{c_t\}_t^T$$

The utility of aggregate consumption:

$$U(c_t, c_{t+1}, \dots, c_T) ;$$

$$U(c_t, c_{t+1}, \dots, c_T) = \sum_{n=0}^{V-m} F(n)w(e_{v+m})$$

Equation 2: Discounted Utility

$D(k)$ is discount function, k shows delaying, there is inverse relation between k and $D(k)$. When k increases, $D(k)$ decreases.

Also,

$$D(t) = \left[\frac{1}{1 + \rho} \right]^t = \beta, \rho > 0$$

Equation 3: Discount Factor

ρ is discount rate which indicates intertemporal choices.

β is discount factor

$$U = u_0 + \beta u_1 + \beta^2 u_2 + \beta^3 u_3 + \dots \beta^T u_T$$

According to Samuelson, the expected behavior from a rational individual is to choose sooner reward, if sooner reward is equal to later reward. When delaying time (k) increases, expected utility decreases. Therefore, the utility need discounted considering delaying time. Samuelsonian model called *exponential discounting model* and constant discounting is used for each period, therefore $D(k)/D(k+i)$ is used as discounting and $i \neq 0$ and constant discounting is dependent of delaying time (k).

$$U = u_0 + \delta u_1 + \delta^2 u_2 + \delta^3 u_3 + \dots$$

$$D(t) = \delta_t \text{ for a discount factor } \delta \in (0,1)$$

Discounted utility theory assumes that an agent's behavior shows consistency as one another. If a person chooses 50 TL immediately instead of taking 80 TL after one month, the person chooses 50 TL after six months instead of taking 80 TL after seven months. However, Thaler reached that the people don't show consistency in their behaviors (Thaler, 1981). The agent's impatience always doesn't show same consistency and impatience decreases, while delaying time increases.

The quasi hyperbolic discounting model (Laibson, 1997), also called the $\beta\delta$ model have been used to devise correlate among present bias, intertemporal preferences and self-control in behavioral economy.

$$U = u_0 + \beta (u_1 + \delta u_2 + \delta^2 u_3 + \dots)$$

The difference of Laibson (1997) model from Samuelsonian model is β as additional parameter which represents present bias. Assume, the individuals are offered two options. First option is receiving reward in the 6th year and second option is receiving reward in the 7th year. Then the choosing requires to compare: $\beta\delta^6 u_6$ and $\beta\delta^7 u_7$. If the choosing would be comparison between now and one year later: u_0 and $\beta\delta u_1$

Discounted model has several anomalies and not enough to explain the deviations from expected attitudes. Hyperbolic discounting model is developed order to overcome the deficiencies of discounted model. For instance, declining discount rates fit the data better than exponential discount rates. Also, hyperbolic model considers preference reversals. For instance, an agent prefers 110 TL in 31 days instead of 100 TL in 30 days. Then, the agent should prefer 110 TL tomorrow over 100 TL now, however man prefers, who 110 TL in 31 days over 100 TL in 30 days, choose 100 TL now over 110 TL tomorrow. In this case, there exists preference reversals in human decisions.

The other favor of hyperbolic discounting rate is, which distinguishes it from discounted utility, not sub additive function. For instance, the average discount rate for 24 months is lower than the average discount rate of three intervals which consists eight months in each period (Read and Roelofsma, 2003). Sub addivity is stronger when delaying a sooner reward than for accelerating a further reward. The model drives reverse rotation for losses, so that accelerating later losses are stronger than for delaying sooner losses, whereas delaying sooner gain is stronger than for accelerating later reward. The smaller gain is chosen if it is valid for today, however the larger gain is chosen if both of proposal are delayed (McAlvanah, 2010).

5. FINDINGS

We evaluate results as a preliminary analysis for two groups firstly, high religious and low religious groups. We look differences for both groups by comparing their average values of impatience (δ) and present bias (β). We consider the impatience and present bias under quasi-hyperbolic discounting model for our sample. As it is seen in Table 3, 54 individuals with low religiosity level exhibit on average a discount factor, $\delta = 0.726$ and 65 individuals with high religiosity level exhibit on average a discount factor, $\delta = 0.688$. 44 individuals with low religiosity level exhibit on average a present bias factor, $\beta = 0.803$ and 50 individuals with high religiosity level exhibit on average a present bias factor, $\beta = 0.802$. 10 individuals with low religiosity level and 15 individuals with high religiosity always choose option 1 in every question. Aydin (2014) finds average β lower in low religious group than high religious. However, the difference is slight between two groups. Also, she finds average δ higher in low religious group than high religious group in her study.

Table 3. A Comparison of Impatience and Present Bias between Low and High Religious Groups

	Average discount factor δ (hyperbolic)	Present bias parameter β (hyperbolic)
Low Religion	0.726	0.803
High Religion	0.688	0.802

Firstly, we look the individual attributes of impatience (δ) and present bias (β). Note that impatience decreases as δ increases. Similarly, present bias, i.e. dynamic inconsistency decreases when β increases. We try to measure impacts of age, gender, income, education and marital status within the total pool of respondents. We try to estimate the impacts by devising two regression equations.

$$\text{Impatience} = \alpha_0 + \alpha_1 \times \text{age} + \alpha_2 \times \text{gender} + \alpha_3 \times \text{income} + \alpha_4 \times \text{education} + \alpha_5 \times \text{religiosity}$$

$$\text{Present Bias} = \alpha_0 + \alpha_1 \times \text{age} + \alpha_2 \times \text{gender} + \alpha_3 \times \text{income} + \alpha_4 \times \text{education} + \alpha_5 \times \text{religiosity}$$

We find a correlation between age and marital status, so that as age increases the possibility of being married increases. Therefore, we don't consider both in same regression equation. Also, religiosity level which indicates individual's self-expression, the scoring of religiosity scale which is measured by using 14 items and God's belief of respondents are correlated positively with each other. Hence, we don't take all of them in same equation. We consider only one of them in regression model.

As it is seen in the Table 4, gender and income seem significant in the impatience regression, whatever religiosity measurement is taken as independent variable. Education seems significant with impatience, when we take religiosity scale or God beliefs as independent variable in impatience regression. However, we cannot a significant relationship between impatience and religiosity measurements. According to the results, the impatience attributes exhibit differences between female and male. We add value "0" to female; "1" to male. Therefore, female subjects exhibit less impatience than male subjects. Also, there are inverse relation between impatience and income. This means impatience decreases as income decreases. The subjects with higher income exhibit more impatience attributes. Also, the subjects with higher education exhibit less impatience compared to those with low education.

Table 4. Estimations for Impatience (δ)

	Religiosity Scale (1)	Religiosity Self-express (2)	Belief (3)
Constant	0.860	0.840	0.836
Age	0.005 (0.228)	0.005 (0.221)	0.005 (0.215)
Gender	-0.202** (0.003)	-0.200** (0.003)	-0.198** (0.003)
Income	-0.244* (0.027)	-0.241* (0.034)	-0.248* (0.026)
Education	0.56* (0.099)	0.55 (0.105)	0.56* (0.097)
Religiosity Scale (1)	-0.01 (0.637)		
Religiosity Self-express (2)		-0.008 (0.791)	
Belief (3)			-0.004 (-0.943)
N (Sample Size)	119	119	119
R-square	0.132	0.132	0.130

Note: p values are presented in parenthesis The marks (***), (**), (*) indicate 1%, 5% and 10% significance levels respectively.

As it is seen in Table 5, we cannot find that religiosity related to present bias in regression. Erdem and Can (2013) find relationship between income and present bias positively, however a meaningful relationship could not be found between income and impatience in their study.

According to their research, subjects with lower income are more easily tempted to spend in the present time. Hence, present-bias decreases as income increases. Also, older people have smaller present bias parameter. Hence, they inclined to prefer sooner monetary rewards. The younger people exhibit more consistent behavior.

Table 5. Estimations for Present Bias (β)

	Religiosity Scale (1)	Religiosity Self- express (2)	Belief (3)
Constant	0.779	0.786	0.749
Age	0.001 (0.810)	0.000 (0.829)	0.001 (0.811)
Gender	-0.033 (0.346)	-0.034 (0.340)	-0.029 (0.412)
Income	-0.009 (0.896)	-0.007 (0.913)	-0.013 (0.840)
Education	0.014 (0.416)	0.014 (0.427)	0.015 (0.404)
Religiosity Scale (1)	0.002 (0.861)		
Religiosity Self- express (2)		-0.001 (0.975)	
Belief (3)			0.022 (0.459)
N (Sample Size)	94	94	94
R-square	0.016	0.016	0.022

Note: p values are presented in parenthesis The marks (***), (**), (*) indicate 1%, 5% and 10% significance levels respectively.

Also, religiosity measurements which denote the subject's self-expressions are correlated with the scoring of religiosity scale which is calculated from religiosity items. (Pearson Correlation: 0.664) However, the difference is detected between average of self-expressions and average of religiosity scores. The people are tempted to define themselves lower religious than they are. The religiosity scores are higher than self-opinions. Therefore, we take subjects who define themselves as medium religious, as high religious. The God's belief is correlated with self-opinions, however none of them show us any significant relation between religiosity and present bias or impatience.

CONCLUSIONS

The direct impact of religiosity on present biased decisions is not revealed exactly. There are several scientific researches related to religiosity or present biased desires e.g. religion affects economic growth (Guiso, 2006). The religion teachings may influence agent's preferences, in this paper we discuss whether religiosity affects directly agent's inter-temporal choices and indirectly patience. The religion as a cultural component is an individual feature, hence it is possible to influence many individual attitudes by imposing several beliefs and thoughts on individual's mind. Religion may affect adherents and their behaviors which promote to them plan their future and be more patient. The religion is a phenomenon which continues to affect the people and their behaviors. Despite of many arguments, the existence and impact of religion on people are mystical. However, it is difficult to see purified impact from other drivers, which may affect individual attitudes like saving, investing or borrowing and communal issues.

We aim indicate a relationship between religion and present bias, our indirect target is to denote relationship between impatience and religion. Our results denote that there is no effect of religiosity on present bias or impatience. The coefficient estimates for religiosity measures are not statistically significant for impatience and time inconsistency. The independent variables could help illuminate behavioral attributes, however it is nearly impossible to detect all endogenous factors which lead to different individual's opinions. Firstly, we should know that causes which promote individuals to more be patient and forward looking. Also, the restrictions should be known which prevent to be patient and consistent e.g. income. The restrictions are substantial as well as the willingness to be patient and consistent more.

Determining an individual's present or future biased behaviors required broader sample size or to omit unobserved components in regression model. The broader sample size could help explain the power of endogenous components better. Also, there may be significant differences in impatience or present bias for religious and non-religious subjects as well as between explicit religious groups e.g. Christians, Jews or Muslims. The study which involves different religions and denominations may be explain results better. Also, the study which involves different nations may imply similar results.

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APPENDICES

Appendix A

Dear Respondent,

This survey is being implemented by Rahsan Ipek Cavusoglu as part of the master thesis at Bilgi University, Department of Financial Economic. The survey aims to elicit the relation between religiosity and present bias, indirectly impatience. The aim in this paper is elicit religiosity's impact on individual financial decisions which are required self-control.

The aim of the survey is to generate completely scientific results. Your responses will be keep private and not share with any institution.

Thank you for your participation.

Payment Offers

PART 1	TODAY	1 MONTH LATER
Option 1	Payment 75 TL	Payment 80 TL
Option 2	Payment 70 TL	Payment 80 TL
Option 3	Payment 65 TL	Payment 80 TL
Option 4	Payment 60 TL	Payment 80 TL
Option 5	Payment 50 TL	Payment 80 TL
Option 6	Payment 40 TL	Payment 80 TL
PART 2	TODAY	6 MONTHS LATER
Option 7	Payment 75 TL	Payment 80 TL
Option 8	Payment 70 TL	Payment 80 TL
Option 9	Payment 65 TL	Payment 80 TL
Option 10	Payment 60 TL	Payment 80 TL
Option 11	Payment 50 TL	Payment 80 TL
Option 12	Payment 40 TL	Payment 80 TL
Option 13	Payment 30 TL	Payment 80 TL
PART 3	6 MONTHS LATER	7 MONTHS LATER
Option 14	Payment 75 TL	Payment 80 TL
Option 15	Payment 70 TL	Payment 80 TL
Option 16	Payment 65 TL	Payment 80 TL
Option 17	Payment 60 TL	Payment 80 TL
Option 18	Payment 50 TL	Payment 80 TL
Option 19	Payment 40 TL	Payment 80 TL

Değerli Katılımcı,

Bu anket Rahşan İpek Çavuşođlu tarafından Bilgi Üniversitesi Finansal Ekonomi yüksek lisans bölümü tez çalışmasının bir parçası olarak yapılmaktadır. Anketin amacı dindarlık ile şimdiki ana yanlılık ve dolaylı olarak sabır ile ilişkisini ortaya çıkarmaktır. Dindarlığın irade oto-kontrol gerektiren bireysel iktisadi kararlar etkisini ortaya çıkarmak amaçlanmıştır.

Anketin amacı tamamen bilimsel sonuçlar üretmektir. Cevaplarınız gizli tutulacak ve herhangi bir kurumla paylaşılmayacaktır.

Katılımınız için teşekkür ederim.

Ödeme Teklifleri

1.Kısım	BUGÜN	1 AY SONRA
Seçenek 1	Ödeme 75 TL	Ödeme 80 TL
Seçenek 2	Ödeme 70 TL	Ödeme 80 TL
Seçenek 3	Ödeme 65 TL	Ödeme 80 TL
Seçenek 4	Ödeme 60 TL	Ödeme 80 TL
Seçenek 5	Ödeme 50 TL	Ödeme 80 TL
Seçenek 6	Ödeme 40 TL	Ödeme 80 TL
2. Kısım	BUGÜN	6 AY SONRA
Seçenek 7	Ödeme 75 TL	Ödeme 80 TL
Seçenek 8	Ödeme 70 TL	Ödeme 80 TL
Seçenek 9	Ödeme 65 TL	Ödeme 80 TL
Seçenek 10	Ödeme 60 TL	Ödeme 80 TL
Seçenek 11	Ödeme 50 TL	Ödeme 80 TL
Seçenek 12	Ödeme 40 TL	Ödeme 80 TL
Seçenek 13	Ödeme 30 TL	Ödeme 80 TL
3. Kısım	6 AY SONRA	7 AY SONRA
Seçenek 14	Ödeme 75 TL	Ödeme 80 TL
Seçenek 15	Ödeme 70 TL	Ödeme 80 TL
Seçenek 16	Ödeme 65 TL	Ödeme 80 TL
Seçenek 17	Ödeme 60 TL	Ödeme 80 TL
Seçenek 18	Ödeme 50 TL	Ödeme 80 TL
Seçenek 19	Ödeme 40 TL	Ödeme 80 TL

Appendix B

Religiosity Scale Questions

Positive Items

1. Allah exists really
2. The day of judgement exists really
3. Quran transmits Allah's command
4. I make every decision in daily life concerning the teachings of Quran
5. After life exists really
6. Allah summons everyone when the day of judgement comes
7. Religion is looking for beauty and truth
8. Heaven and hell exist really

Negative Items

1. The belief of worship is only psychological
2. Heaven and hell don't exist
3. Allah and Nature represent same meaning
4. I don't take care of religious matters
5. Even an atheist can be happy and peaceful in daily life
6. The religious matters never should be discussed

Dindarlık Ölçeđi Soruları

Olumlu Maddeler

1. Allah gerçekten mevcuttur
2. Kıyamet günü vardır
3. Kuran Allah'ın emirlerini iletir
4. Günlük hayatta her türlü kararımı Kuranda belirtilen esaslara göre veriririm
5. Ölümden sonar hayat vardır
6. Mahşer günü herkes Allah'a hesap verecektir
7. Din, gerçeđi ve güzelliđi aramadır
8. Cennet ve cehennem vardır

Olumsuz Maddeler

1. İbadetin faydası yalnız psikolojiktir
2. Cennet ve cehennem diye bir yer yoktur
3. Allah ve tabiat aynı manayı ifade eder
4. Dini konular ile ilgilenmem
5. Allah'a inanmayan bir insan bile günlük hayatta mutlu ve huzurlu bir insan olabilir
6. Dini konuları tartışmamak gerekir

Appendix C

Other Descriptive Questions

Age

Gender

Female

Male

Which of the below statement represents your level of economic power?

Extremely low

Low

Medium

High

Extremely high

Marital Status

Education Level (Considering Degree of Graduation)

Primary school

Secondary school

High school

Training school

University

Master

Doctorate

Are you student at current time?

Yes

No

Which of the below expression represents your belief concerning existence of the God?

I believe, that the God exist

I believe, that the God doesn't exist

I have doubt related to existence of the God

Are you member of any religion?

Yes

No

Which religion for you?

Which of the below expression represents your religiosity level?

I am not religious at all

Low level

Medium level

High level

Extremely high level

How much money do you accumulate on average within one month?

How much of your income do you accumulate?

Diđer Betimleyici Sorular

Yaşınız

Cinsiyetiniz

Kadın

Erkek

Aşağıdaki seçeneklerden hangisi ekonomik düzeyinizi en iyi ifade etmektedir?

Çok Düşük

Düşük

Orta

Yüksek

Çok Yüksek

Medeni Durumunuz

Eđitim Durumunuz (Mezuniyet Dereceniz)

İlkokul

Ortaokul

Lise

Yüksek Okul

Üniversite

Yüksek Lisans

Doktora

Okur Yazar

Halen öğrenci misiniz?

Evet

Hayır

Aşağıdakilerden hangisi Allah inancınıza en yakın ifadedir?

Allah'a inanıyorum

Allah'ın varlığı hususunda şüphelerim var

Allah'a inanmıyorum

Herhangi bir dine inanıyor musunuz?

Evet

Hayır

Hangi dine inandığınızı belirtiniz?

Kendinizi dindarlık düzeyi açısından nasıl değerlendiriyorsunuz?

Hiç dindar değilim

Biraz dindarım

Orta düzeyde dindarım

Dindarım

Çok dindarım

Ayda ortalama ne kadar tasarruf yaparsınız?

Gelirinizin yüzde kaçını tasarrufa ayırırsınız?