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**Examination of The Relationship Between Muslim Piety
Typologies and Altruism: An Ultimatum and Dictator
Game Application**

Müslüman Dindarlık Tipolojileri ile Diğerkâmlık Arası
İlişkinin İncelemesi: Ultimatom ve Diktatör Oyunu
Uygulaması

Video Link: <https://youtu.be/V5VgSNwCypo>



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Müslüman Dindarlık Tipolojileri ile Diğerkâmlık Arası İlişkilerin İncelemesi: Ültimatom ve Diktatör Oyunu Uygulaması

Öz

Batı kökenli iktisat teorisi Homo economicus birey varsayımını merkeze koyarak ilerlemiştir. Rasyonel bireyler fayda ve karlarını maksimize etmeye yönelik davranarak iktisadi kararlarını vermektedirler. Herkesin kendi çıkarını düşündüğü bir ekonomide dışsal müdahaleye gerek kalmadan iktisadi denge ortaya çıkmaktadır. Ancak İslamiyet insanlara iktisadi kararlarını verirken daha diğerkâm davranmalarını tavsiye etmektedir. Kuran-ı Kerim ve sünnete göre insanlar sadece kendi çıkarlarını değil çevrelerindeki insanları da düşünmeli, paylaşımcı olmalıdırlar. Bu durum ise İslam ekonomisi ile Batı kökenli iktisat teorilerinin aralarındaki temel farklardan birini ortaya çıkarmaktadır. Diğer yandan geleneksel dindarların iktisadi kararlarını verirken daha diğerkâm davranmaları beklentisi de ortaya çıkmaktadır. Davranışsal iktisat üzerine yapılan araştırmalar 1970'lerin sonundan itibaren artış kaydetmiştir. Ültimatom, Diktatör ve Kamu malı oyunları ile gerçekleştirilen akademik araştırmalar insanların karar verme süreçleri hakkında var olan belirsizliği ortadan kaldırmayı amaçlamaktadır. Bu tür oyunlar aynı zamanda insanların ne kadar paylaşımcı olduklarını da ortaya çıkarmak amacıyla akademik araştırmalarda kullanılmışlardır. Diğer bir deyişle bu oyunlar insanların diğerkâm davranıp davranmadıklarını araştırmıştır. Bu çalışmanın amacı insanların iktisadi kararlarının dindarlık tipolojilerine (geleneksel, seküler, popüler) göre farklılaşıp farklılaşmadığını incelemektir. Bu amaçla Türkiye'de bulunan insanlar üzerine 01.10.2020 ile 31.12.2020 tarihleri arasında internet üzerinden bir anket uygulanmıştır. Bu ankette ultimatom ve diktatör oyunları ile ilgili literatürde sorulan sorular kullanılmıştır. Bu anket sonuçlarına göre insanlar adil olmadığını düşündükleri teklifleri genelde reddetmekte, geleneksel dindarlar daha paylaşımcı davranmaktadırlar. Geleneksel dindarlar iktisadi kararlarını verirken daha diğerkâm davranmaktadırlar. Dindarlık tipolojileri ve İslamiyet'in insan davranışlarını etkilediği ortaya çıkmıştır. Bu sonuçlar Avrupa ve Müslüman topluluklarda verilen iktisadi kararların birbirinden farklı olabileceğini ortaya çıkarmaktadır. Buna ilaveten sonuçlar, dindarlık ve fedakârlık konularında yapılabilecek yeni çalışmalar için ilham vermektedir.

Anahtar Kelimeler: Diğerkâmlık, Bencillik, Davranışsal İktisat, Dindarlık Tipolojileri, Dindarlık, Ültimatom Oyunu, Diktatör Oyunu, Kamu Malı Oyunu



Examination of the Relationships between Muslim Piety Typologies and Altruism: An Ultimatum and Dictator Game Application

Abstract

The Western-based economic theory developed by putting Homo economicus individual assumption into the center of theory. Rational individuals make their economic decisions by acting to maximize their profits and utilities. In an economy in which everyone behaves according to their own interests, economic equilibrium arises without the need for external interventions. However, Islam advises people to behave more altruistic while making their economic decisions. According to Holy Qur'an and Sunnah, people should not only think about their own interests but also the interests of others in their environment. Because of this reason, one of the most important differences between Islamic economics and Western-based economic theories are revealed. On the other hand, there is an expectation that traditional piety people should behave more altruistic while making their economic decisions. Research on behavioral economics has increased since the end of the 1970s. Academic researches conducted with ultimatum, dictator and public goods game aim to eliminate the uncertainty about people's decision-making processes. Such games are also used in academic researches to reveal how they share their resources with others. In other words, these games query whether individuals are altruistic. The aim of this research is to examine whether people's economic decisions differ according to piety typologies (traditional, secular and popular). For that purpose, we conducted a survey on the internet between 10.01.2020 and 31.12.2020. In this survey, we used questions, which are asked in the literature about the ultimatum and dictator games. According to the results of this survey, it is revealed that people generally reject unfair offers and traditional pious people behave more altruistic. Traditional pious people are more altruistic in making their economic decisions. It is revealed that Piety typologies and Islam affect human behavior. These results show that economic decisions made in Europe and Muslim societies may differ from each other. In addition to this, results inspire new researches to be done on this subject.

Keywords: Altruism, Selfishness, Behavioral Economics, Piety typologies, Religiousness, Ultimatum Game, Dictator Game, Public Goods Game



Introduction

Religion and Culture are important factors, which affect individual decisions (Henrich, 2000; Oosterbek et.al, 2004; Chuah et.al. 2007; Anderson & Mellor, 2009; Grossman & Parrett, 2011). However, economic theory progressed by assuming that individuals are rational decision-makers. Economic theory has developed by considering an individual who wants to maximize his/her utility or profit (Eren, 2013, p.369). This assumption makes it easier to develop new mathematical models. New economic models, which neglect religion, have difficulty in explaining individual decisions in daily life. For instance, in Islamic societies generally, individuals behave like Homoislamicus instead of Homoeconomicus (Dilek et.al. 2017, p.635-642).

By the developments in experimental economics, some games such as ultimatum, dictator and public good games are used widespread in researches (Bornstein & Yaniv, 1998, p.101-102, Cameron, 1999, p.47-48, Rotemberg, 2008, p.457-476, Güney & Bahçekapılı, 2010, p.32, Güth & Kocher, 2014, p.396-397, Dilek & Kesgingöz, 2018, p.826). These researches show that decisions in economic transactions can be differentiated according to factors such as nationality, culture, gender etc. (Henrich, 2000, p.973, Saad & Gill, 2001, p.171, Chuah et.al. 2007, p.36, Chuah et.al.2009, p.742, Rotemberg, 2009, p.224). These games also show whether economic decisions are altruistic (Oosterbek, 2004, p.171). If decisions are given altruistic this is the opposite of economic theory assumptions (Dilek et.al. 2017, p.636). In the ultimatum game, a selfish allocator should propose minimum value to the recipient. In the dictator game, if the allocator is selfish he should give nothing to player 2. In other words, their decisions show how selfish they are. Oppositely, the altruistic individual will share more of the money with the responder in the ultimatum and the dictator game. The dictator game is an efficient game that shows the altruistic preferences of players (Fehr & Schmidt, 2006, p.638-639) and is well known for results that violate Homoeconomicus assumptions (Bekkers, 2007, p.139).

The decisions of individuals also change according to their characteristics, culture, piety etc. Piety is an important factor, which affects behaviours and decisions (Benjamin et.al. 2016, 634; Grossman and Parret, 2011). Traditional and secular pious individuals may behave differently while giving economic decisions. The main problem is how their decisions differ. If their decisions differ according to Muslim piety typologies these differences will be seen in the ultimatum and the dictator games. Shortly, this research will give an opportunity to see whether individual decisions differ according to Muslim piety typologies by using the ultimatum and dictator games. Do traditional pious individuals give altruistic decisions? Holy Quran and Sunnah advise Muslims to be altruistic. Giving zakat is one of the main conditions of Islam and this institution based on being altruistic (Habergetiren, 2015, p.218-220). According to Yahya ibn Adam, the government should give priority to the



public utility when individual and public utility conflicts (Kallek, 2015, p.107). Islamic economics states that individuals are not selfish in nature and generally make decisions by altruistic motives (Khan, 1987, p.18). In addition, there is growing literature that shows that religion can make people acts morally or prosocial (Norenzayan, 2014, p.380).

The research is set up to reveal differences in the decisions of traditional and secular pious individuals. In the first step ultimatum, dictator and public good games are introduced and literature reviewed about researches done by using these games. In the second step, information about typologies of piety is evaluated. At last, the results of the survey, which is conducted on Kastamonu University Economics Administrative Sciences and Theology Faculties, are interpreted and the relationship between piety typology and altruistic decisions tried to be revealed.

The Ultimatum Game and The Dictator Game

After the end of the 1970s, the Ultimatum game has been given attention by many scholars and researchers (Güth and Kocher, 2014, p.406). In the Ultimatum games, there are two players, which are proposer and responder. The game involves two players bargaining between proposer and responder. At first, a source is given to the proposer and asked to divide it between himself and the responder. Of course, proper has no idea about the identity of the responder. After the move of the proposer, the time comes to respond. Responder has two choices; he/she can accept or reject the offer of the proposer. If he/she accepts, he/she will earn the amount offered by the proposer. If he/she rejects, both players will have to leave the game without any gain (Thaler, 1988, p.195-196; Cameron, 1999, p.47; Wittmer & Al-Kazemi, 2012, p.293, Haurwitz et.al. 2016, p.1; Dilek & Kesgingöz, 2018, p.826-827; Yavuzarslan, 2018, p.225; Larney et.al. 2019, p.61; Algaier et.al. 2020, p.1; Demiral & Mollerstrom, 2020, p.341-342). It can be explained by a numerical example. For instance; 1000 TL is given to Mr Serkan and asked him to divide it between himself and the responder, Mr Şemsettin. Let Mr Serkan be offer 400 TL to Mr Şemsettin. This means that 600 TL is for himself. If Mr Şemsettin accepts the offer then they will leave game with the gain offered by Mr Serkan. If he rejects, both players will leave the game with zero gain.

The proposer should make decisions by thinking about two important points. At first, if he wants to earn the maximum amount he should offer the minimum amount to the proposer. Secondly, he knows that if he offers an unfair amount responder can reject his offer in anger (Rotemberg, 2008, p.457). Responder has two motivations –rationality and anger- in this game. If he moves by the motivation of rationality, he will accept even minimum offers. If he moves by the motivation of anger he can reject unfair offers to give harm to proposers even he earns nothing (Charness and Rabin, 2002,



Wittmer and Al-Kazemi, 2012, 303). The choice of responder depends on the fairness of the proposal. However, the fair proposes changes according to several factors such as culture. For instance, the fair propose in Machiguenga society differs from other societies (Henrich, 2000, p.978).

Generally, researches about ultimatum games show that factors such as gender, culture, stake size etc. affect the behaviours of players (Henrich, 2000; Saad and Gil, 2001; Oosterbek et.al, 2004; Chuah et.al. 2007, Solnick, 2001; Larney et.al. 2019). Thus Bornstein and Yaniv (1998, p.106-107) stated that group decisions differ from individual decisions in ultimatum games. It is thought that groups have understood the structure and strategies of the game better. This better understanding is thought to be the reason for the difference between individual and group decisions.

The ultimatum game is useful to reveal whether the proposer is altruistic (Grossman and Parrett, 2011, p.523). Saad and Gil (2001) stated that male proposers are more altruistic than females. However, Solnick (2001, p.199) found that lower proposes are given to female responders. Additionally, it is used to reveal responders are making decisions with anger or rationally. Oosterbeck et.al (2004, p.184) stated that Asian responders are more likely to reject proposes. Generally, the difference comes from the evaluation of fairness in different cultures (Chuah et.al. 2007, p.45). There is no consensus about the effect of stake size on proposer's behaviour in literature (Larney et.al. 2019, p.62).

In an ultimatum game researches it is found that proposers are ready to share 40%-50% of total money and responders are most likely to reject proposes less than 20% of offers (Dilek & Kesgingöz, 2018, p.827).

The dictator game is also a two-player game such as ultimatum game, but this time the responder has no right to accept or reject the offer. The proposer gives an offer to the responder about sharing the money (Cameron, 1999, p.58; Bekkers, 2007, p.139; Rotemberg, 2008, p.458; Yavuzarslan, 2018, p.225; Allgaier, 2020, p.1).

This game is very useful to measure the selfishness or altruism of the proposer (Rotemberg, 2008, p.471). Normally, rational proposers should give nothing to responders because there is no possibility to be punished for being selfish. However, academic researches show that proposers are ready to share a small amount of money with responders due to social reasons (Yavuzarslan, 2018, p.225). Gender (2019, Öneş, p.426), an education level (Bekkers, 2007, p.143) etc. are important factors affecting the behaviour of proposers in the dictator game.

Adult proposers share about 30% of their endowment in researches with dictator games and 40%-50% of their endowment in researches with ultimatum games (Allgaier, 2020, p.2). Shortly, proposers generally less of their endowment in dictator games according to ultimatum games. Results



of both ultimatum and dictator games confirm that individuals do not behave rationally but altruistic.

Piety and Selfishness In Islam

When we say piety, we mean a modern concept that is not independent of the definition of religion. In Ottoman Turkish, it was called as "tediyyün". It can be said that the actual value of piety is increased. The phrase "we want to raise a pious generation", pronounced in 2012 by Turkish policymakers has increased the number of studies on piety (Habertürk, 2012).

It is more appropriate to start thinking about piety from "thinking about religion." It is a more accurate way to search for the definition of piety based on the definition of religion. In modern times, Cürcânî's (d. 816/1413) definition of religion has become famous. According to Cürcânî, (1983, p.105) Religion is a divine law that invites individuals to accept those brought by Prophet Muhammad (PBUH). This definition is more related to the theoretical aspect of religion.

Positivism is a theory that developed in the early 20th century included a theoretical challenge to religion. Those who kept a distance from this theory mostly emphasized the introduction of religion and the struggle for persuasion. Nowadays, we cannot talk about fervent positivism. However, we can talk about a rapid change in the daily practice of religion. The problem of today is not the theoretical fortification of religion against atheist movements. The sensitivity to be aware of the rapid changes in daily life, including the values, is not easily understood. It is necessary to draw attention to the problem of understanding piety rather than the problem of understanding religion. The slogan of morality-centred piety appears to be an acceptable way of showing religiosity, which has an image problem, rather than contributing to the understanding of piety in the modern world. In order for piety to be understood, it must be understood that a divine limitation to individual in the form of what is commanded and prohibited. If we define piety as "the regular and qualified relationship based on sincerity established with Allah", we can contribute to its understandability. In this relationship with Allah, the fact that the norms determined by Allah have found a practical reflection in daily life has a central place. Piety is being a party to religion in general and roughly. Fulfilment of the requirements of the religion can be done with religiosity. We should not neglect the contemplation and moral dimension of religiosity. As Prophet Muhammad (PBUH) mention, "religion is sincerity" (Buhârî, 1987, s. "Îmân", 40; Müslim b. Haccâc, t.s., s. "Îmân", 95). There is no obstacle to understanding this hadith as "piety consists of sincerity." It can also be perceived as a struggle, a journey of perfection, a purification and purification movement of a person who has accepted a qualified relationship with Allah. Piety is an internal struggle rather than an external struggle. It is not an easy process for one to



restrain oneself. From this point of view, it can be easily understood that piety cannot be in harmony with selfishness. Pious people are people who make an effort to discipline their selfishness (Habergetiren, 2020, p.507; Dilek et.al. 2017, p.636).

It can be thought that selfishness corresponds to egoism in the sense of "one's interest only on himself, the desire to use everyone and everything he has a relationship with for his own benefit" (Hökelekli, 1995, p. 170), which is used as a moral and psychology term today.

There are many expressions in the Holy Quran which denounce selfishness. For example,

"Whenever they are asked: "Spend out of what Allah has given you." The disbelievers say to the believers: "Should we feed those whom Allah can feed Himself if He so chooses? You are quite obviously in error!" (Yasin, 36/47).

According to one view, the word "you are quite obviously in error" in the verse is a statement Allah made to the polytheists, disbelievers who refused to spend on others (İbn Kesîr, 1419, s. 6:580). Shortly, not giving others is condemned in Holy Quran. Stinginess behaviour is criticized in Holy Quran. The word şuh (شح) means not sharing with others, using all sources to his interest. Tâhir b. Âşûr defined this word as "The ambition to keep the goods with you to spend on the tastes of the world life" (İbn Âşûr, 1984, s. 27:400).

Stinginess is one of the behaviours criticized in the Holy Quran.

"nor those who, being stingy themselves, enjoin others to be stingy also. He that gives no heed should know that Allah is free of all needs, worthy of all praises." (Al Hadid, 57/24)

Prophet Muhammad (PBUH) stated in a hadith that stinginess is incompatible with his character (Müslim b. Haccâc, t.s., s. "Zekât", 127). Stinginess is one of the traits that the Messenger of Allah took refuge in. (Buhârî, 1987, p. "Cihâd", 27, 73; "Deavât", 35).

It is noteworthy in the following verse that breaking one's selfishness and stinginess is considered the key to happiness.

"Therefore, fear Allah as much as you can, listen to His message attentively, be obedient, and be charitable, this is for your own good. Those who are saved from the covetousness of their own souls, it is they who are truly successful" (At-Tagabun, 64/16).



The word Şuhh (شح) can be understood as selfishness and stinginess in a way that sends the person into haram. Tabari (d. 310/923) states in the interpretation of this verse that “those who can protect themselves from haram are those who survive from disaster” (et-Taberî, 2000, s. 23:287).

Cürcânî (d. 816/1413) describes Isâri as “preferring someone else's benefited and interests to his own benefit or protecting him from harm first” (Cürcânî, 1983, p. 40). “Altruism” is used in western countries and “gayriyye” is used in Arabic and “diğerkâmlık” or “özgecilik” are used in Turkish instead of İsar (Çağrııcı, 2000, s. 490).

According to the narration of Abu Hurayra (r.a.), A hungry man came to the Prophet Muhammad (PBUH). He sent news to his wives. There was information that they had nothing to offer but water in their house. He said, "Who will host this man in his house." One of the Ansar said, "I will host." When they got home, his wife told him, "We have nothing but little of the children with us." He said to his wife, who was from the Ansar, "prepare that meal, bring it on, turn on the light, and put your children to sleep." The woman also prepared her dinner, turned on the light, and put her children to sleep. Then he got up, pretended to fix the lamp and put it out. In this way, the husband and wife made them appear to be eating to the guest, and both went hungry overnight. When it happened, the owner of the house went to Hz.Prophet. When the Hz.Prophet saw him, he said: "Tonight, Allah laughed at you, liked your action and sent down verses." (Buhari, 1987, p. "Menâkübü'l-ensâr", 9) The verse that was sent down that night is as follows:

“A share of the spoils shall also be given to those who made their abode in Madinah (the Ansar) and believed even before the arrivals of the Muhajirin and love those who migrated to them and entertain no desire in their hearts for things given to them, and prefer those Muhajirin over themselves, even though they themselves are poor. In fact those who are saved from the greediness of hearts are the ones who will achieve true success”

As a result, being pious should be perceived as an ideal goal that requires the internal personal struggle, endeavour and effort in a programmable process that limits selfishness and does not accept its excessiveness. Sincere piety does not support selfishness. The specification of piety is related to the gains superimposed on the social life and relations with Allah by the individual who sets off with piety.

Authentic piety requires intention and effort. It deals with the fitting of some stones that contain questions and problems in our minds and hearts. Authentic piety is an inner journey. However, it also means that those who



have the same goals in this journey are in a voluntary solidarity mobilization.

According to Ghazali, individuals who do not live in a social environment that cannot develop their ability to believe are called unbelievers. These individuals live without reject every kind of religion and only care about their wants. Individuals who live in a social environment, which gives the opportunity to develop their ability to believe, are divided into levels. Some of them do not reject religion clearly and act like believers near Muslims. However, they do not accept religion when they are together with unbelievers. These are called as *munafiqun* (deceitful pretentious devout). Some others in society believe but are not serious in transforming his belief into behaviour. Lastly, others try to live their religion according to rules (Topuz, 2011, p.178-179).

Academic researches have concentrated on three types of piety typologies – traditional, secular, and popular-. According to traditional pious individuals, the orders and prohibitions of religion must be followed. They have an ultimately strong sensitivity to Halal and Haram. For those who are traditional pious even drinking alcohol or doing Haram just one time is a great disaster. The second typology is called as “secular piety”. Devotion to religion remains only a mental commitment. Belonging to religion does not turn into a lifestyle. Applying piety rules stay in second-order because of modern life. The sustainability of the modern lifestyle with piety concerns is an important problem of today (Kırıř, 2017, p.2457). Third, one is popular piety, which is located on an intersection set of traditional and secular piety. This typology shows itself in behaviours that do not depend on a religious base (Kırıř & Dilek, 2019, p.506-507).

In Muslim societies, states sometimes regulate markets with zakat and other institutions so that it encourages altruism (Sırım, 2019, p.127; Yiğitođlu & Göregen, 2018, p.247). Additionally, giving alms, zakat etc. are widespread in Muslim societies and dervish lodges (Maden, 2012, p.58).

Method

We conducted whether Muslim piety typologies affect the altruistic behaviour of individuals. To achieve this goal we surveyed 689 individuals. Thirty nine surveys are eliminated due to missing information. Totally, we care about 650 surveys. According to Küçük (2016:95), 384 samples are required for a population of 1 million in 95% confidence level. A Simple random sampling technique is used in our research. Our research is limited with Turkish Muslim citizens above 18 years old. Data was collected from 01.10.2020 and 31.12.2020 using a questionnaire conducted on the internet because of Covid19 pandemic. In the first part of the questionnaire demographic questions such as age, gender etc. is asked to participants. We asked questions to determine the Muslim piety typologies of participants in



the second part. Questions from the research Kırış and Dilek (2019) are used in the second part. In the last part, we asked questions due to ultimatum and dictator game. These questions are classical questions of the ultimatum and the dictator games (Allgaier et.al. 2020; Bekkers, 2007; Dilek & Kesgingöz, 2018; Bornstein & Yaniv, 1998; Chuah et.al, 2009; Demiral & Mollerstrom, 2020; Larney et.al. 2019, Yavuzaslan, 2018).

Findings

Demographic results about the survey are given in Table 1. 61.2% of participants are between 18 and 35 years old. Male and Female participants are close to each other, 51.2% of participants are male. Minimum wage determined by Turkish government is 2324 TL for 2020. 58% of participants have household income 2501-6000 TL in a month. This is consistent with Turkstat, which shows that GDP per capita in 2019 is 52.316 TL in a year and 4359 TL in a month (Turkstat, 2020). Participants generally have Bachelor (46.2%) and Lycee (36.2%) degree. Most of participants live in Marmara (28.8%) and Black Sea Region (25.1%). 28.3% of participants have families with four members while 25.1% of them have families with three members. 62.3% of participants live in provincial centre.

Table 1. Demographic Results

Age	Frequency	Percent	Gender	Frequency	Percent
18-25	208	32	Male	333	51.2
26-35	190	29.2	Female	317	48.8
36-45	145	22.3	Total	650	100
46-55	76	11.7	Education	Frequency	Percent
56+	31	4.8	Primary	49	7.5
Total	650	100	Lycee	235	36.2
Income	Frequency	Percent	Bachelor	300	46.2
0-2500 TL	100	15.4	Post Grad	66	10.2
2501-4000 TL	178	27.4	Total	650	100
4001-6000 TL	199	30.6	Member of Family	Frequency	Percent
6001-8000 TL	95	14.6	1-2	95	14.6
8001 TL+	78	12.0	3	163	25.1
Total	650	100	4	184	28.3
Region	Frequency	Percent	5	113	17.4
Marmara	187	28.8	6+	95	14.6
Aegean	69	10.6	Total	650	100
Mediterranean	61	9.4	Location	Frequency	Percent
Black Sea	163	25.1	Village	92	14.2
Middle Anatolia	106	16.3	District centre	153	23.5
East- Southeast Anatolia	64	9.8	Provincial centre	405	62.3
Total	650	100	Total	650	100

In the second part, we used questions in Kırış & Dilek (2019). Skewness and Kurtosis scores of these questions are given in Table 2. As it can be seen in



Table 2, Skewness and Kurtosis scores are between -1.5 and +1.5 so parametric tests can be used (Tabachnick & Fidell, 2013). Cronbach Alfa coefficient shows that data is reliable (0.876).

Table 2. Questions About Piety typologies

	Mean	Skewness	Kurtosis
T1: Religion is the search for truth and beauty	3.92	-0.966	-0.270
T2: There is life after death	4.00	-1.031	-0.236
T3: In Daily life, I make all my decisions according to principles stated in Holy Quran.	3.36	-0.344	-0.575
T4: The most important criterion of piety is to obey all orders and prohibitions of religion	3.57	-0.533	-0.879
T5: The main rule in religion is to work for the hereafter not for this world	3.38	-0.336	-1.216
T6: I think the religion of Islam gives a purpose and meaning to my life	3.91	-0.936	-0.395
T7: I think that the normalization of non-observance of religious rules in society reduces piety.	3.51	-0.477	-0.886
T8: I think it is also piety to show respect to Muslim saints who lived in the past.	3.50	-0.522	-0.694
T9: I can say that I consider myself a good Muslim.	3.27	-0.292	-0.466
T10: I think that piety cannot exist without a life and worship within the "lawful framework" accepted by religion.	3.44	-0.489	-0.808
T11: As a society, I think we are increasingly disconnected from religion.	3.47	-0.485	-0.805
T12: I want to establish a religious family and train pious children.	3.74	-0.738	-0.665
S1: Even a person who does not believe in God can be a happy and peaceful person in daily life.	2.81	-0.011	-1.110
S2: God and nature express the same meaning.	2.82	-0.058	-1.013
S3: The benefit of worship is only psychological	2.65	-0.238	-1.074
S4: Being righteous and honest is a worship just like pray	3.44	-0.474	-1.055
S5: Working and helping people is also a form of worship.	3.75	-0.810	-0.534
S6: The way to gain Allah's approval is through loving people.	3.62	-0.734	-0.428
S7: A person can be pious even without wearing the hijab.	3.02	-0.132	-0.966
S8: The basic condition of being pious is to lead a moral life rather than fulfilling prayers.	2.99	-0.089	-1.079
S9: If it does not change the person's behaviour in a positive way, worshipping has no value.	3.27	-0.330	-0.908
S10: Due to today's conditions, savings can be valued at interest	2.53	-0.306	-1.116
S11: A person who does not do things for the benefit of humanity in the worldly life cannot be regarded as a pious even if he performs prayers	2.93	-0.003	-0.872
S12: People who do not abide by religious rules in dressing and interacting with the opposite sex may be more moral, affectionate and humane than those who follow religious rules in such matters.	2.79	-0.032	-1.051
S13: A form of piety in which only worship and halal-haram sensitivity are based is formalism. I think piety that should be is not to lie, not to steal, not to be addicted to drugs	3.05	-0.038	-1.039
S14: I respect that the veiling condition is not used in the	2.87	-0.040	-1.056



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selection of a spouse, and I think that I represent Islam better with this attitude.			
S15: I want my father to buy a gift for my mother on Valentine's day.	2.68	-0.157	-1.117
S16: Two lovers embracing each other in public transport is a private life, I do not feel uncomfortable.	2.49	-0.362	-1.242
S17: Before mother and father say, "be obedient" to their children; He has to be a good mother and father who understand his children.	3.65	-0.670	-0.707
P1: One of the important criteria of piety is to perform religious activities such as mawlid, hatim and similar activities on special days and nights.	3.03	-0.027	-0.933
P2: I believe that the water that has been read by the Qur'an will be healing.	3.16	-0.158	-1.004
P3: I look for a suitable mosque to perform the tarawih prayer and have a peaceful time on the night of Qadr.	3.18	-0.126	-0.999
P4: I consider visiting places such as Hazreti Pir Tomb / Mevlana Tomb / Eyüp Sultan Tomb as a necessity of my piety	2.95	0.076	-0.934
P5: I think it is also piety to take the flag and run to the square of democracy every 15 July, because if our homeland was lost, we could not live our religion.	3.22	-0.203	-1.069

At first, we conducted Exploratory Factor Analysis (EFA). It is seen that data is adequate for factor analysis due to Kaiser-Meyer-Olkin (KMO) score (0.941) and Bartlett's test of Sphericity score (chisquare:15612,708; df:406; sig:0.000). The minimum acceptable value of KMO is 0.50 and the value of Bartlett test should be less or equal to 0.005. S2, S5, S6, S15 and S16 items are eliminated because of Exploratory Factor Analysis (EFA). Principal Component Analysis with Quartimax rotation indicated three main factors, which explained 65.075% of the total variance and have eigenvalues bigger than one. The first factor explained 37.844% of the total variance while the second explained 18.804% of the total variance and the third explained 8.426% of the total variance. The Scree plot is shown in Graph 1 and the Rotated Component matrix is shown in Table 3. The three factors are named as Traditional piety, Secular piety and Popular piety.



Graph 1. Scree Plot

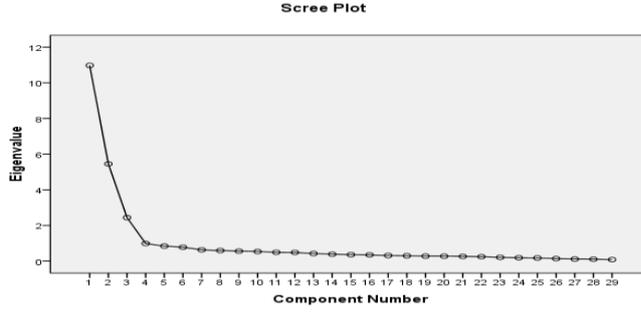


Table 3. Rotated Component Matrix

	Component		
	1	2	3
T6	,933		
T12	,929		
T2	,891		
T1	,886		
T8	,842		
T4	,838		
T3	,793		
T11	,792		
T7	,760		
T10	,739		
T9	,713		
T5	,608		
S14		,788	
S13		,736	
S4		,727	
S7		,721	
S8		,721	
S9		,697	
S17	,328	,695	
S3	,364	,680	
S12		,679	
S10	-,425	,649	
S1		,648	
S11		,629	
P4	,315		,858
P1	,395		,809
P2	,469		,750
P3	,479		,721
P5	,424		,709

We can calculate the AVE (Average Variance Extracted) and the CR (Construct Reliability) results to test component validity and reliability. The



results for Traditional Piety Factor (AVE:0.6651, CR:0.9592), Secular piety Factor (AVE:0.4831, CR:0.9194) and Popular Piety Factor (AVE:0.5951, CR:0.8796) are calculated. The AVE values for Traditional Piety and Popular Piety are bigger than 0.50 while the AVE value for Secular is a little bit smaller than 0.50. All of the CR values are bigger than 0.60 and the AVE values. Therefore, it can be said that component validity and reliability is provided.

Results about the ultimatum game question are given in Table 4. Approximately half of the participants (45.8%) offer 500 TL to second player (responders). This is too fair behaviour for proposers. The average proposal is 417.83 TL and this confirms that participants are altruistic instead of selfish. Also in Table 4, Averages of Traditional, Secular and Popular Piety are given. According to these results, it can be seen that as traditional piety increase, offers of proposers increase. Another result shows that there is a negative relationship between offers and secular piety.

Table 4. Results of Ultimatum Game Questions

Offer	F	%	Av.Tr	Av.Sec.	Av.Pop
100 TL	110	16.9	2.51	3.68	2.43
200 TL	36	5.5	3.21	3.33	2.64
300 TL	48	7.4	3.45	3.13	3.09
400 TL	67	10.3	3.76	2.81	3.44
500 TL	298	45.8	3.88	2.79	3.32
600 TL	44	6.8	4.03	2.78	3.14
700 TL	23	3.5	4.04	2.71	3.18
800 TL	16	2.5	4.11	2.96	3.28
900 TL	4	0.6	4.13	2.79	3.05
1000 TL	4	0.6	4.02	2.75	3.70

Additionally, we used One Way Anova test to search whether there is a difference between Traditional piety scores between selfish and altruistic participants. To do this, we evaluated participants who propose 0, 100 and 200 TL as selfish because Heinrich (2000, p.974) stated that in ultimatum games responders generally reject proposes less than 20%. We evaluated participants who propose 300, 400 and 500 TL as fair and others (more than 500 TL) as altruistic. According to One Way Anova test, there is a significant difference between these groups (F:93.148, sig:0.000). Tamhane's test is preferred to reveal which groups differ because of Levene test results (Levene: 6.369 and Sig:0.002). According to Tamhane's test, there are differences in averages of i) selfish and fair (sig:0.000), ii) selfish and altruistic (sig:0.000), iii) fair and altruistic (sig:0.000). (Averages. Selfish:2.69,



fair:3.81, altruistic:4.05). Shortly, Selfish participants are less traditional pious and altruistic individuals are more traditional pious.

One Way Anova is also used to reveal whether there is a difference between Secular piety scores between selfish and altruistic participants. Results confirm the difference between groups (F:49.054, sig:0.000). Levene test courage us to use Tamhane’s test (Levene:4.907, sig:0.008). Tamhane’s test shows that there is a difference between i)selfish and fair (sig:0.000), ii)selfish and altruistic individuals (sig:0.000). (Averages. Selfish:3.59, Fair:2.84, Altruistic:2.80). Therefore, selfish participants are more secular piety than fair and altruistic individuals.

Thirdly, we used One Way Anova to reveal whether there is a difference between Popular Piety scores between selfish and altruistic participants. Test results show that there is a difference between groups (F:28.197, sig:0.000). This time we used the Tukey HSD test due to Levene statistics (Levene:0.600, sig:0.549). There exists a difference between i)selfish and fair (sig:0.000), ii)selfish and altruistic individuals (sig:0.000). (Averages. Selfish:2.52, Fair:3.30, Altruistic:3.20). These results show that selfish individuals are less likely to be popular pious than other groups.

Table 5. Correlation Matrix (Ultimatum Game).

	UOf	TP	SP	PP
UOf	1	0.469** 0.000	-0.339** 0.000	0.253** 0.000
TP	0.469** 0.000	1	-0.197** 0.000	0.546** 0.000
SP	-0.339** 0.000	-0.197** 0.000	1	-0.232** 0.000
PP	0.253** 0.000	0.546** 0.000	-0.232** 0.000	1

To investigate the relationship between Piety typologies and offers in the ultimatum game we used correlation analysis. The results of correlation analysis are shared in Table 5. TP denotes Traditional Piety, SP denotes Secular Piety and PP denotes Popular Piety while UOF denotes offers. It is seen that UOF and TP as well as UOF and PP are positively correlated at a 1% level. In addition, UOF and SP are negatively correlated at a 1% level. Correlation coefficient between UOF and TP is between 0.40 and 0.60 (0.469) so there is a relationship between UOF and TP (Küçük, 2016, p.250). The correlation coefficients between UOF and SP, UOF and PP are between 0.20 and 0.40 so relationships between them are weak (Küçük, 2016, p.250). Thus, the correlation coefficient between TP and PP is 0.546, which shows that there is a relationship between traditional and popular piety.



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In addition, the result of the dictator game question is given in Table 6. In the ultimatum game, nobody proposes zero TL to the second player (responder). However, in the dictator game, 85 players propose zero TL to responders. In addition, the average mean for propose is lower than ultimatum game. The average proposal for the dictator game is 338 TL. In Table 6, Averages of Traditional, Secular and Popular Piety are shared. The results show that as Traditional piety increase, offers of proposers increase. Secondly, as Secular piety increase, offers of proposers decrease.

Table 6. Results of Dictator Game Questions

1000 TL was given to you. You are asked to share this with the second player. You will offer some of the money to the second player. Responder (second player) has no right to accept or reject.					
Offer	F	%	Av.Tr	Av.Sec.	Av.Pop
0 TL	85	13.1	2.81	3.54	2.55
100 TL	93	14.3	2.94	3.39	2.82
200 TL	48	7.4	3.47	3.35	2.75
300 TL	55	8.5	3.71	2.96	3.30
400 TL	78	12.0	3.75	2.87	3.07
500 TL	247	38.0	3.97	2.78	3.37
600 TL	25	3.8	4.01	2.28	3.73
700 TL	10	1.5	4.02	2.05	3.32
800 TL	7	1.1	4.32	2.04	3.60
900 TL	-	-	-	-	-
1000 TL	2	0.3	3.13	4.04	2.80

We also used the One Way Anova test to reveal whether there is any difference between Traditional piety scores between selfish and altruistic participants. One-Way Anova test reveals that there are differences between groups (F:67.029, sig:0.000). Levene test results encourage us to use Tamhane's test (Levene:15.212, sig:0.000). As a result of Tamhane's test it is concluded that i) selfish and fair (sig:0.000), ii) selfish and altruistic (sig:0.000) (Averages. Selfish:3.00, fair:3.89, altruistic:4.02). Shortly, selfish participants are less traditional pious and altruistic individuals are more traditional pious.

One Way Anova test is also used to query whether there is any difference between Secular piety scores between selfish and altruistic participants. The difference is observed because of One Way Anova (F:60.295, sig:0.000). We used the Tukey HSD test due to the results of the Levene test (Levene:0.105, sig:0.901). We reached that i) selfish and fair (sig:0.000), ii) selfish and altruistic (sig:0.000) iii) fair and altruistic (Averages. Selfish:3.44, fair:2.83, altruistic:2.27). In other words, selfish individuals are more secular pious while altruistic individuals are less secular.

Popular Piety and selfishness is also searched by One Way Anova. The difference between selfish, fair and altruistic individuals is observed (F:25.802, sig:0.000). Tamhane's test is preferred because of Levene statistics



(Levene:4.769, sig:0.009). It is concluded that i) selfish and fair (sig:0.000), ii) selfish and altruistic (sig:0.000) (Averages. Selfish:2.70, fair:3.30, altruistic:3.57). It can be said that selfish individuals are less popular pious and altruistic individuals are more popular pious.

Table 7. Correlation Matrix (Dictator Game).

	DOF	TP	SP	PP
DOF	1	0.423** 0.000	-0.384** 0.000	0.266** 0.000
TP	0.423** 0.000	1	-0.197** 0.000	0.546** 0.000
SP	-0.384** 0.000	-0.197** 0.000	1	-0.232** 0.000
PP	0.266** 0.000	0.546** 0.000	-0.232** 0.000	1

Correlation analysis is used to search the relationship between Piety typologies and offers in the dictator game. The results are given in Table 7. We concluded that DOF and TP, DOF and PP are positively correlated at 1% level while DOF and SP are negatively correlated at 1% level. The correlation coefficient between DOF and TP is between 0.40 and 0.60 (0.423) so there is a relationship between DOF and TP (Küçük, 2016, p.250). Correlation coefficients between DOF and SP, DOF and PP are between 0.20 and 0.40 so relationships between them are weak (Küçük, 2016, p.250).

Table 8. Response to Propose

First player takes 1000 TL and propose to give only 100 TL of it to you. Do you accept?				
	Accept	Reject	Total	Acceptance Rate
TP bigger than 3.67	170	240	410	41.46
SP bigger than 3.67	97	81	178	54.49
PP bigger than 3.67	88	126	214	41.12

According to Küçük (2016, p.239), values higher than 3.67 can be evaluated as high in the Five Likert Scale. Therefore, we analysed higher scores of TP, SP and PP. The question asks what you will do if the first player only proposes a small part of the money to you. You have two options. At first, you can think that 100 TL is better than zero TL and accept this proposal. This is the behaviour of *Homoeconomicus* individual. Secondly, you can feel anger at the first player and reject his proposer. Perhaps you will take zero TL, but you will take revenge on the first player. From Table 3.67, it is seen that approximately 41% of Traditional and Popular pious individuals accept. Most of them reject so that they do not behave as *Homoeconomicus*. However, 54.49 of Secular pious individuals accept the proposal. In other words,



secular pious individuals are more likely to behave as *Homoeconomicus* individuals.

Conclusion

According to Islamic rules, (Sharia) people should make all decisions by considering not himself/herself but all of society. However, western-based economic theory has developed by assuming *Homoeconomicus* individuals who care only his/her interest and make selfish decisions. It can be said that there is a conflict between Islam and economic theory.

In this research, we investigate Muslim piety typologies and economic decisions by using ultimatum and dictator game questions. The average proposes are 417.83 TL in the ultimatum game and 338 TL in the dictator game, which confirms previous researches showing that people are not always selfish. We reached pieces of evidence that traditional pious individuals make more altruistic decisions than secular pious individuals. In ultimatum and dictator games, as traditional piety scores increase, their offers increase. Traditional piety scores of the individuals who propose 100 TL to responders start with only 2.51 and it increases until 4.02 as traditional piety scores increase (Table 4). In addition to this, as secular piety scores decrease, their offers decrease. We found a relationship between proposals and traditional piety scores in correlation analysis (Correlation coefficient in the ultimatum game:0.469, in the dictator game:0.423). Proposals and secular piety scores are negatively correlated at a 1% level (correlation coefficient in the ultimatum game: -0.339, in the dictator game:-0.384). Thus, proposals and popular piety scores are positively correlated at a 1% level (correlation coefficient in the ultimatum game: 0.253, in the dictator game:0.266). In the ultimatum and dictator games, Traditional piety scores of altruistic individuals are higher than traditional piety scores of selfish individuals (sig:0.000). Secular piety scores of altruistic individuals are lower than secular piety scores of selfish individuals in both games (sig:0.000). In other words, secular pious individuals behave more selfish rather than traditional and popular pious. Also, traditional pious individuals make more altruistic decisions according to secular pious.

In addition, secular pious individuals are more likely to reject unfair proposals while traditional and popular pious individuals are less likely to accept. Traditional pious individuals accept only 41.46% of unfair proposals while secular pious individuals accept 54.49% of unfair proposals. This result confirms that secular pious individuals are not making their decisions with anger to unfair choices of proposers but they make rational decisions. Secondly, results show that traditional pious individuals are more likely to reject unfair proposals.



Shortly, as traditional piety increase, individuals make more altruistic decisions. However, this research is limited to Turkish citizens and a survey is conducted on internet by using survey forms due to Covid19 pandemic limitations. New researches should be conducted by face-to-face interviews. In addition, it can be conducted in other societies than Turkish Muslim society. New researches could investigate the factors affecting altruistic decisions.

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