ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF ARTS AND SOCIAL SCIENCES

THE EFFECT OF FRAMING ON SUPPORT FOR RENEWABLE ENERGY IN TURKEY

M.A. THESIS

Elif AKGÜN

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ SOSYAL BİLİMLER ENSTİTÜSÜ

TÜRKİYE'DE YENİLENEBİLİR ENERJİYİ DESTEKLEMEDE ÇERÇEVELEMENİN ETKİSİ

YÜKSEK LİSANS TEZİ

Elif AKGÜN
(412151002)

Ekonomi Anabilim Dalı

Ekonomi Yüksek Lisans Programı

Tez Danışmanı: Dr. Öğr. Üy. Christopher Michael HANNUM

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Elif AKGÜN, a M.A. student of ITU Graduate School of Arts and Social Sciences student ID 412151002, successfully defended the thesis entitled "THE EFFECT OF FRAMING ON SUPPORT FOR RENEWABLE ENERGY IN TURKEY", which she prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

Thesis Advisor : **Assist. Prof. Dr. Christopher Michael HANNUM** .....
Istanbul Technical University

Jury Members : **Assist. Prof. Dr. Mete Han Yağmur** .....
İstanbul Technical University

Assist. Prof. Dr. Metin Pişkin .....
İstanbul Sabahattin Zaim University

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To my father,

FOREWORD

If I were to thank everyone who contributed to me during this study, I would have needed many pages.

First of all, I would like to thank Asst. Prof. Dr. Christopher Hannum for his invaluable contributions, continous support and most of all for being very understanding. If it were not him, I would have been lost in this thesis study. Then, I would like to thank Prof. Dr. Devrim Dumludağ for advising me.

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April 2019

Elif AKGÜN
(Research Assistant)

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ABBREVIATIONS

MFT	**:** Moral Foundations Theory
OWF	**:** Offshore Wind Farms
PCA	**:** Principal Component Analysis
NIMBY	**:** Not in my Backyard Hypothesis
KMO	**:** Kaiser-Meyer-Olkin Measure
OLM	**:** Ordered Logit Model
OLS	**:** Ordinary Least Squares

SYMBOLS

α	**:** Cronbach's Alpha Reliability Coefficient
K	**:** Number of items included in the reliability analysis
σ^2	**:** Variance
Φ	**:** Factor Correlation Matrix
N	**:** Number of items included in the factor analysis
$\mathbf{F}$	**:** Factor Score Matrix
Λ	**:** Transformation Matrix and Logistic Distribution Function
$\mathbf{A}_{\text{unrotated, rotated}}$	**:** Unrotated and Rotated Factor Loading Matrix
r_{ij}^2	: The square of the observed correlations between variables i and j
a_{ij}^2	: The partial correlations between variables i and j
y^*	: The latent variable in OLM
J	: Number of possible ratings for the dependent variable in OLM
α_j	: Cutpoints or thresholds in OLM
e	: Error term
J	: Number of possible ratings for the dependent variable in OLM
βi	: Regression parameters
G_i, P_i, I_i	**:** Variables gender, place, income for individual *i* (respectively)
PV_i	**:** Political view of individual *i*
CC_i, IC_i, BC_i	**:** Control, individualizing and binding condition (respectively)
PEG_i	**:** Prioritizing economic growth
VC_i	**:** Visual concerns
E_i	: Expectations from OWFs
W_i	: Willingness to bear personal costs to solve environmental problems
Con_i	: Concerns regarding environment and limited natural resources

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THE EFFECT OF FRAMING ON SUPPORT FOR RENEWABLE ENERGY IN TURKEY

SUMMARY

When social planners desire to lead people's perceptions and attitudes for a given subject, they use framing techniques. The existence of framing effect on a given subject implies that decisions are description-dependent. That is, unlike classical economy suggests, economic agents are not rational while making decisions.

Framing is becoming more and more important when there is a division of ideas over a subject or when the targeted population are divided in terms of moral and political values they hold such as environmentalism in United States. On the one hand, political liberals support environmental actions, while on the other, political conservatives neglect the reality of climate change even though its severe effects can directly be felt.

In this study we examined whether framing effects exist in the context of renewable energy in Turkey. Framings were applied on an intended offshore wind farm (OWF) project and they are drawn in line with the assertions of Moral Foundation Theory (MFT).

MFT comes up with five different universally shared moral foundations which are harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect and purity/sanctity. The first two foundations mainly focus on individualistic structure of people. Thus, they named as individualizing foundations, the latter three foundations mainly serve to bind group members together. Thus, they named as binding foundations. MFT asserts that, in the first draft of the brain-the brain of a newborn child-, these five foundations equally take place and as the child grows up, depending on culture, family, education, neighborhood etc. some of these foundations become more dominant. Even though the main purpose of MFT was to explain moral differences across cultures not individuals or political views, some studies found that MFT can also distinguish the right and left political view in United States. Among five different moral foundations, liberals construct their moral systems upon harm/care and fairness/reciprocity, whereas political conservatives construct their moral systems upon the same ones as political liberals plus ingroup/loyalty, authority/respect and purity/sanctity, where the latter three foundations are more dominant.

The aim of this study is to examine whether congruency of moral framing of renewable energy and political view have a significant effect on support for OWF projects. Framing conditions are built in line with the assertions of the MFT. To this end, we designed a survey with three different framing conditions; the individualizing condition appeals to the values associated with political liberals in United States, the binding condition appeals to the values associated with political conservatives in the United States, and the control condition lacks any manipulation or targeting.

Surveys were taken by 470 students. Each respondent was randomly given with one of the three framing conditions. After reading the framing passage they were asked 16 questions which aim to grasp the reasons for support or oppose OWFs. In the

demographic part of the survey their gender, income, place they grew up and political orientation were asked.

To analyze the survey data, we performed factor analysis for the abovementioned 16 question. But we excluded two of them from the factor analysis. Because, two of the questions, "I think Turkey should build OWFs" and "I think Turkey should not build OWFs", were intended to measure whether respondents answered the questions carefully. We utilized Principal Component Analysis (PCA) as the extraction method. PCA yielded five components. We named those components as "willingness to bear personal costs to solve environmental problems", "expectations from OWFs", "concerns regarding environment and limited natural resources", "visual concerns", and "prioritizing economic growth". Afterwards, we run ordered logistic regression to analyze the data. In the models we constructed, support OWF project was the dependent variable, the above-mentioned factors, demographic variables, framing conditions as dummy variables and the interactions of framing conditions with political view were independent variables.

We concluded that regardless of the reference category chosen for framing condition, there is no evidence of framing effect on support for OWFs. This implies that, framing a policy in line with the assertions of MFT does not generate a significant difference in people's support for OWFs. From our perspective, the reason for the moral framing not being effective could be explained in three dimensions. One, the people's pre-knowledge about renewable energy bind their view and protect them from framing manipulations. Two, the political liberals and conservatives are different in Turkey in comparison with the way they are in United States. Harm/care and fairness/reciprocity might appeal to political liberals in United States but not in Turkey. The same logic follows for political conservatives. Three, environmentalism is not a debatable topic in Turkey as much as it is in United States. People from different political orientation have different motivations to support environmentally friendly actions in Turkey therefore there is no need to frame renewable energy in Turkey.

Our findings for demographic variables are as follows: Among demographic variables, only gender has a statistically significant positive coefficient, which means that males compared to females are more likely to support OWF project. Place participants grew up such as village, city and big city and income yielded to statistically insignificant results.

Furthermore, the results show that, all extracted factors have statistically significant impact on support OWF. Variables prioritizing economic growth, expectations from OWFs, willingness to bear personal costs to solve environmental problems positively affect OWF project, while variables visual concerns and concerns regarding environment and limited natural resources negatively affect support OWF project.

TÜRKİYE'DE YENİLENEBİLİR ENERJİYİ DESTEKLEMEDE ÇERÇEVELEMENİN ETKİSİ

ÖZET

En genel anlamıyla insanların kararlarını etkileyebilmek amacıyla belirli bir konunun sunuluş şeklinin değiştirilmesi anlamına gelen çerçeveleme, son dönemlerde iktisat içerisinde önemini arttırmıştır. Çerçeveleme etkisinin varlığının tespit edilmesiyle beraber, klasik iktisatta yer alan iktisadi karar alıcıların rasyonel olduğu varsayımının gerçeklikten uzak bir varsayım olduğu anlaşılmıştır. Çünkü, rasyonalite varsayımının bileşenlerinden biri olan kişilerin kararlarında tutarlı olması özelliği çerçeveleme etkisinin varlığıyla ihlal edilmiştir.

Çerçeveleme özellikle hedef topluluk fikir, politik görüş ve ahlaki değerler açısından ayrışmış olduğu zaman daha etkin bir şekilde çalışır. Bunun en belirgin örneklerinden birisi Amerika'daki çevreci harekette sağ ve sol politik görüşteki insanların ayrışmasıdır. Sağcılar çevreciliğin gereksiz bir hareket olduğunu ve iklim değişikliğinin gerçek olmadığını düşünürken, solcular ise iklim değişikliğiyle mücadele edebilmek amacıyla çevreci hareketlere katılmaktadır. Çevreci hareketlerde çerçevelemenin etkisini incelemek amacıyla yapılan ampirik çalışmalar, çevreciliğin sağcılar tarafından desteklenmemesinin sebebi olarak sunuluş şeklinin solcuların ahlaki değerleriyle örtüştüğünü ve sağcıların ahlaki değerleriyle örtüşmediğini bulmuşlardır.

Bu çalışmada amaç, çerçeveleme etkisinin Türkiye'de yenilenebilir enerji bağlamında var olup olmadığını test etmektir. Çerçevelemenin konusu inşa edilmesi planlanan deniz üstü rüzgar santrali projesidir. Çerçeveleme koşulları ise Ahlaki Temeller Teorisinin varsayımlarına uygun olarak türetilmiştir.

Ahlaki Temeller Teorisi'ne göre insanların yapısını belirleyen beş temel değer vardır. Bunlar sırasıyla zarar/bakım, adillik/hilekarlık, sadakat/ihanet, otorite/yıkım, kutsallık/yozlaşma değerleridir. Zarar/bakım temelinin evrimsel kökeni savunmasız bebeklere sahip çıkma güdüsüdür. Bu ahlaki değer insanların acı çeken insanlarla ilgilenmelerini ve acımasız davranışlardan nefret etmelerini sağlar. Adillik/hilekarlık karşılıklı çıkarlar doğrultusunda ikili ilişkilerde kişilerin birbirlerini istismar etmeden adil bir iş birliği içerisinde birbirlerini aldatmaya çalışmadan bir arada kalmalarını sağlar. Bu iki değer, kişilik haklarına öncelik verdiğinden dolayı bireyselleştirici ilkeler olarak tanımlanmaktadırlar. Sadakat/ihanet temeli, kişilerin aynı grup içerisinde yer almalarına vurgu yaparak, grup üyelerini ödüllendirme ve gruba ihanet edenleri cezalardırma şeklinde çalışır. Evrimsel açıdan temelini ise gruba sadık kalmanın grubun hayatta kalma olasılığını artırması oluşturur. Otorite/yıkım temeli, sosyal hiyerarşi içerisinde, kişilerin hiyerarşik pozisyonlarına uygun davranıp davranmadıklarını anlamamızı sağlar. Kutsallık/yozlaşma temeli genellikle dini değerlere hitap ederek, dünyanın parazitlerle dolu kirli bir yer olduğuna vurgu yapar. Bu temel, irrasyonel olabilse de kişilerin kendilerini bu kirlilikten korumak adına çok pahalı sembolik objelere yatırım yapmalarına sebep olur. Bu son üç temel insanların grup içerisindeki bütünlüklerini korumalarını sağladığı için bağlanım ilkeleri olarak

adlandırılır. Ahlaki Temeller Teorisi'ne göre yeni doğmuş bir bebeğin beyninde bu beş temel değer eşit bir şekilde yer almaktadır. Ancak bebek büyüdükçe içinde yetiştiği kültür, aile yapısı, eğitim durumu gibi faktörlerin etkisiyle beraber bu beş değerden bazıları daha baskın hale gelmektedir. Ahlaki Temeller Teorisinin esas amacı kültürler arasındaki farklılıkları açıklamak olmasına rağmen, yapılan çalışmalar teorinin Amerika'daki sağ ve sol arasındaki farklılıkları açıklayabildiğini göstermektedir. Amerikan solcularının ahlak yapıları genellikle zarar/bakım ve adillik/hilekarlık değerlerinin üzerine inşa edilmişken, sağcılarının ise beş değere de sahip olduğunu ancak sadakat/ihanet, otorite/yıkım, kutsallık/yozlaşma değerlerinin daha baskın olduğu tespit edilmiştir.

Bu çalışmada, Ahlaki Temeller Teorisinin varsayımlarına göre oluşturulan farklı çerçeveleme koşullarının belirli bir yenilenebilir enerji projesini desteklemek üzerindeki etkisi incelenmiştir. Bu amaçla düzenlenilen ankette, bir yenilenebilir enerji projesi üç farklı şekilde insanlara sunulmuştur. Birinci sunumda solculara hitap eden değerler, yani bireyselleştirici ilkeler vurgulanmıştır. İkinci sunumda sağcılara hitap eden değerler, yani bağlanım ilkeleri vurgulanmıştır. Üçüncü sunumda ise herhangi bir çerçeveleme uygulanmadan tarafsız bir şekilde projenin özelliklerinden bahsedilmiştir.

Anketin ilk sayfasında katılımcılara yenilenebilir enerji hakkında ne kadar bilgi sahibi oldukları sorulup rastgele bir şekilde çerçeveleme koşullarından biri sunulmuştur. Çerçeveleme koşulu okunduktan sonra deniz üstü rüzgar santralleri projesini ne ölçüde destekledikleri sorulmuştur. İkinci sayfasında ise, destekleme durumlarının altında yatan sebepleri anlamak amacıyla hazırlanan 14 tane soruya cevap vermeleri istenmiştir. Katılımcıların anketi dikkatli doldurup doldurmadıklarını test etmek amacıyla iki çapraz kontrol sorusu ("Türkiye'de deniz üstü rüzgar santrallerinin inşa edilmesi gerektiğini düşünüyorum" ve "Türkiye'de deniz üstü rüzgar santrallerinin inşa edilmemesi gerektiğini düşünüyorum") sorulmuş olup, her iki soruya da aynı doğrultuda cevap veren katılımcılar anketi dikkatli doldurmadıkları varsayılarak örneklemden çıkarılmıştır. İkinci sayfada ayrıca, katılımcıların cinsiyetlerini, gelir durumlarını, büyüdükleri yeri ve politik görüşlerini kapsayan demografik sorular sorulmuştur.

Toplamda 470 kullanılabilir anket verisini incelemek amacıyla, ilk olarak datanın boyutunu azaltmak ve daha kolay analiz edebilmek için, yukarıda bahsedilen 14 soruya faktör analizi uygulanmıştır. Faktör analizi sonucunda elde edilen beş faktör, faktörleri oluşturan soruların özellikleri dikkate alınarak "çevresel problemleri çözmek adına kişisel maliyetlere katlanma arzusu", "deniz üstü rüzgar santrallerinden beklentiler", "çevreye ve sınırlı doğal kaynaklara ilişkin endişeler", "deniz üstü rüzgar santrallerine yönelik görsel kaygılar", "ekonomik büyümeye öncelik verme" olarak adlandırılmıştır. Sonraki aşamada bağımlı değişken "deniz üstü rüzgar santrallerini desteklemek", bağımsız değişkenler ise demografik değişkenler, kukla değişken olarak çerçeveleme koşulları, çerçeveleme koşullarının politik görüşle çarpımları ve faktör analizinden elde edilen beş faktör olmak üzere sıralı logit regresyon yapılmıştır.

Yapılan ampirik analizler sonucunda, deniz üstü rüzgar santrallerini desteklemede, demografik değişkenler arasından sadece cinsiyetin istatistiki olarak anlamlı bir etkisi vardır. Bu sonuca göre, erkeklerin yenilenebilir enerji projesinin destekleme olasılıklarının kadınlara kıyasla daha fazla olduğu tespit edilmiştir. İnsanların büyüdükleri yerin ve gelir düzeylerinin projeyi desteklemek açısından anlamlı bir fark yaratmadığı görülmüştür.

Sıralı logit regresyon sonucunda, faktör analizinden elde edilen tüm faktörlerin projeyi desteklemek açısından anlamlı bir etkileri olduğu sonucuna ulaşılmıştır. Ekonomik büyümeye öncelik verme, deniz üstü rüzgar santrallerinden beklentiler ve çevresel problemleri çözmek adına kişisel maliyetlere katlanma arzusu faktörleri yenilenebilir enerji projesini destekleme olasılığını artırırken, deniz üstü rüzgar santrallerine yönelik görsel kaygılar ve çevreye ve sınırlı doğal kaynaklara ilişkin endişeler yenilenebilir enerji projesinin desteklenmesi olasılığını azaltmaktadır.

Son olarak, Ahlaki Temeller Teorisine göre oluşturulmuş çerçeveleme koşullarının Türkiye'de yenilenebilir enerjiyi desteklemede istatistiki olarak anlamlı bir etkisinin olmadığı gözlemlenmiştir. Bu durumun sebepleri olarak ise olası üç açıklama getirilmiştir. İlk olarak, anketin girişinde katılımcılara sorulmuş olan "yenilenebilir enerji konusunda ne kadar bilgi sahibisiniz" sorusuna çoğunlukla "bilgim var" cevabı verildiği için yapılan manipülasyonun bir etkisi olmamış olabilir. Çünkü çerçeveleme kişiler konu hakkında önceden bilgi sahibi olmadığında daha etkin bir şekilde çalışmaktadır. İkinci sebep olarak Türkiye'de çevreciliğin Amerika'da olduğu gibi sağ ve sol görüşler arasında tartışmalı bir konu olmaması düşünülmüştür. Türkiye'de, her ne kadar farklı motivasyonla hareket etseler de, sağ ve sol görüşten insanlar genel olarak yenilenebilir enerjiyi destekleyen bir yapıya sahiplerdir. Örneğin sağ görüşten insanlar, yenilenebilir enerji projelerinin inşasının ekonomik olarak kendi kendine yetebilirliğin bir göstergesi olarak değerlendiriyorken, sol görüşten insanlar yenilenebilir enerjinin fosil yakıtlara göre çevreye daha az zarar vermesi sebebiyle destekliyor olabilirler. Üçüncü olarak ise, Ahlaki Temeller Teorisi Türkiye'deki sağ ve solun yapısal farklılıklarını açıklayamıyor olabilir.

1. INTRODUCTION

Framing, which means depicting an issue in different ways to alter people's decision, is used in economics. When social planners want change people's attitudes or opinions toward a certain subject, and when the targeted group is divided in terms of values they hold such as political orientation, building different frames that appeal to different values hold by the group members can be efficient.

Our motivation in this thesis is to examine whether congruency of moral framing of renewable energy and political view have a significant effect on support for a specific OWF project. This study is the first study that seeks to analyze the effects of framing on renewable energy policies in Turkey. We chose renewable energy, specifically OWFs, as the subject of the framing. Because as the effect of climate change increases and using fossil fuels poses threats to earth's natural environment, renewable energy became more and more important.

To this end, we designed a survey with three different framing conditions, which are built in line with the assertions of MFT. Before introducing framing conditions, we will briefly mention MFT. Afterwards, we will present the positive and negative aspects of OWFs since these aspects are used in the framing conditions.

1.1 Moral Foundations Theory

MFT is a subject of moral psychology. The first principle of moral psychology is that, intuition comes first, strategic reasoning second. Based on this principle, MFT comes up with 5 different universally shared moral foundations which are harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect and purity/sanctity. MFT asserts that, in the first draft of the brain-the brain of a newborn child-, these five foundations equally take place and as the child grows up, depending on culture, family, education, neighborhood etc. some of these foundations become more dominant. Even though the main purpose of MFT was to explain moral differences across cultures not individuals or political views, some studies found that MFT can also distinguish the

right and left political view in United States. Among five different moral foundations, liberals construct their moral systems upon harm/care and fairness/reciprocity, whereas political conservatives construct their moral systems upon the same ones as political liberals plus ingroup/loyalty, authority/respect and purity/sanctity (J. Graham, Haidt, & Nosek, 2009; J. Graham et al., 2011).

Considering the assertions of MFT, we designed a survey with three different framing conditions; the individualizing condition emphasizes on harm/care and fairness/reciprocity and it appeals to the moral values of political liberals in the United States. The binding condition focuses on ingroup/loyalty, authority/respect and purity/sanctity and it appeals to the moral roots of political conservatives in the United States, and the control condition lacks any manipulation or targeting (please see Appendix C for the moral framing conditions). Participants were randomly assigned one of the three different framing conditions for their survey.

In this thesis, along with understanding the determinants of support for OWFs, we will examine whether people from left political orientation who exposed to individualizing condition will show greater support compared to participants from right political view and exposed to individualizing condition, and vice versa.

1.2 Positive and Negative Aspects of Wind Turbines

In general, the majority of the population support wind power because it is a clean energy source, yet objections toward wind power may arise, especially in a local level because of its noise, visual nuisance and negative impacts on natural environment and habitat. These negative externalities of wind farms diminish the life-satisfaction of the local community (Vecchiato, 2014). In this case, OWFs became a good alternative to on-land wind farms. Siting wind farms away from the shore can eliminate the noise effect, yet visual concerns still exist since OWFs can be seen over the horizon. The cost of building OWFs increase as the distance from the shore increases. That is why, it is a daunting task to build them beyond the eyesight area, and eliminate their visual impacts for good (Krekel & Zerrahn, 2017; Ladenburg & Dubgaard, 2007).

To sum up, negative externalities originated from OWFs such as noise nuisance, visual disamenities, harms on marine life, fishing and recreational activity like boating; the characteristics of people such as age, education level, gender, being owner of a

property close to siting area, previous experience with OWFs, the use of beach; the properties of the OWFs such as turbines location, turbines height, the number of turbines, the distance from residential area are the determinants of attitudes toward OWFs (Firestone & Kempton, 2007; Ladenburg, 2008; Vecchiato, 2014).

The remainder of the thesis is structured as follows. In chapter two, we will cover the origins of framing, types of frame, the linkage between framing, political ideology and moral values, framing environment, environmental problems and energy policies and shortcomings of framing. In chapter three, we will present some basic features of survey design process. In chapter four, we will give reliability and factor analysis results for the survey data we utilized. In chapter five, we will talk about survey design and data collection process. Besides we will describe the structure of the survey data and give summary statistics for our variables. In chapter six, we will explain the methodology of empirical analysis we employed. In chapter seven, we will give the empirical analyses results. Finally, in chapter eight we will conclude the thesis with policy recommendations.

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2. FRAMING

In this chapter of the thesis origins of framing, types of frames and framing strategies, determinants of persuasive power of frames, the relationship between framing, political ideology, moral values, attitudes toward environment and renewable energy projects will be mentioned. The importance of understanding determinants of environmental attitudes and support for renewable energy projects will be discussed to be able to understand how to build successful and powerful frames. At the end of this chapter, the shortcomings of framing strategies will be presented.

2.1 Origins of Framing

Many fields such as mathematics, economics, statistics, sociology and psychology are studying the theory and practice of decision making since decision making is a part of every people's daily life (Kahneman & Tversky, 1985). In the field of economics, while evaluating decision making process economic agents are assumed to be rational. Rationality assumption asserts that, preferences over options should carry some properties such that consistency, transitivity etc. The consistency or invariance of choices simply means that different description or framing of the same subject should not shift decision makers' choice (Mandel, 2014). In their seminal paper Tversky and Kahneman (1981) conduct a series of experiments. They show that the consistency property of rationality assumption is violated. They illustrate this violation via their famous Asian Disease Problem. In this hypothetical problem, two different group of students are exposed to one of two scenarios with equivalent outcomes and different descriptions. The first group of students are asked to choose between two programs where programs are depicted by the number of people will be saved. This scenario contains two programs, program A and program B. Students are asked to consider themselves as a decision maker in a very strategic position who must decide which one of the programs should be implemented. Both programs are phrased in a way that the outcomes are defined as gains, that is, number of people will be saved. If program A

is adopted 200 people will be saved, if program B is adopted there is 1/3 probability that 600 people will be saved and 2/3 probability that no people will be saved. Considering these two programs 72 percent of participants choose program A over program B. The second group of students are exposed to the scenario in which the outcome defined as losses that is, number of people dead. If Program C is adopted 400 people will die, if Program D is adopted there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die. 78 percent of the participants choose program D over program C. One can see that, program A and C, and program B and D are eventually identical in terms of number of people live or number of people die. Nevertheless, the final decision of participants exhibits discrepancy. The main reason of this discrepancy is that, the way programs are depicted. In the first scenario, participants showed a risk-averse behavior by choosing program A over program B, whereas in the second scenario, they showed a risk-taking behavior (Tversky & Kahneman, 1981).

The Asian Disease Problem demonstrates that, the way of describing an issue alters the final decision (preference) of an individual. If different but information equivalent descriptions lead to different choices even if the topic at hand is ultimately the same, that implies that human preferences are dependent of description of options because the alternative presentation of an issue alters the preferences that would have been made otherwise (Sher & McKenzie, 2008; Tversky & Kahneman, 1986).

2.2 Types of Frames and Framing Strategies

In this section types of frames and main framing strategies will be briefly presented. There are many other framing strategies other than below mentioned. Those framing strategies will be discussed depending on the context of the thesis.

2.2.1 Types of frames

Levin, Schneider and Gaeth (1998) distinct framing types based on their characteristics of what is framed, what is affected and how the framing effect is measured. Considering these criterions, they come up with three framing types: risky choice framing as in Asian disease problem of Tversky and Kahneman (1981), attribute

framing and goal framing. These three framing types may lead differences in effectiveness of frames.

2.2.1.1 Risky choice framing

Risky choice framing as explained in Asian disease problem, presents a gamble that yield to same expected value: this value is described as positive (number of people saved) and negative outcomes (number of people died). Although, people generally tend to be risk-averse because they value their loses more than they value their gains (Thaler & Sunstein, 2008: 33-34), in the Asian disease problem they are not only display risk-taking behavior but also, they behave inconsistently between different descriptions which are equivalent in terms of information they give. In positive frame people show risk-averse behavior, while in negative frame they show risk-taking behavior (Tversky & Kahneman, 1981).

2.2.1.2 Attribute framing

Attribute framing depicts an issue or event either focusing on its positive or negative characteristics (Levin et al., 1998). Levin and Gaeth (1988) illustrate that beef labelled as 75% fat-free is perceived as more delicious compared to beef labelled as 25% fat. Both the beefs taste almost the same, but participants rated 75% fat-free as better tasting. This example does not claim that, people will choose a very bad tasting beef when it is labelled as fat-free. Rather, different labelling of two commodities with nearly identical features can change people's perceptions toward those commodities.

2.2.1.3 Goal framing

Goal framing emphasizes on positive returns as a result of taking action, and negative returns as a result of not taking action. In goal framing, people generally are more inclined to act about the given subject when they exposed to frames which focus on loses in case of not acting compared to frames focus on gains in case of acting (Levin et al., 1998). Because people generally are loss averse and when reason they value loses more than they value gains. Losing the same amount of money makes people more unhappy than gaining the same amount of money (Thaler & Sunstein, 2008: 33-34).

2.2.2. Framing strategies

In the literature, many framing strategies exist such as trade-off frames (Pralle & Boscarino, 2011), issue frames or so called emphasis frames, equivalence frames (Druckman, 2004), counter frames (Aklin & Urpelainen, 2013). Not presenting directly the negative sides of a policy is also a framing strategy that many politicians use, since vague speaking makes it easier to avoid public opposition (Pralle & Boscarino, 2011). The framing strategies list can be enlarged. Yet, by taking into consideration their main properties, different framing strategies could be included in the scope of risky choice framing, attribute framing and goal framing.

For instance, Pralle and Boscarino (2011) employed a trade-off frame over nuclear and wind power technology policies that appeal to climate change. They investigated the limitations and advantages of trade-off frames and concluded that using a trade-off frame often reminds people the costs of the policy. Therefore, they are not efficient and policy opponents could use this deficiency of trade-off frames as a weapon to manipulate people to the other direction. Nevertheless, when the costs of a technology are highly recognized by the public, using trade-off frames may, in fact, direct people to support the policy if the positive aspects of the policy outweigh the costs. That is, trade-off frames can both be used to veil or unveil the issues related to climate change policy by focus on different aspects of the policy either negative or positive (Pralle & Boscarino, 2011).

Aklin and Urpelainen (2013) examine the effects of counter framing strategy in case of another frame exist. An issue framing focuses on different sides of a policy (Druckman, 2004). A counter frame does the same thing except that it focuses on negativity. For example, using green energy can reduce carbon emission but it also increases energy prices. If an issue frame changes, then opponents of the policy alter their counter-frame to adjust it to new situation. The article concludes that, in line with the previous literature, different types of positive frames lead no changes in public support for climate change policy. However, the existence of counter-frames affects public's opinion by suppressing the effect of positive frame (Aklin & Urpelainen, 2013).

2.3 The Persuasive Power of a Frame

When different descriptions of the same issue leads to different outcomes, the difference between those outcomes comes from framing effect (Sher & McKenzie, 2008). A successful frame requires a simple language and should appeal to emotions. However, if the necessary background in people's brain, which needs time to be built, has not been shaped yet, words cannot accomplish much (Lakoff, 2010)

The power of a frame is determined by many factors such that the type of frame utilized, the pre-defined feelings that the recipients of the frame already have about the subject (Baek & Yoon, 2017), shared values with people who convey the persuasive messages into public, matched political view or party identification (Nelson & Garst, 2005) and matched moral values with the content of the messages (Wolsko, Ariceaga, & Seiden, 2016).

Lakoff (2010) asserts that repetition of a frame empowers its effect on targeted population. People who exposed to an ideological frame many times internalize it. Even though, with time the framed ideological discourse becomes a normal discourse, the embedded ideology in the discourse still pairs with the ideology in people's brains.

Frames are widely used by politicians thanks to their ability to convince and manipulate people through desired direction. Politicians and their opponents are in search of the most effective frames to gain political superiority. Contents of messages, organizational and political conditions, control power of regime on public discourse and congruency of discourse with media coverage are among the reasons that make some frames more effective than others (Polletta & Ho, 2006). The effect of frames, also depends on the features of people who exposed to framing discourse. Different groups of people will respond differently to frames (Feinberg & Willer, 2013).

Fluency, that is ease of comprehension of persuasive messages, increase the ability of frames to alter people's mind. The effect of fluency on power of a frame stemmed from matching beliefs, values, and opinions with the message content. Beside these factors, previous exposure to same kind of message and visual attractiveness like colored papers or writing style etc. also influences the persuasive power of a frame (Kidwell, Farmer, & Hardesty, 2013).

All these factors affect persuasive power of a frame. In case of need, frames could be changed. However, one must consider all these factors before tries to change the frame. The current frame exists because of constant repetition, and trust in people who convey the messages and so on. The new frame must appeal to those who exposed to the frame at least as much as the current frame both emotionally and logically. Also, when someone try to alter an existing frame by negating it, they activate the current frame instead of creating a new frame (Lakoff, 2010).

2.4 Framing, Political Ideology and Moral Values

In this section, political ideology and its relationship with environmental attitudes will be examined from the perspective of moral framing.

Political ideology interferes with people's daily life (Kidwell et al., 2013), their environmental concerns such as awareness of climate change (Dunlap, 1975; Whitman, Zhao, Roberts, & Todd, 2018), support for investments on energy efficient technologies (Gromet, Kunreuther, & Larrick, 2013), sustainable behaviors such as consumption or disposition (Kidwell et al., 2013) and so on. A speaker can alter people's minds by using moral value-matching framing. Those of that specific value appeals to, show more sensitivity (Nelson & Garst, 2005). In that sense, moral framing of environmental issues can unite people from different political views around environmental problems (Feinberg & Willer, 2013).

Understanding the linkage between political ideology and environmental attitudes becomes more important in countries where there exists strong political polarization in environmentalism such as liberals and conservatives in United States (McCright & Dunlap, 2011). In United States, liberals and conservatives are engage in different behaviors regarding environmental issues. Liberals generally are more aware of environmental problems such as climate change, while conservatives generally deny the existence of climate change. Therefore, generally liberals are more tend to participate in environmentally friendly behaviors (Feygina, Jost, & Goldsmith, 2010). Graham, Haidt, & Nosek (2009) argues that the effect of environmental discourse on environmental attitudes should be especially considered when the targeted population is divided by politics like liberals and conservatives in United States. The reason why conservative people are not interested in environmentalism may be due to the

environmental discourse which appeals to moral roots of liberals rather than moral roots of conservatives. When conservatives exposed to an environmentalist frame they express resistance because the messages they get contradict with their inner values. Conservatives may become more interested in environmental issues if the rhetoric used in environmentalism resonates with their moral values. Eventually, congruency of political ideology and framing messages has a potential to increase the effectiveness of messages (Feinberg & Willer, 2013; J. Graham et al., 2009; Kidwell et al., 2013).

Feinberg and Willer (2013) find that, when environmental discourse is framed in accordance with the moral values conservatives have, their attitudes toward environmental problems change. Conservatives, who generally seem unconcerned with environmental problems, start showing interest when environmental messages are matched with their moral values. When the rhetoric is shaped by moral values convincing people to show interest to environmental issues becomes easier.

Feygina et al. (2010) conclude that reframing environmental messages in terms of patriotic values will decrease the resistance of system justification and increase proenvironmental attitudes of conservatives. By reframing environmentalism in accordance with values and norms that conservatives hold, willingness to protect environment is increasing and resistance towards environmentalism decreasing among conservatives (Feygina et al., 2010).

2.5 Framing Environment and Environmental Problems

Solving environmental issues is a daunting task due to their complex, ambiguous and politically controversial nature. Even people with high environmental concerns may hesitate to participate in proenvironmental actions. This hesitation in participating proenvironmental actions arises from the tendency of people neglecting the reality and severity of environmental issues, believing that the damages that have been done to natural environment are already in an irreversible phase, lacking beliefs about that proenvironmental actions will remedy environmental problems such as climate change, and perceiving participating in proenvironmental behaviors as something very difficult. For all these reasons many people do not act proenvironmentally, at least not in the desired and required levels. Thus, framing environmental rhetoric could be efficient in reducing these misbeliefs and make people to participate in

proenvironmental behaviors (Bardwell, 1991; Täuber, van Zomeren, & Kutlaca, 2015).

Framing environment and environmental issues in accordance with people's moral values increases positive attitudes toward environment. Feinberg and Willer (2013) employ MFT (J. Graham et al., 2011) as a means to frame environmental issues between political conservatives and liberals. In the three different studies they conduct, they found that, liberals perceive environment as a moral notion, but conservatives do not. The reason for this could be explained by mismatching of moral values of conservatives and environmental discourses. In the third study, they frame environment in a way that appeal to moral values of political conservatives and observed that political conservatives also exhibit positive attitudes toward environment. Based on these results, they also clarify why Christian groups started to become more sensitive about environmental issues. In religious discourse environment and Earth is presented as holy and sacred, people are characterized as servants of the Earth and obliged to protect and respect God's creations (Feinberg & Willer, 2013).

Wolsko et al. (2016) conduct three experiments to examine the extent to which the conservation intentions, climate change attitudes, and donations to an environmental organization behavior of political liberals and conservatives vary in regards with the variations in the moral framing of pro-environmental messages. They utilize Moral Foundations Theory Graham et al. (2011) to constitute the framing conditions. Three different moral frames were presented, which are individualizing condition (emphasizing harm/care and fairness/justice), binding condition (emphasizing loyalty, authority, purity, and patriotism), and control. As a general result of these experiments, it is found that political liberals are consistent with their environmental attitudes after an exposure of individualizing condition, whereas political conservatives shift their environmental attitudes after an exposure of binding condition (Wolsko et al., 2016).

2.5.1 Determinants of attitudes toward environment

Understanding the underlying factors that affect environmental behavior is important. By embedding these factors into framing policies, policy makers may encourage people to participate in proenvironmental actions. Different frames lead to differences in environmental attitudes (Feinberg & Willer, 2013).

Increasing human effect, mostly due to industrial production, on planet causes environmental problems and poses threats to sustainability of our ecosystem. Ensuring sustainability of environment is highly related to human actions. Those actions are determined by many factors such as relationship with natural environment, culture and empathy and public opinion about environment and environmental issues (Feygina et al., 2010; Mayer & Frantz, 2004).

To understand public opinion about environmental problems, it is important to understand what environmental concerns mean. Environmental concerns generally are referred as the level of consciousness of environmental problems and personal effort shown by people to solve or stick up for the policies that aims to eliminate these problems. People with higher environmental concerns express more positive attitudes in comparison to people with lower environmental concerns (Konisky, Milyo, & Richardson, 2008).

There might be several reasons to refuse the reality and severity of environmental problems or climate change. The way we frame environmental problems and climate change and hypocognition are among these reasons. Hypocognition is defined as deprivation of the ideas or words needed to correctly evaluate the situation (Lakoff, 2010). Some people do not either participate or support for actions to solve environmental problems to defend the status quo against environmentalist action (Feygina et al., 2010). Political involvement in environmental action is also a driving force for shaping individuals' attitudes toward environment (Lakoff, 2010).

There are other factors effecting attitudes toward environment such that, the level of awareness about environmental problems and their potential outcomes, and people's characteristics like whether they prioritize other people's interest or their own's (Feinberg & Willer, 2013).

Sarigöllü (2009) compared Canada and Turkey to understand the effect of culture and socio-demographics on attitudes toward environment. The article concluded that there is a significant difference between individualistic and collectivist, materialist vs postmaterialist, past-oriented vs future-oriented cultures as well as the levels of modernity and pollution (Sarigöllü, 2009).

Connectedness to nature scale is a strong indicator of environmental behavior. The way we perceive the nature changes the way we treat it. If we see environment as a commodity, we would see no obligation to consume it, if we see it as a whole which we are a part of we will protect it (Mayer & Frantz, 2004).

Summing up, determinants of attitudes toward environment are as follows. Relationship with natural environment, culture, socio-demographics, empathy, level of environmental concerns, framing of environmental problems and climate change, hypocognition, defending the status quo of society, level of awareness about environmental problems and their potential outcomes, people's characteristics and connectedness to nature scale.

2.6 Framing Energy Policies

Framing strategies are widely used in energy policies to avoid public opposition. When implementing an energy policy taking public support is quite important for the policy makers. Even though, permissions to apply policies are given by legal authorities, that is people legally have no say on the implementation process of those policies, public opposition is something that should be taken into consideration because of its potential power to cancel energy policies (Firestone & Kempton, 2007; B. J. A. Walker, Wiersma, & Bailey, 2014). To avoid public opposition and increase support rates of energy policies framing strategies are used. In this respect, this section is dedicated to summarizing the literature of framing strategies implemented on energy policies.

Hansla (2011) employs egoistic, altruistic and biospheric framing strategies to investigate the relationship between stated willingness to pay for electricity produced using renewable energy. For conciseness, from now on this type of electricity will be referred as green electricity or eco-labelled electricity. Egoistic framing condition focuses on threats to personal health and wealth originated from using fossil fuels, altruistic framing condition focuses on threats to future generations, and biospheric framing condition focuses on threats to other living beings and nature. The article utilizes a self-enhancement and self-transcendent scale derived from Schwartz (1992). It is hypothesized that, people with self-transcendent value orientation, will show higher willingness to pay for green electricity. It concludes that stated willingness to pay is higher for self-transcendence characteristic as in Nilsson, Hansla, and Biel

(2014). And stated willingness to pay decreases as the amount of surcharge increases no matter what the exposed frame is. In biospheric framing, stated willingness to pay is higher than other framing conditions. However, egoistic and altruistic condition do not generate a significant difference in terms of stated willingness to pay for green electricity (Hansla, 2011).

A study conducted by Kivimaa and Mickwitz (2011) examines framing policies in bioenergy context. Using 15 government programs and 9 national energy strategies, this article concluded that bioenergy policy of Finnish government can be split into 3 sub-phases. The first phase covers encouraging domestic energy sources (1979-1991), in the second phase, wood and industry-based bioenergy is supported (1992-1998), and in the third phase, alternative bioenergy tools are taken into consideration to tackle climate change (1999-2010). In Finland, especially after millennium, energy policies are framed to tackle climate change and mitigate its effects because of the growing negative effects of climate change. Before that, domestic production, wood and industry based bioenergy production is supported (Kivimaa & Mickwitz, 2011).

Feldman and Hart (2018) set four low-carbon energy policies such as investments in renewable energy, carbon tax, regulations over fuel efficiency and nuclear power and two framing conditions; reducing climate change and reducing air pollution and energy dependence. Then, they examined whether support for those low-carbon energy policies changes as the exposed frame changes and whether this change is moderated by political orientation. They surveyed a representative sample of United States population and found that, Republicans show lower support for low-carbon energy policies when exposed to climate change frame compared to air pollution and energy dependence frame. However, there is no evidence of framing impacts on nuclear power. The article concludes that framing effects for political orientation exists but the framing effects are dependent on the content of policy (Feldman & Hart, 2018).

Arpan et al. (2018) examine green pricing programs for residential use. Green pricing programs enable consumers to use electricity produced from renewable energy in exchange for a small extra premium including in the price of electricity. This study examines the effect of moral framing, as moral foundation theory suggests, on consumer's willingness to pay for green pricing programs. It finds no statistically significant difference of participating in green pricing program between liberals and

conservatives. That is framing liberals and conservatives in accordance with moral foundations theory does not create a difference among participants. Liberals at the beginning were more willing to pay for green pricing programs. But there is no evidence of framing effects (Arpan et al., 2018).

2.6.1 Attitudes toward renewable energy

The main reason for renewable energy comes into the prominent recently, is that its potential to eliminate negative externalities originate from traditional energy resources which are fossil fuels. The greatest negative externality that fossil fuels generate is carbon emission. There are other problems attached to carbon emission, such as climate change, air pollution etc. (Krekel & Zerrahn, 2017).

A quick glance on literature reveals that, socioeconomic factors, education, pre-familiarity with renewable energy, level of environmental concerns, personal beliefs about consequences of using renewable energy, beliefs of other community members about renewable energy, geographical proximity to renewable energy project and trust in legal authorities responsible for renewable energy installation process are among the determinants of public attitude toward renewable energy (Bang, Ellinger, Hadjimarcou, & Traichal, 2000; Bidwell, 2016b, 2016a; Kivimaa & Mickwitz, 2011; G. Walker & Devine-Wright, 2008; Zyadin, Puhakka, Ahponen, Cronberg, & Pelkonen, 2012).

Bidwell (2016a) tried to answer the question whether general attitudes toward renewable energy and support for a particular renewable energy project (Block Island Wind Farm) are in line. General and project-specific attitudes regarding renewable energy are most of the times in line. However, there are instances when they are not. A good example of general and project specific attitudes not being in line is not in my backyard hypothesis (NIMBY). NIMBY is defined as people who support renewable energy in general oppose it when the renewable energy facility to be built is close to places where they live. Construction noises, distortion in the land etc. are among the reasons why people oppose renewable energy projects when those projects will be built in their neighborhood. In his study Bidwell (2016a) concludes that general beliefs about renewable energy is predictive for support for a specific renewable energy project. Along with general support for renewable energy socioeconomic factors,

project planning, beliefs about the outcomes of projects influences general attitudes (Bidwell, 2016a).

Society shapes their members' attitudes and beliefs (Sarigöllü, 2009). When giving decisions or expressing opinions, the communal characteristic of people may lead to pluralistic ignorance. Pluralistic ignorance is defined as situations when someone does not personally engage in a behavior, but believe that the rest of the society does. Sokoloski et al. (2018) examined the existence of pluralistic ignorance regarding renewable energy support. They found that people's decision to support or oppose a renewable energy (wind farm project) is not just their decision. People's opinion about what the rest of the community think about renewable energy shapes their opinion, too (Sokoloski et al., 2018).

Konisky et al. (2008) seeks to analyze pollution and resource preservation policies of governments in local, national and global scale. This article concluded that people are more supportive toward policies regarding pollution than resource preservation and they prioritize this pollution abatement technologies in local and national level rather than global scale. Political ideology and trust in government is highly correlated with preferences over environmental issues such as pollution abatement and resource preservation (Konisky et al., 2008).

2.7 Shortcomings of Framing

The effects of framing on willingness to pay for environmental quality, environmental attitudes and support for renewable energy projects are presented till now. However, framing also have limitations.

Studies that use framing strategies, most of the times build hypothetical scenarios in people's minds. Nevertheless, people might act differently in real situations unlike they indicated in hypothetical scenarios (Kühberger, Schulte-Mecklenbeck, & Perner, 2002). This controversy emerges from what Lindenberg, Steg, Milovanovic and Schipper (2018) indicates as hedonic hypocrisy. Hedonic hypocrisy occurs when people act differently in a real situation than what they say in the surveys. The reason why people lie in surveys easily relates to moral issues. People who are aware of that they do not have to bear any costs just because they indicate in the surveys choose to lie.

For example, in hypothetical scenarios people are inclined to report higher willingness to pay for green energy. In real life, the proportion of people who use green energy is way more below than in the hypothetical scenarios (Momsen & Stoerk, 2014).

There are many other serious problems originate from moral framing of environmental issues. According to Täuber et al. (2015), moral framing of environmental issues could lead defensive responses. In that respect, framing is characterized as a double-edged sword. On the one hand, framing climate issues gives motivations to people to act proenvironmentally. On the other hand, moral framing implicitly implies that, environmental problems are a moral failure and people generally respond to failures in a defensive way. For that reason, they come up with three potential different solutions which respectively are; 1) non-moral framing of environmental discourses. For example, instead of morally frame climate issue by indicating not decreasing greenhouse gas emission as moral failure, one can only indicate the positive sides of reducing climate change. 2) Analyzing the instances very carefully in which moral framing could work. As discussed in the previously, there many factors which effect the persuasive power of a frame. Analyzing that factors very carefully and building a frame accordingly could work 3) focusing social norms instead of framing environmental issues. Some people perceive environmental problems as a moral issue, on those people moral framing could be effective. Nevertheless, there are people who only express preferences over environmental problems. Because environmental problems do not appeal to their moral roots. Those people are inclined to shape their attitudes parallel to social norms. For instance, people would choose green electricity even if it is more expensive if their neighbors do. Considering these, countries could indicate that, mitigating climate change is a social norm to convince those people to participate in proenvironmental actions (Täuber et al., 2015).

3. SURVEY DESIGN

In this part of the thesis, we focus on the basic features of survey design, question construction and type of response categories. Specifically, this part focuses on how to get healthy survey results from a selected population, and things that need to be taken into account when constructing surveys.

3.1 Questionnaire

A questionnaire is a data collection technique in which participants are faced with many questions which they may answer by themselves or with the assistance of an interviewer. Here the interviewer only reads the questions and express no opinion regarding the answers of the questions. This type of questionnaire is referred as interviewer schedule. A survey is the case when the respondents answer the questions by themselves. Surveys are generally applied in public opinion polls. They can eliminate the differences in attitudes arise from time since they are conducted in a short period of time. Large samples could be studied via self-administrated surveys. Many questions could be asked in one survey which gives flexibility to researcher in running both descriptive and exploratory analyses. Surveys can be conducted via telephone, e-mail or mail, face to face with the help of interviewer or directly handed to the respondents. Each one of these techniques requires different strategies. Nonetheless, question design is vital in all of them (Babbie, 1995; Bailey, 2007).

3.2 Survey Design Process

Generally, the aim of the surveys is to explore, describe and explain social phenomena. To make exploration on a social issue it is quite important to draw the borders of the research concisely. Because, the scope of the research affects the survey technique to be utilized, such as telephone, e-mail, face to face interviews etc., and questions to be asked in the questionnaire. The most important elements to draw the borders of the research are to predecide the research question, the targeted population and the way

the data will be analyzed. Other than these, the researcher must consider budget constraints. Budget constraints are also restrictive while designing a survey (De Vaus, 2002; Yıldırım, 2015).

After specifying the research question and units to be analyzed, one can start constructing the survey. Before beginning to write questions, one should firstly make anticipations regarding a priori sources of errors. To avoid errors, it is necessary to stick with some basic rules about questionnaire design. Those rules will be explained below. When the survey construction is completed, a pilot study must be run. In the pilot study, respondents give their feedbacks regarding the survey content and structure and based on the feedbacks and problems encountered, also some preliminary analyses are conducted with pretest data to see the data structure. Given respondents feedbacks and drawback encountered during preliminary analyses, the survey content and layout is rearranged for the final analyses (Bailey, 2007; Yıldırım, 2015).

3.2.1 Cover letter

An introductory statement or a cover letter that introduce the purposes of the study is required to convince respondents that the survey they take serves for scientific purposes, and all the answers they give will remain confidential and will not be shared with a third party. It is important to avoid asking unnecessary private questions, the necessary sensitive questions should be placed on the last of the survey. Questions that perceived by the respondents as irrelevant to the study goal or as a violation of their privacy increase the nonresponse and erroneous answers rate. The best way to avoid asking unnecessary questions is to decide how to utilize the data collected. Besides, respondents have inclination to believe that they might be considered as ignorant or stupid. Therefore, they give their answers in a normative way, rather than revealing their true beliefs and opinions. This situation becomes more apparent in the case of sensitive questions and questions about taboo topics. Generally, people respond these questions in way that their answers are consistent with social norms. This situation is also known as “social desirability bias”. Thus, in the cover letter it should be indicated that there are no right or wrong answers (Bailey, 2007; De Vaus, 2002; Yıldırım, 2015).

The cover letter is essential to present study goals to the respondents. However, sometimes the nature of the research question might be too complex to be explained or revealing the purpose of the study might bias the responses. In that case, a brief explanation for the study goal is more practical (Bailey, 2007; Yıldırım, 2015).

3.2.2 Familiarity of respondents with the survey

To be able to get healthy results from a survey, respondents should be familiar with the survey questions. Especially, when surveying two distinct populations such as citizens-noncitizens, men-women etc. questions that do not apply one group may lead severe problems. Using abstract and factual questions combined with unfamiliarity with the topic increases the oppositions toward survey. Thus, when respondents are faced with subjects that they are not familiar with, using agree-disagree question and preparing separate questions for different group could increase the response rates. If the survey is conducted by an interviewer determining more than one phrasing for the same question could be helpful. In a self-administrated survey skip questions could be asked to differentiate the population (Babbie, 1995; Bailey, 2007).

3.2.3 Wording of the survey questions

Asking double barreled questions, that is questions that try to measure more than one thing at a time, distorts the survey results. Because a respondent might support for one measure of the question while oppose the other. Thus, a survey question must measure only one thing at a time.

Survey questions must be concise and as short as they can possible be. Because, the level of wording and the characteristic of the question wording influence the results. Respondents should not have to spend much time to understand what the question is asking for. Therefore, wordings that only highly educated people can understand or phrases that can only be understood by one group in population should be avoided in survey questions. This increases the ambiguity of the questions and might cause nonresponses or erroneous answers. The best way to avoid ambiguity is to run pretests and taking feedbacks regarding survey questions (Bailey, 2007; De Vaus, 2002).

Researchers unconsciously might ask leading questions. Leading questions increase the probability of one answer being piled up toward one direction. Questions must be

asked in their most neutral for to decrease the bias may stem from leading questions (Bailey, 2007; Baş, 2013).

3.3 Response categories

Determining the appropriate type for responses is a part of survey design process. Responses to questions could be in open-ended and close-ended types. Both types have their own merits and weaknesses. In open-ended responses, the response categories are not given, and the respondents write down anything that come into their mind regarding the questions. In close-ended questions respondents choose an option among a set of different alternatives given by the researcher. Many surveys employ both response categories (Bailey, 2007).

3.3.1 Open-ended questions

Open-ended questions can be used when the researcher does not know all the answer categories or there are too many categories which cannot be collapsed into a few categories. The researcher can see what the respondents think as appropriate answers via open-ended questions. Enthusiastic respondents who wish to express their opinions in detail are given the opportunity to explain themselves. If answered properly, responses to these types of questions provide insights to researcher that are not considered before (Bailey, 2007).

Open-ended questions also have some weaknesses. Researchers may obtain information irrelevant of the question of interest since respondents are free to write anything they want on the survey paper. The data obtained is unstandardized and it is hard to code unstandardized data. Thus, the analyses of open-ended questions are relatively complicated. Open-ended questions require high level of writing skills which is generally held by educated people. When the targeted population comprise of low educated people, open-ended questions turn out to be inefficient. Open-ended questions require more time to respond. Since respondents might not want to spend much time on a survey, the nonresponse rate is quite high. Finally, open-ended questions require more space and paper, participants my intimated by the number of pages (Bailey, 2007).

3.3.2 Close-ended questions

In close-ended questions response categories should be exhaustive and mutually exclusive. That is, all possible answers should be included in response categories and a respondent who is in one category should not be in another. Meeting these requirements can help getting high returns rate to survey. Close-ended questions are beneficial especially when participants are needed to be asked sensitive questions. Respondents generally do not prefer to write down answers for these questions. Asking them in close-ended form implicitly impose respondents that they are not the only ones who answer these questions. Besides, choosing a category is much straightforward in comparison with writing answers to open-ended questions explicitly (Bailey, 2007; De Vaus, 2002).

To be able to analyze the survey, any question in the survey should be translated into a measurable form. Generally, the coding of close-ended questions is not difficult and is made while the respondents answer the questions. Thus, researchers can obtain standardized answers which enables them to easily compare results from person to person and analyze the data. In case of respondents do not understand what the question is asking for, close-ended response categories can guide them to understand the meaning of the question. Close-ended questions do not require high level of writing skills; therefore, they can easily be filled by low educated people (Bailey, 2007).

Close-ended questions also have some disadvantages. For instance, respondents who do not know the answer or have no opinion regarding the question or are faced with many categories could pick one category randomly without a spending any effort to remember the categories anchors. These kinds of responses must be carefully evaluated in the analyses and should be excluded if detected. Other than this, researchers must be cautious while determining the response categories. They need to make sure that all possible categories are listed. Otherwise, respondents are not given the chance of explaining what their opinion really is. Besides, in close-ended questions it cannot be understood whether respondents understand the question or misinterpret it while answering it (Bailey, 2007; Baş, 2013).

4. RELIABILITY AND FACTOR ANALYSIS

4.1 Reliability Analysis

For all surveys, reliability analysis is necessary, because it measures how well a set of variables measure the question of interest as well as the consistency of variables with each other. A reliable scale means that even if the same surveys are taken at different times the results will be identical or quite similar with the previous surveys' results (Kalaycı, 2018). In this part, we employed method of Cronbach's alpha to check for the reliability of the exploratory variables which will be factor analyzed later.

We checked the reliability of our scale using method of Cronbach's alpha. Cronbach's alpha measures whether the variables will be consistent if the survey is taken in different times, even when the questions are slightly altered (Kalaycı, 2018). In equation 4.1, K stands for number items included in reliability analysis. The denominator is the total variance, the nominator is the sum of variances of items included in analysis. α value ranges from zero to one and it increases as relevant items are included in the scale. In the literature, the lowest limit for alpha is stated as .70. However, in exploratory researches .60 is also acceptable. Below that limit, a scale is deemed unreliable. The higher the alpha value, the more reliable the scale is (DeVellis, 2003; Hair Jr, Black, Babin, & Anderson, 2014).

$$\alpha = \frac{K}{K-1}\left(1-\frac{\sum_{i=1}^{K}\sigma_{Y_i}^2}{\sigma_X^2}\right) \tag{4.1}$$

4.1.1 Reliability analysis of exploratory variables

Table 4.1 presents the survey questions that are included in the reliability analysis. For simplicity, survey questions are indicated by the specific codes Q1-Q16. In the reliability analysis exploratory variables, some items need to be reverse-scored. Because these questions indicate negative statements. Participants who say that they strongly agree with the statement "*I do not want to see OWFs where I live*", "*I think*

OWFs will distort the natural view of the seas" or "*I think, Turkey should not build OWFs*" indicate that they do not have positive opinions about OWFs. Reverse-scored items are indicated with an asterisk.

Table 4.1 : Survey questions included in reliability analysis.

Q1	I think environmental pollution has increased.
Q2	I think fossil fuels will run out in the future.
Q3	I think OWFs could be an efficient tool tackling climate change.
Q4	I think the advantages of OWFs outweigh their disadvantages.
Q5	I think building OWFs will contribute to economy.
Q6	I rather use electricity produced from renewable energy even though it is more expensive.
Q7	To protect the environment, I am willing to give a portion of my income as tax.
Q8*	I do not want to see OWFs where I live.
Q9	I believe, more OWFs will decrease the amount of fossil fuels Turkey imports.
Q10	I support the deployment of a nuclear power plant in Turkey.
Q11	I think environmental quality can be compromised for economic growth.
Q12*	I think OWFs will distort the natural view of the seas.
Q13	I think fossil fuels like coal have negative effects on human health.
Q14	I think fossil fuels causes air, water and environmental pollution.
Q15	I think Turkey should build OWFs
Q16*	I think Turkey should not build OWFs

Table 4.2 shows that, all 16 items together can be considered reliable, with a Cronbach's alpha of 0.719, which is above the minimum acceptable level of 0.60.

Table 4.2 : Reliability statistics.

Cronbach's alpha	Cronbach's alpha based on standardized items	Number of items
.719	.743	16

Table 4.3 demonstrates that the reliability analysis as conducted is appropriate and that results are robust. The last column in Table 4.3 displays the values that Cronbach's alpha would take if the particular item were to be eliminated from the analysis. We observe that excluding any item other than Q1 and Q11 leads to a decrease in the Cronbach's alpha value. Not including Q1 and Q11 in analysis slightly raises the alpha value. However, since the increase in the alpha value is small and our alpha value is already above the accepted limit, we retain Q1 and Q11 for further analyses.

Table 4.3 : Item-total statistics.

Variables	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
Q1	51.8878	55.569	.055	.153	.735
Q2	51.9905	51.670	.351	.278	.702
Q3	52.4630	51.675	.432	.287	.696
Q4	52.5585	51.496	.361	.215	.701
Q5	52.5895	50.592	.435	.247	.693
Q6	52.3484	51.251	.365	.250	.700
Q7	52.8162	52.404	.230	.166	.716
Q8*	52.4630	49.780	.426	.359	.693
Q10	53.2578	52.871	.157	.172	.728
Q11	53.6730	54.689	.097	.235	.731
Q12*	53.0979	53.294	.194	.263	.719
Q14	51.9547	51.187	.414	.480	.696
Q15	52.2816	50.365	.532	.436	.686
Q16*	52.4320	51.203	.399	.325	.697

*Reverse scored items

4.2 Factor Analysis

In social sciences, factor analysis is a common technique utilized to reduce the dimensions of the data. Factor analysis postulates that there are underlying unobserved latent variables - so called factors, which are linear combinations of variables of interest. Factor analysis process consists of factor extraction followed by rotation, calculations of communalities, variance and covariances, and factor scores (Tabachnick & Fidell, 2012). In this part we employ exploratory factor analysis for the questions, which aim to understand the reasons for support for OWFs.

4.2.1 Factor analysis of exploratory variables

We factor analyzed the items that presented in Table 4.1. Two questions "*I think Turkey should build offshore wind farms*", and "*I think Turkey should not build offshore wind farms*" are not included in factor analysis. This is because the main purpose of including these questions on the survey was to measure whether respondents answered questions carefully. These two questions are taken into account

during the data entering process. Respondents who answered both question in the same direction are treated as “careless respondents” and not included in the sample to be analyzed. All questions included in the factor analysis have responses on a 5-point Likert scale.

Prior to factor analysis, correlations among variables should be checked since correlated variables tend to load on the same component. Neither very high not very low correlations are desired. Because correlations above |-.8| may indicate collinearity, by implication singularity in the data, and correlations below |-.2| are very low, therefore negligible. The correlations among the questions are presented in Table 4.4.

4.2.1.1 Factor analysis with oblique rotation

There are two types of rotations in factor analysis: orthogonal and oblique rotation. Oblique rotation postulates that factors are correlated with each other, while orthogonal rotation postulates that factors are uncorrelated. We can see the correlations among factors via factor correlation matrix. Equation 4.2 presents us the way of obtaining factor correlation matrix,

$$\mathbf{\Phi} = \left(\frac{1}{N-1} \right) \mathbf{F}'\mathbf{F} \tag{4.2}$$

In equation 4.2, N stands for number of subjects included in factor analysis and $\mathbf{F}$ stands for factor score matrix. Factor correlation matrix $\mathbf{\Phi}$ is produced as the product of standardized factors scores divided by the number of cases minus one.

To determine the type of rotation to be used, it is necessary to run a factor analysis with oblique rotation first. Factor analysis with oblique rotation should be performed if the factor correlation matrix shows high correlations among extracted factors. If the correlations among factors are not high there is no need to employ oblique rotation since oblique rotation is a more complex rotation technique compared to orthogonal rotation. In oblique rotation, correlations lower that .32 are considered to be insignificant. (Tabachnick & Fidell, 2012). In Table 4.5, it is seen that none of the factors are noticeably correlated. These results imply that employing oblique rotation in factor analysis is not necessary for our data. Therefore, we run the analysis using orthogonal rotation.

Table 4.4 : Correlation matrix of variables included in factor analysis.

Variables	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Q1	1													
Q2	0.268***	1												
Q3	0.071	0.188***	1											
Q4	0.008	0.195***	0.325***	1										
Q5	0.043	0.128**	0.342***	0.275***	1									
Q6	0.089	0.231***	0.222***	0.150**	0.244***	1								
Q7	0.108*	0.143**	0.094	0.023	0.083	0.324***	1							
Q8	0.044	-0.091	-0.202***	-0.160***	-0.249***	-0.195***	-0.100*	1						
Q9	0.052	0.335***	0.307***	0.223***	0.226***	0.240***	0.209***	-0.158**	1					
Q10	-0.020	0.032	0.043	0.041	0.163***	-0.018	-0.056	-0.133**	0.007	1				
Q11	-0.175***	-0.110*	0.030	0.121*	0.172***	-0.094	-0.062	-0.186***	0.026	0.375***	1			
Q12	0.068	0.040	-0.080	-0.054	-0.153**	0.026	0.021	0.414***	-0.0963*	-0.134**	-0.156**	1		
Q13	0.144**	0.369***	0.215***	0.209***	0.162***	0.338***	0.260***	-0.134**	0.278***	-0.004	-0.072	0.120*	1	
Q14	0.185***	0.390***	0.174***	0.211***	0.143**	0.249***	0.266***	-0.079	0.313***	0.032	-0.085	0.036	0.642***	1

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.5 : Factor correlation matrix.

Factor	1	2	3	4	5
1	1.000	-.040	-.035	-.280	-.248
2	-.040	1.000	-.102	.130	-.084
3	-.035	-.102	1.000	-.133	.024
4	-.280	.130	-.133	1.000	.183
5	-.248	-.084	.024	.183	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

4.2.1.2 Factor analysis with orthogonal rotation

There exist many types of orthogonal rotation methods such as varimax, quartimax, and equamax. The common goal of these methods is simplification when interpreting factors. Varimax rotation does this by maximizing the variance of the loadings within factors, across variables. Quartimax simplifies variables by increasing the variance of the loadings within variables, across factors. It is not widely used because it focuses on variables rather than factors. Equamax is a combination of varimax and quartimax. It simultaneously tries to simplify both the factors and variables. However, it is inclined to yield incorrect results when the number of the factors are not predefined by the researcher. Among these methods, varimax is the most widely used method when performing orthogonal rotation. Because, it increases the interpretability of the extracted factors. In varimax rotation, high correlations between factors and variables are maximized, while low correlation between factors and variables are minimized. Besides, it balances the importance among factors by distributing the variance of a factor to others (Tabachnick & Fidell, 2012).

Varimax rotation maximizes the variance of factor loadings by means of a transformation matrix $\mathbf{\Lambda}$. In equation 4.3 The product of unrotated factor loading matrix $\mathbf{A}$ and $\mathbf{\Lambda}$ gives us the rotated factor loading matrix.

$$\mathbf{A}_{\text{unrotated}}\mathbf{\Lambda} = \mathbf{A}_{\text{rotated}} \tag{4.3}$$

$\mathbf{\Lambda}$ is defined as in equation 4.4. The transformation matrix consists of sines and cosines. Here Ψ indicates the angle of rotation

$$\mathbf{\Lambda} = \begin{bmatrix} \cos\Psi & -\sin\Psi \\ \sin\Psi & \cos\Psi \end{bmatrix} \tag{4.4}$$

Table 4.6 gives descriptive statistics for the variables included in the factor analysis. 470 observations for each variable included in the factor analysis. For all variables missing values are replaced with the variable mean. Listwise and pairwise deletion options for missing variables also are available and the same analysis has been performed with these options as well. All three options yield the same results. To not to lose data, the replacement with the mean option result is presented. Mean column table 4.6 exhibit that, except for questions Q8 and Q11, the majority of the respondents in the sample give positive responses to questions.

Table 4.6 : Descriptive statistics.

	Mean	Std. deviation	Analysis N	Missing N
Q1	4.138	1.1845	470	0
Q2	4.017	1.0427	470	2
Q3	3.553	.8839	470	7
Q4	3.436	1.0372	470	4
Q5	3.433	1.0309	470	4
Q6	3.662	1.0637	470	2
Q7	3.182	1.2282	470	3
Q8	2.468	1.1320	470	8
Q9	3.761	.9007	470	5
Q10	2.774	1.3785	470	6
Q11	2.318	1.2398	470	5
Q12	3.107	1.1669	470	2
Q13	4.026	1.0071	470	2
Q14	4.047	.9762	470	2

4.2.1.3 Checking data compatibility for factor analysis

Before factor analysis, one must make sure that the sample is large enough to perform a factor analysis. Kaiser-Meyer-Olkin measure (KMO) is a test which aims to measure sampling adequacy for all the variables included in the analysis. Equation 4.5 shows the calculation for KMO. Here, indices *i* and *j* stand for the variables, r_{ij}^2 is the square

of the observed correlations between variables *i* and *j*. a_{ij}^2 is the partial correlations between variables *i* and *j* with the $n-2$ variables held constant.

$$\mathbf{KMO} = \frac{\sum_{i \neq j}^{n} \sum^{n} r_{ij}^2}{\sum_{i \neq j}^{n} \sum^{n} r_{ij}^2 + \sum_{i \neq j}^{n} \sum^{n} a_{ij}^2} \tag{4.5}$$

This formula 4.5 indicates that, KMO measure approaches to 1 when original correlations between variables i and j are high and partial correlations are close to zero. Generally, KMO in the .90s is considered to be as "marvelous", in the .80s as "meritorious", in the .70 as "middling", in the .60s as "mediocre", in the .50s and below as "miserable". But one must keep in mind that, these categories originally developed by Kaiser arbitrarily. The inference behind this formula is that a KMO measure closed to 1.00 is preferable for factor analysis (Mulaik, 2010).

Bartlett's Test of Sphericity is developed to test correlations among variables included in factor analysis. The null hypothesis of Bartlett's Test is that the correlation matrix for independent variables is an identity matrix which means that there is no association between the variables included in the factor analysis. A significant test results indicates that the correlation coefficients are different from zero and the data set is suitable for factor analysis (Mulaik, 2010; Tabachnick & Fidell, 2012).

In table 4.7 the KMO and Bartlett's Test are displayed. KMO value of .735 is a middling value yet it enables us to perform factor analysis. We also see that Bartlett's Test of Sphericity is statistically significant, that is correlation coefficients are different from zero ($p < 0.001$).

Table 4.7 : KMO and Bartlett's test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.735
Bartlett's Test of Sphericity	Approx. Chi-Square	1062.231
	df	91
	Sig.	.000

4.2.1.4 Principal component analysis

There exist many factor extraction techniques such as principal component analysis (PCA), principal factors, maximum likelihood factoring, image factoring, alpha factoring, and unweighted and weighted least squares factoring. The choice of extraction technique is related to data set and the goal of the research. In our analyses, we employed PCA as the factor extraction technique. PCA reduces large number of correlated variables down to a smaller number of components, that is provide a summary of the sample data by reducing its dimensionality. Data becomes easier to analyze when its dimensionality is reduced. PCA aims to extract the maximum variance from the given data set with each component. The first component is the linear combination of the observed variables, the second component is a linear combination of other variables uncorrelated with the first component. The remaining components are derived following the same logic. PCA is useful when the researcher wants to investigate the interrelationship within a set of variables. For our analysis, we have 14 survey questions which are not easy to analyze at the same time. Therefore, the dimensions of the sample data should be reduced (Hair Jr et al., 2014; Tabachnick & Fidell, 2012).

Table 4.8 is the total variance explained table and consists of three different sub tables. The first table illustrates the eigenvalues associated with each factor. There are 14 eigenvectors, because there are as many eigenvectors, that is linear components, as there are variables. The number of factors to be retained is determined by the eigenvalues. Components with eigenvalues greater than 1 are retained to be displayed as extraction sums of squared loadings, and those with eigenvalues less than 1 are not included as factors. In our case five components remain.

The proportion of the variance in the data explained by the component is listed in decreasing order. Considering the table, the first component explains approximately 22 % of the total variance, the second component explains 13 %, and so on. After rotation, we observe that the relative importance of factors is more balanced. The loadings of the first component decreased, while the loadings of the remaining factors increased. All five factors together explain approximately 60 % of the total variance. which account for 59 % of the total variance. This value is not high for the natural sciences, in natural sciences factoring procedure should continue until 95 % of the total

variance explained by the extracted factors. In the social sciences, the information is not as precise as it is in the natural sciences. Thus, a value of 60 % explained total variance, even less than 60 %, is considered to be satisfactory (Hair Jr et al., 2014).

Table 4.8 : Total variance explained.

Components	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3.088	22.059	22.059	3.088	22.059	22.059	1.991	14.219	14.219
2	1.930	13.785	35.844	1.930	13.785	35.844	1.945	13.893	28.111
3	1.166	8.325	44.169	1.166	8.325	44.169	1.474	10.526	38.637
4	1.071	7.654	51.823	1.071	7.654	51.823	1.460	10.426	49.063
5	1.006	7.186	59.009	1.006	7.186	59.009	1.392	9.946	59.009
6	.938	6.704	65.712						
7	.807	5.766	71.479						
8	.714	5.101	76.579						
9	.663	4.733	81.313						
10	.640	4.569	85.882						
11	.594	4.246	90.127						
12	.551	3.939	94.066						
13	.494	3.529	97.595						
14	.337	2.405	100.000						

Extraction Method: Principal Component Analysis.

Table 4.9 shows the amount of variance in individual variables captured by all retained components or factors. For instance, after extraction, all components explain 65 % of the variance in Q1. Before extraction, principal component analysis postulates that all variance is shared. That is why all values in the initial column equals to 1.

In Table 4.10 the rotated component matrix is presented. The table shows the factor loadings of each variable onto each extracted factor. For instance, Q17, Q13, Q6 and Q14 loaded onto component one, Q4, Q3, Q5 and Q9 loaded onto component two, Q1 and Q2 loaded onto component 3, Q12 and Q8 loaded onto component four, and finally Q10 and Q11 loaded onto component five. For simplicity, factor loadings less than 0.4 are not presented in the table.

Table 4.9 : Communalities.

	Initial	Extraction
Q1	1.000	.646
Q2	1.000	.570
Q3	1.000	.544
Q4	1.000	.587
Q5	1.000	.446
Q6	1.000	.489
Q7	1.000	.602
Q8	1.000	.653
Q9	1.000	.370
Q10	1.000	.699
Q11	1.000	.664
Q12	1.000	.704
Q13	1.000	.653
Q14	1.000	.633

Extraction Method: Principal Component Analysis.

Table 4.10 : Rotated component matrix.[a]

	Component				
	1	2	3	4	5
Q7	.753				
Q13	.666				
Q6	.635				
Q14	.594		.434		
Q4		.757			
Q3		.716			
Q5		.585			
Q9		.463			
Q1			.787		
Q2			.673		
Q12				.824	
Q8				.746	
Q10					.824
Q11					.754

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

4.2.1.5 Interpretation

The final step of factor analysis is to identify common themes among the variables that load onto the same component and name that component accordingly. Q7, Q13, Q6 and Q14 compose component 1, the underlying theme of component 1 is that of concerns regarding fossil fuels and willingness to bear personal costs to solve these problems. Q4, Q3, Q5 and Q9 compose component 2 and these variables share a common theme, which is expectations from OWFs. Q1 and Q2 compose component 3, these two questions share a common theme, which is concerns regarding the environment and limited natural resources. Q12 and Q8 generate component 4 with a shared theme of visual concerns. Component 4 will be used to test whether NIMBY holds in Turkey. Q10 and Q11 together compose component five. Component 5 could be thought of as representing a priority for economic growth.

5. SURVEY DESIGN, STRUCTURE, DATA DESCRIPTION AND SUMMARY STATISTICS OF VARIABLES

In this part of the thesis, we will explain the survey design and sample selection process, mention the data structure and provide summary statistics for variables included in the analyses such as political orientation, framing conditions, support for OWF projects and extracted factors from the factor analysis. Furthermore, we will present the framing conditions that have been employed. Before presenting empirical analyses, the relationships between these variables will be examined.

5.1 Survey Design Process, Sample Selection and Survey Structure

The aim of this study is to examine whether congruency of moral framing of renewable energy and political view have a significant effect on support for OWF projects. Framing conditions are built in line with the assertions of the MFT as mentioned previously. To this end, we designed a survey with three different framing conditions; the individualizing condition appeals to the values associated with political liberals in United States, the binding condition appeals to the values associated with political conservatives in the United States, and the control condition lacks any manipulation or targeting. We designed the final version of the survey in two phases. In the first phase framing conditions were determined as MFT suggests without any negative aspects of OWFs presented. The content of control questions was differed only slightly. In pretests performed with 35 participants, all of whom were academics with at least a Master's degree, responses to OWF support questions skewed heavily to strongly support, support and undecided options (please see Table A. 1 in Appendix A for the distribution of the responses in the pretest data). In feedback that was supplied, some participants indicated that renewable energy is presented only with its merits and that as described there was no reason to not to support OWF policies. They found the binding condition to be irritating yet it was not enough to change their opinions about OWFs. Due to this reason, in phase 2 it was decided to present some disamenities

originating from OWFs such as harm to marine life, distortion of natural view of the seas, etc.… in the final surveys. After these modifications in the second phase, the surveys were given to students of İstanbul Technical University (142 participants) and Trakya University (328 participants). In 142 usable surveys from İstanbul Technical University, most students indicated their political view as strongly, moderately or slightly left. In addition, in the space for feedback provided on surveys some left-leaning students noted with respect to the binding condition frame, that the approach of the research was unscientific and manipulative. Compared to pretest surveys the proportion of "undecided" and "do not support" OWFs increased after disadvantages of OWFs were presented in the framing messages. Yet most of respondents still supported OWFs. Even those who indicated that they do not approve of the way that renewable energy was presented in framing supported OWFs project. However, we were unable to analyze the effect of framing using the Istanbul Technical University sample alone because there were not enough participants from right political view who were also exposed to the binding condition frame. Therefore, it was decided to increase the size of and diversify the sample. As a result, we proceeded to collect 328 more usable surveys from Trakya University, a two year-college in Edirne.

We designed three surveys with differently framed presentations of renewable energy policy but identical questions. Before reading the randomly assigned framing passage, participants were asked to what extent they are familiar with renewable energy. Most participants were at least somewhat familiar with renewable energy ("have no information": 5.16%, "have a little information": 65.38%, "have information": 29.46%). After reading the framing passage respondents answered 16 questions mentioned previously, which are the subject of the factor analysis in the preceding chapter. Afterwards, they were asked to what extent they support the OWF projects. In the demographic portion of the survey they were asked about their gender, income level, place of origin and political orientation (see Appendix B for the complete survey).

5.2 Data Description and Summary Statistics of the Variables

5.2.1 Support OWF projects

After reading the framing passage and answering 16 questions which aim to understand why participants do support or do not support OWF projects, participants are asked "to what extent do you support the OWF projects?". This question was posed on a Likert scale (1 = strongly do not support, 3 = undecided, 5 = strongly support). Due to the lack of responses with "strongly do not support" (only 8 observations), strongly do not support and do not support options are merged as one category labelled "do not support". After this modification the new scale becomes; 1 do not support, 2 undecided, 3 support, 4 strongly support. From Table 5.1 we observe that, for this question, the majority of respondents chose either "support" or "undecided" (mean = 2.56, std. dev. = .77).

Table 5.1 : Summary statistics for support OWFs project.

	Frequency	Percent	Cumulative
do not support	36	7.66	7.66
undecided	180	38.30	45.96
support	209	44.47	90.43
strongly support	45	9.57	100.00
Total	470	100.00	

5.2.2 Extracted factors

After supplying the framing conditions, we asked participants 14 questions. For ease of analysis, we performed a factor analysis (described in chapter 4), which yielded five factors. We labelled these factors as indicated in Table 5.2.

Table 5.2 : Extracted factors.

Extracted factor's name	Survey questions
Willingness to bear personal costs to solve environmental problems	Q7, Q13, Q6, Q14
Expectations from OWFs	Q4, Q3, Q5, Q9
Concerns regarding environment and limited natural resources	Q1, Q2
Visual concerns (not in my backyard hypothesis)	Q12, Q8
Prioritizing economic growth	Q10, Q11

5.2.2.1 Awareness of environmental problems and willingness to bear personal costs to solve them

We believe that people with a higher awareness of environmental problems and greater willingness to bear personal costs to solve those problems will show greater support for OWF projects. However, one should keep in mind that willingness could change in real world. People who express that they are ready to give a portion of their income to protect the environment or pay more for electricity produced using renewable energy, when such a statement does not incur a real cost, might not want to that in reality (Kühberger et al., 2002). This study does not attempt to estimate individuals' true willingness-to-pay for renewable energy, hence the distinction between a stated preference and a revealed preference is less important.

5.2.2.2 Expectations for OWFs

Based on the previous literature, people's decision to oppose or support OWFs is strongly affected by their perceptions and expectations about OWFs. Positive perceptions such as economic advantages, strengthening of energy security and efficiency lead to a higher degree of support, while negative perceptions like higher electricity prices, harming wildlife and distortion of the natural view of the seas negatively affects the degree of support for OWFs (Hattam, Hooper, & Beaumont, n.d.). We hypothesize that positive expectations about OWFs will positively affect the decision to support OWF projects.

5.2.2.3 Concerns regarding environment and limited natural resources

We believe that concerns regarding environment and limited natural resources have two aspects in determining the decision of support or oppose OWFs. On one aspect, higher concerns regarding environment and natural resources could increase the degree of support for OWFs. People who believe that there are things that humans should do to protect the environment and leave a cleaner world for the next generation could support renewable energy installations. On the other aspect, people who believe that climate change and environmental problems are already inevitable and cannot be prevented by precautions taken by human beings (at least domestically), even if they are aware of environmental problems and natural resource limitations, might not support renewable energy investments. As a result, we have no specific hypothesis

regarding the impact of this variable. In the analyses, we will test which aspect dominates the other.

5.2.2.4 Visual concerns

Opposition towards OWFs generally arise from visual concerns (Ladenburg, 2010). Visual concerns generally are referred to as one type of NIMBY. NIMBY is indicative of self-interest (B. J. A. Walker et al., 2014) and NIMBYism means that people who in general support renewable energy projects, would oppose them when they are built in their surrounding area (Ribeiro, Ferreira, Araújo, & Braga, 2018). Depending on the place examined, some studies find evidence of NIMBYism in renewable energy while others do not. For instance, Graham, Stephenson and Smith (2009) find no significant relationship between attitudes toward wind farms and geographical proximity to wind farms. Jones and Eiser (2010), on the other hand, concluded that visibility of OWFs generates local opposition. We will test whether NIMBYism holds for our case, later in the empirical analyses, with the hypothesis that visual concerns will negatively affect support for OWF projects.

5.2.2.5 Prioritizing economic growth

The factor analysis yielded another factor, which we label as "prioritizing economic growth". We expect a positive sign in this factor in the analyses, because renewable energy installations are also perceived as a driver of economic growth. Economic benefits stemming from renewable energy on a local and global scale increases the rate of support for OWFs (Haggett, 2011).

Other than these factors, the literature suggests that the place OWFs are built, benefits to the local community, fairness in the building process (Haggett, 2011), age, education level, property ownership, negative aspects of OWFs such as harming birds and marine life and negative impacts on fishing and recreational activity can all influence support or opposition for OWF projects (Firestone & Kempton, 2007).

5.2.3 Political orientation

The political orientation question in the survey is taken from the World Values Survey (http://www.worldvaluessurvey.org/WVSDocumentationWV6.jsp), with the scale adjusted from 11 to 6 to make the scale clearer to participants. This question response

was indicated on a semantic differential scale; 1 being left and 6 being right. Afterwards, we labelled each number with 1 being strongly left, 2 moderately left, 3 slightly left, 4 slightly right, 5 moderately right and 6 being strongly right. In the pretest surveys conducted with 35 participants, there was also an option of undecided. However, most of the participants chose that option and hesitated to indicate their political view. Since the political orientation score is essential to examine the research question of the thesis, we accepted the risk of nonresponses and in the final survey we did not give participants the option of undecided. Nonetheless, some participants refused to give their answer on this scale, they drew a cross on the scale or write in parenthesis that they are nationalist or communist, etc... Such responses were excluded from the analyses. As seen in Table 5.3, approximately 65% of the participants indicated their political orientation as left, 35% of the participants indicated their political orientation as right (mean = 2.99, std. dev = 1.45). Approximately 46% of political orientation responses are clustered around slightly left and slightly right.

Table 5.3 : Summary statistics for political orientation.

	Frequency	Percent	Cumulative
strongly left	87	18.51	18.51
moderately left	100	21.28	39.79
slightly left	118	25.11	64.89
slightly right	96	20.43	85.32
moderately right	35	7.45	92.77
strongly right	34	7.23	100.00
Total	470	100.00	

5.2.4 Framing conditions

We determined two different framing conditions in line with the assertions of Moral Foundations Theory, plus a control condition in which some information regarding renewable energy is presented without any moral manipulation included. The individualizing condition emphasizes on harm/care and fairness/reciprocity and it appeals to the moral values of political liberals in the United States. The binding conditions focuses on ingroup/loyalty, authority/respect and purity/sanctity and it appeals to the moral roots of political conservatives in the United States (please see Appendix C for the moral framing conditions). Participants were randomly assigned one of the three different framing conditions for their survey. We examined whether

congruency of framing condition constructed in line with MFT and political orientation in Turkey have a significant effect on support for OWF projects.

In Table 5.4 the distribution of framing conditions is presented. The proportion of binding condition is relatively high compared to individualizing and control condition. This oversampling was done compensate for the scarcity of right-leaning survey participants in order to ensure that there were enough participants who were both exposed to binding condition and expressed their political orientation as right. Control and individualizing conditions are almost equal in frequencies with a difference due only to a slight difference in usable responses.

Table 5.4 : Summary statistics for framing conditions.

	Frequency	Percent
control condition	131	27.87
individualizing condition	135	28.72
binding condition	204	43.40
Total	470	100.00

5.2.5 Demographic variables

Gender, level of income and place the participants grew up are included in the analyses. Gender is included as a dummy variable, the others as categorical variables. In Table 5.5 the distribution of demographic variables is displayed.

Table 5.5 : Summary statistics for demographic variables.

		Frequency	Percent	Cumulative
gender	female (dummy coded = 0)	209	45.04	45.04
	male (dummy coded = 1)	255	54.96	100.00
	Total	464	100.00	
Income in Turkish Liras	0-3000 (coded as = 1)	173	37.20	37.20
	3001-7000 (coded as = 2)	205	44.09	81.29
	7001-10000 (coded as = 3)	55	11.83	93.12
	10001 and above (coded as = 4)	32	6.88	100.00
	Total	465	100.00	
Place	village/town (coded as = 1)	59	12.55	12.55
	city (coded as = 2)	188	40.00	52.55
	bigcity/metropol (coded as = 3)	223	47.45	100.00
	Total	470	100.00	

5.3 Cross-tabulations of Variables

In this section we will present some cross-tabulations to grasp the relationship between the variables included in the analysis before presenting the empirical analyses.

From Table 5.6 it is seen that almost 65% of the participants are indicated their political view as left, and 35% of the participants indicated their political view as right. The number of surveys given for each framing condition is balanced for control and individualizing condition and higher for binding condition. This was done to ensure there were enough participants who are from right political view and also exposed to the binding condition to effectively test the existence or nonexistence of a framing effect.

Table 5.6 : Tabulation of political orientation and framing conditions.

	control condition	individualizing condition	binding condition	Total in percentages
strongly left	23.66	14.07	18.14	18.14
moderately left	16.79	25.93	21.08	21.28
slightly left	23.66	30.37	22.55	25.11
slightly right	24.43	17.78	19.61	20.43
moderately right	6.11	6.67	8.82	7.45
strongly right	5.34	5.19	9.80	7.23
Total	(100.00)	(100.00)	(100.00)	(100.00)
Observations	131	135	204	470

We designed Figure 5.1 in order to observe if there is any significant difference in support for OWFs given different framing conditions. We observe that the majority of the participants, regardless of the framing condition to which they are exposed, are either undecided or support the OWFs project and avoid giving extreme answers such as strongly support and strongly do not support. We see that do not support is higher in percentages in the binding condition in comparison with do not support in the individualizing condition, yet almost equal with do not support in the control condition. We will examine whether this situation stems from framing effect in detail later in the analyses.

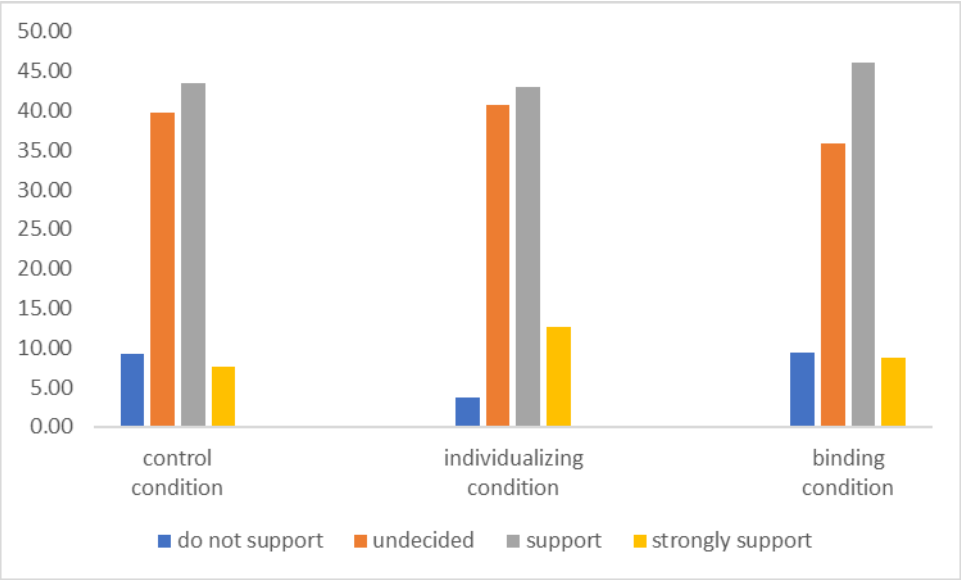

Figure 5.1 : Distribution of support OWFs given different framing conditions

We build a three-way crosstab in order to examine the relationship among political orientation, support for OWFs and framing conditions. In Table 5.6 we see that in the control condition participants who do not support OWFs are mostly from the left political view. With the individualizing condition, participants who do not support OWFs were not from extreme sides of political view. However, with the binding condition, the majority of the participants who do not support OWFs project are from left political view which may or may not mean a framing effect exists. In addition, in the surveys, we asked participants to what extent they are familiar with renewable energy. Some participants who says they are familiar with renewable energy, who were exposed to the binding condition and indicated their political view as left, write down notes on the survey paper, which stated “it is wrong to present renewable energy in such manner”. They indicated that they support the project just because they know what renewable energy really means. That is, if they were unfamiliar with renewable energy, they were most likely not to support the OWF project as it was described in the survey.

Table 5.6 : Cross-tabulation framing conditions, political orientation and support OWFs

	do not support	undecided	support	strongly support
Control condition				
strongly left	25.00	26.92	17.54	40.00
moderately left	33.33	19.23	12.28	10.00
slightly left	33.33	15.38	26.32	40.00
slightly right	8.33	21.15	33.33	10.00
moderately right		9.62	5.26	
strongly right		7.69	5.26	
observations	12	52	57	10
Individualizing condition				
strongly left		16.36	13.79	11.76
moderately left		36.36	20.69	17.65
slightly left	60.00	23.64	31.03	41.18
slightly right	40.00	18.18	17.24	11.76
moderately right		1.82	13.79	
strongly right		3.64	3.45	17.65
	5	55	58	17
Binding condition				
strongly left	42.11	15.07	18.09	5.56
moderately left	21.05	24.66	17.02	27.78
slightly left	21.05	26.03	22.34	11.11
slightly right		21.92	21.28	22.22
moderately right	15.79	2.74	11.70	11.11
strongly right		9.59	9.57	22.22
	19	73	94	18

6. METHODOLOGY

6.1 Ordered Logit Model

It is quite common in social sciences to perform ordered logit model (OLM) when the dependent variable is in an ordinal scale. Ordered models are widely used when analyzing the public acceptance of wind farms, both on-land and offshore, too. For instance, Ladenburg (2008, 2010), Ladenburg and Möller (2011) and Ribeiro et al. (2018) utilized ordered models to examine the public acceptance of emerging renewable energy technologies. The widely usage of ordered models in the literature encourages us to use ordered logit model in the analyses.

OLM compared to ordinary least squares (OLS) or other methods, in which the ordered nature of the dependent variable is ignored and treated as nominal, produces more reliable estimates and allows for making comparisons between categories (Agresti, 2010). Employing OLS when the dependent variable has an ordinal nature causes inefficiencies because by doing so all available information is not used in the analyses. Nevertheless, one should keep in mind that for some cases ordinal logit model is nothing but a confirmatory method of OLS especially when the dependent variable has five or more categories (Menard, 2001). For concreteness, we run the analyses with both models (please see Table D.1 in Appendix D for OLS results).

In ordered logit model, the observable dependent variable is predicted via an underlying continuous latent variable, *y**, which varies from -∞ to +∞. There are $J-1$ thresholds (α_j), where *J* equals to number of possible ratings, because $J-1$ values are required to divide the observed rating scale into *J* cells. As *y** crosses a threshold, the observed category changes. Thus, calculating thresholds parameters are crucial in ordered choice models (Greene, 2012).

Assuming that the underlying latent variable, *y**, is determined as in equation 6.1, and error term, *e*, is normally distributed, then, the threshold parameters or cutoff points, α, are determined as in equation 6.2. Threshold parameters are important in

determining the magnitudes of estimated probabilities and partial effects. Therefore, they cannot be treated as ancillary.

$$y^* = \mathbf{x}\boldsymbol{\beta} + e, \qquad e \mid \mathbf{x} \sim \text{Normal}(0,1) \tag{6.1}$$

$$\begin{aligned} y &= 0 \quad \text{if } -\infty < y^* \le \alpha_1 \\ y &= 1 \quad \text{if } \alpha_1 < y^* \le \alpha_2 \\ &\vdots \\ y &= J \quad \text{if } \alpha_J < y^* < \infty \end{aligned} \tag{6.2}$$

Given the standard normal assumption for *e*, the conditional distribution function of *y* given **x** can be calculated by computing the probability of each response category occurring. Here Λ is the logistic distribution function and β are the parameters to be estimated. As expected, summing up all the calculated probabilities in equation 6.3 yield to unity.

$$\begin{aligned} &\mathrm{P}(y=0 \mid \mathbf{x}) = \mathrm{P}\left(y^* \le \alpha_1 \mid \mathbf{x}\right) = \mathrm{P}\left(\mathbf{x}\boldsymbol{\beta} + e \le \alpha_1 \mid \mathbf{x}\right) = \Lambda\left(\alpha_1 - \mathbf{x}\boldsymbol{\beta}\right) \\ &\mathrm{P}(y=1 \mid \mathbf{x}) = \mathrm{P}\left(\alpha_1 < y^* \le \alpha_2 \mid \mathbf{x}\right) = \Lambda\left(\alpha_2 - \mathbf{x}\boldsymbol{\beta}\right) - \Lambda\left(\alpha_1 - \mathbf{x}\boldsymbol{\beta}\right) \\ &\vdots \\ &\mathrm{P}(y=J-1 \mid \mathbf{x}) = \mathrm{P}\left(\alpha_{J-1} < y^* \le \alpha_J \mid \mathbf{x}\right) = \Lambda\left(\alpha_J - \mathbf{x}\boldsymbol{\beta}\right) - \Lambda\left(\alpha_{J-1} - \mathbf{x}\boldsymbol{\beta}\right) \\ &\mathrm{P}(y=J \mid \mathbf{x}) = \mathrm{P}\left(y^* > \alpha_J \mid \mathbf{x}\right) = 1 - \Lambda\left(\alpha_J - \mathbf{x}\boldsymbol{\beta}\right) \end{aligned} \tag{6.3}$$

In OLM maximum likelihood estimation is used to estimate the parameters α and β. The log likelihood function used for parameter estimation is presented in equation 6.4.

$$\begin{aligned} l_i(\boldsymbol{\alpha}, \boldsymbol{\beta}) = 1[y_i = 0]\log\left[\Lambda\left(\alpha_1 - \mathbf{x}_i\boldsymbol{\beta}\right)\right] + 1[y_i = 1]\log[\Lambda\left(\alpha_2 - \mathbf{x}_i\boldsymbol{\beta}\right) \\ - \Lambda\left(\alpha_1 - \mathbf{x}_i\boldsymbol{\beta}\right)] + \cdots + 1[y_i = J]\log\left[1 - \Lambda\left(\alpha_J - \mathbf{x}_i\boldsymbol{\beta}\right)\right] \end{aligned} \tag{6.4}$$

But the obtained parameters are estimated for the latent variable, *y**, not the ordered variable we are interest in, *y*. Thus, partial effects should be calculated, especially when one wants to make comparisons across different models such as OLS, ordered probit model. Partial effects for the ordered variable can be obtained as in equation 6.5.

$$\begin{aligned}
&\partial p_0(\mathbf{x})/\partial x_k = -\beta_k \lambda(\alpha_1 - \mathbf{x}\boldsymbol{\beta}),\ \ \partial p_J(\mathbf{x})/\partial x_k = \beta_k \lambda(\alpha_J - \mathbf{x}\boldsymbol{\beta}) \\
&\partial p_j(\mathbf{x})/\partial x_k = \beta_k \left[\lambda(\alpha_{j-1} - \mathbf{x}\boldsymbol{\beta}) - \lambda(\alpha_j - \mathbf{x}\boldsymbol{\beta})\right], \qquad 0 < j < J
\end{aligned} \tag{6.5}$$

In this study, the dependent variable is support OWF project which is in an ordered scale 1 being disagree and, 4 being strongly agree. We treat framing conditions as dummy variables rather than categoric variables. This is done to make comparisons between the desired framing conditions. We include demographic variables, extracted factors from the exploratory factor analysis, political orientation, framing conditions, and the interactions of political ideology and framing conditions in the models as exploratory variables. We add interaction terms of political view and framing conditions in the analyses to see whether congruency of political ideology and framing condition has a significant effect on the dependent variable. As demographic variables we add participants' gender, income level and the place they grew up. We could not add the age of participant as exploratory variable. Because there was almost no variation in the age due to the reason surveys are taken by college students who are almost in the same age.

Considering the theoretical structure of OLM, our model becomes as in equation 6.6. Since framing conditions are dummy variables, to avoid perfect multicollinearity, as we will see in Chapter 7, we drop one of the framing conditions, respectively, for each for each model performed.

$$\begin{aligned}
\text{Support OWF project}^{*} = {} & \beta_1 G_i + \beta_2 P_i + \beta_3 I_i + \beta_4 PV_i + \\
& \beta_5 CC_i + \beta_6 IC_i + \beta_7 BC_i + \\
& \beta_8 PV_i * CC_i + \beta_9 PV_i * IC_i + \beta_{10} PV_i * BC_i + \\
& \beta_{11} PEG_i + \beta_{12} VC_i + \beta_{13} E_i + \beta_{14} W_i + \beta_{15} Con_i + \varepsilon_i
\end{aligned} \tag{6.6}$$

In equation 6.6, the variables in their open forms are as follow. G_i: gender; P_i: place; I_i: income; PV_i: political view; CC_i: control condition; IC_i: individualizing condition; BC_i: binding condition; PEG_i: prioritizing economic growth; VC_i: visual concerns; E_i: expectations from OWFs; W_i: willingness to bear personal costs to solve environmental problems; Con_i: concerns regarding environment and limited natural resources.

In equations 6.7, the observed rating of support OWF project could be viewed as a censored version of the true underlying preferences. For our model the cutoff points are determined as in equations 6.7.

$$\begin{aligned}
&\text{Support OWF project} = 1 \quad \text{if} \quad -\infty < \text{Support OWF project}^{*} \leq \alpha_1 \\
&\text{Support OWF project} = 2 \quad \text{if} \quad \alpha_1 < \text{Support OWF project}^{*} \leq \alpha_2 \\
&\text{Support OWF project} = 3 \quad \text{if} \quad \alpha_2 < \text{Support OWF project}^{*} \leq \alpha_3 \\
&\text{Support OWF project} = 4 \quad \text{if} \quad \alpha_3 < \text{Support OWF project}^{*} < +\infty
\end{aligned} \tag{6.7}$$

6.2 Tests of the parallel regression assumption

Parallel regression assumption or the proportional odds assumption should be checked to be able to run properly ordered logit model. Parallel regression assumption postulates that the slope coefficients are the same across categories. When the proportional odds assumption is violated, one might consider utilizing different models that do not impose this restriction such that multinomial logit or generalized ordered logit model.

Parallel regression assumption is tested using *oparallel* command is STATA. This command produces different statistics all made for testing parallel regression assumption. The logic behind these tests based on comparisons between unconstrained model which is generalized ordered logit model and constrained model which is ordered logit model. A significant test statistic in *oparallel* output provide evidence that parallel regression assumption is violated, and other models should be performed (Long & Freese, 2014). In Table 6.1 we see that all test results are insignificant which means that running ordered logit model is appropriate for our case and there is no need to perform generalized ordered logit model or multinomial model for our data.

Table 6.1 : Test results for the parallel regression assumption

	Chi2	**df**	**P>Chi2**
Wolfe Gould	30.58	26	0.244
Brant	32.25	26	0.185
score	32.15	26	0.188
likelihood ratio	31.42	26	0.213
Wald	32.8	26	0.168

7. RESULTS AND DISCUSSION

7.1 Ordered Logistic Regression Results

In Table 7.1 ordered logit results and in Table 7.2 the marginal effects are displayed for the six model we built. Model 1, Model 2, and Model 3 are equal in terms of variables included in the analyses. The only difference among these three models is the reference category chosen for the framing conditions. In Model 1, individualizing condition is chosen as the reference category, in Model 2 control condition is chosen as the reference category, in Model 3 binding condition is chosen as reference category. In Model 4, Model 5, and Model 6 reference category is chosen in the same order. We exclude insignificant demographic variables from these latter three models.

Evaluating Table 7.1 and Table 7.2 at the same time, we observe that, for every variable in the models the marginal effects and the ordered logit results yield to opposite signs. The reason behind this is as the following; in the ordered logit results, the coefficient interpretation is made as the probability of being in a higher level of support OWF project. The marginal effects results are calculated for the probability of being in the lowest category, in our case the lowest category is do not support OWF project. This option could easily be changed in STATA. The marginal effects give us idea not only for the direction of the relationship, but also for the magnitude of the relationship.

At first glance, we observe that, except for gender, demographic variables are not statistically significant. Thus, we excluded the insignificant demographic variables from the latter three models. The positive sign for gender (dummy coded as 1 if male; 0 if female) indicates that the probability of males supporting OWF project is higher than females. Although, it is insignificant, we see that people who grew up in big cities and cities are more likely to support OWF project in comparison with people who grew up in villages and towns. The negative sign before income variable indicates that

people with lower income are more likely to support OWF project. But income variable is not statistically significant.

Table 7.1 : Ordered logistic regression results

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
	Support for OWFs	Support for OWFs	Support for OWFs	Support for OWFs	Support for OWFs	Support for OWFs
Gender	0.485**	0.485**	0.485**	0.472**	0.472**	0.472**
	(0.206)	(0.206)	(0.206)	(0.203)	(0.203)	(0.203)
Income	-0.0358	-0.0358	-0.0358			
	(0.113)	(0.113)	(0.113)			
Place grew up	0.0554	0.0554	0.0554			
	(0.141)	(0.141)	(0.141)			
Political view	0.0479	0.150	0.163	0.0422	0.144	0.146
	(0.140)	(0.130)	(0.100)	(0.139)	(0.130)	(0.0992)
Control condition	-0.827		0.0264	-0.835		-0.0169
	(0.603)		(0.536)	(0.597)		(0.533)
Binding condition	-0.853	-0.0264		-0.819	0.0169	
	(0.548)	(0.536)		(0.544)	(0.533)	
Individualizing condition		0.827	0.853		0.835	0.819
		(0.603)	(0.548)		(0.597)	(0.544)
Political view*control condition	0.102		-0.0127	0.102		-0.00228
	(0.186)		(0.160)	(0.184)		(0.159)
Political view*binding condition	0.115	0.0127		0.104	0.00228	
	(0.168)	(0.160)		(0.167)	(0.159)	
Political view*individualizing condition		-0.102	-0.115		-0.102	-0.104
		(0.186)	(0.168)		(0.184)	(0.167)
Prioritizing economic growth	0.366***	0.366***	0.366***	0.380***	0.380***	0.380***
	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)	(0.105)
Visual concerns (NIMBY)	-0.905***	-0.905***	-0.905***	-0.896***	-0.896***	-0.896***
	(0.109)	(0.109)	(0.109)	(0.107)	(0.107)	(0.107)
Expectations from OWFs	1.271***	1.271***	1.271***	1.267***	1.267***	1.267***
	(0.118)	(0.118)	(0.118)	(0.118)	(0.118)	(0.118)
Willingness to bear personal costs to solve environmental problems	0.411***	0.411***	0.411***	0.409***	0.409***	0.409***
	(0.0999)	(0.0999)	(0.0999)	(0.0986)	(0.0986)	(0.0986)
Concerns regarding environment and limited natural resources	-0.200**	-0.200**	-0.200**	-0.192**	-0.192**	-0.192**
	(0.0993)	(0.0993)	(0.0993)	(0.0975)	(0.0975)	(0.0975)
Constant cut1	-3.433***	-2.606***	-2.580***	-3.527***	-2.692***	-2.709***
	(0.620)	(0.574)	(0.541)	(0.490)	(0.462)	(0.393)
Constant cut2	-0.185	0.642	0.668	-0.290	0.546	0.529
	(0.585)	(0.552)	(0.516)	(0.445)	(0.434)	(0.357)
Constant cut3	3.393***	4.219***	4.246***	3.310***	4.145***	4.128***
	(0.621)	(0.598)	(0.563)	(0.489)	(0.489)	(0.419)
Observations	459	459	459	464	464	464

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7.2 : Marginal effects

	Marginal effects					
	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
Gender	-0.0136	-0.0136	-0.0136	-0.0131	-0.0131	-0.0131
Income	0.001	0.001	0.001			
Place grew up	-0.0015	-0.0015	-0.0015			
Political view	-0.0013	-0.0041	-0.0044	-0.0011	-0.0039	-0.004
Control condition	0.0272		-0.0007	0.0275		0.0005
Binding condition	0.0251	0.0007		0.0239	-0.0005	
Individualizing condition		-0.0195	-0.0201		-0.0196	-0.0193
Political view*control condition	-0.0028		0.0003	-0.0028		0.0001
Political view*binding condition	-0.0031	-0.0003		-0.0028	-0.0001	
Political view*individualizing condition		0.0028	0.0031		0.0028	0.0028
Prioritizing economic growth	-0.0099	-0.0099	-0.0099	-0.0103	-0.0103	-0.0103
Visual concerns (NIMBY)	0.0246	0.0246	0.0246	0.0242	0.0242	0.0242
Expectations from OWFs	-0.0345	-0.0345	-0.0345	-0.0342	-0.0342	-0.0342
Willingness to bear personal costs to solve environmental problems	-0.0112	-0.0112	-0.0112	-0.011	-0.011	-0.011
Concerns regarding environment and limited natural resources	0.0054	0.0054	0.0054	0.0052	0.0052	0.0052

We see that regardless of the reference category chosen for framing condition, there is no evidence of framing effect exist on support for OWFs. This implies that, framing a policy in line with the assertions of MFT does not generate a significant difference in people's support for OWFs. The reason for the nonexistence of effect could be explained in three dimensions. One, the topic was not a controversial topic, people's pre-knowledge about renewable energy bind their view and protect them from framing manipulations. Two, the political liberals and conservatives are different in Turkey in comparison with the way they are in United States. Harm/care and fairness/reciprocity might appeal to political liberals in United States but not in Turkey. The same logic follows for political conservatives. Three, environmentalism is not a debatable topic in Turkey as much as it is United States. People from different political orientation have different motivations to support environmentally friendly actions in Turkey therefore there is no need to frame renewable energy in Turkey.

The OLM results show that all extracted factors from the exploratory factor analysis have a significant effect on explaining support OWF project. We see that prioritizing economic growth has a positive sign, which means that as the factor value of prioritizing economic growth increases, the probability of support OWF project increases, too. Checking Table 7.2, we see that as prioritizing economic growth increases the probability of reporting "*do not support the OWF project"* decreases by 1%. This result confirms our pre-beliefs. As we indicated in Chapter 5, installation of renewable energy perceived as a driver of economic growth. Economic benefits gained from renewable energy installation in local and global level increases the public support for that project. Besides, we believe that, being able to install renewable energy projects might also be perceived by the public as an indicator of economic capacity of the country.

In line with the literature, our results show that, the degree of support is negatively affected by the visual effects originated from the OWFs. As visual concerns increase, the probability of not supporting the project increases approximately by 2.5%. The variable *visual concerns* has one more task other than measuring to which degree support OWF project is affected by their impact on landscape. We used *visual concerns* as a proxy to test "*NIMBY hypothesis*" which basically means support a particular subject as long as its unfavorable effects are undertaken by someone else. The significant negative sign of visual concerns variable indicates that "*NIMBY hypothesis*" hold in the renewable energy context in Turkey.

As we hypothesized, positive *expectations from OWFs* increase the probability of support for the project by 3%. Alternatively, as expectations from OWFs increase, the probability of not supporting the project decreases by 3%. Positive expectations from OWFs such as economic advantages, strengthening of energy security and efficiency lead to a higher degree of support, while negative perceptions like higher electricity prices, harming wildlife and distortion of the natural view of the seas negatively affects the degree of support for OWFs.

The positive sign for *willingness to bear personal cost to solve environmental problems* verifies our hypothesis. People who aware of environmental problems and have an urge to solve these problems by making personal sacrifices are more likely to support OWF project. Specifically, one unit increase in this variable increase the

probability of support OWF project by 1%. Yet as we indicated earlier, this sign must be interpreted with caution since people who say they are willing to give a portion of their income to protect the environment and solve environmental problems might decide not to do that when this statement incur a real cost in their daily life.

The results for the variable *concerns regarding environment and limited natural resources* show that one unit increase in concerns decrease the probability of support OWF project by 0.5%, which means that higher concerns does not translate into higher support OWF project. Before performing empirical analyses, we indicated that, *concerns regarding environment and limited natural resources* have two aspects in giving the decision of support or oppose OWFs. On one aspect, higher concerns could increase the degree of support for OWFs. People who believe that there are things that humans should do to protect the environment and leave a cleaner world for the next generation could support renewable energy installations. On the other aspect, people who believe that climate change and environmental problems are already inevitable phase and cannot be prevented by precautions taken by human beings (at least domestically), even if they are aware of environmental problems and natural resource limitations, might not support renewable energy investments.

8. CONCLUSION

As we stated earlier, the aim of this study is to examine whether congruency of moral framing of renewable energy and political view have a significant effect on support for OWF projects. To this end, we designed a survey with three different framing conditions; the individualizing condition appeals to the values associated with political liberals in United States, the binding condition appeals to the values associated with political conservatives in the United States, and the control condition lacks any manipulation or targeting. Framing conditions are built in line with the assertions of the MFT, which we mentioned in the introduction chapter.

In this thesis, along with understanding the determinants of support for OWFs, we examined whether matched political view and framing conditions have an effect on the level of support OWF project. Thus, after reading randomly assigned framing conditions, participants are asked a set of questions which aim to understand why people support or oppose OWF project. Those questions are then factor analyzed and included in the regression analyses as independent variables.

Our findings for demographic variables are as follows: Among demographic variables, only gender has a statistically significant positive coefficient, which means that males compared to females are more likely to support OWF project. Place participants grew up such as village, city and big city and income yielded to statistically insignificant results.

The ordered logistic results show that all extracted factors from the exploratory factor analysis have a significant effect on explaining support OWF project. *Prioritizing economic growth* has a positive sign, which means that as the factor value of *prioritizing economic growth* increases, the probability of support OWF project increases, too. This result might mean that, installation of renewable energy perceived as a driver of economic growth. Economic benefits gained from renewable energy installation in local and global level increases the public support for that project.

Besides, we believe that, being able to install renewable energy projects might also be perceived by the public as an indicator of economic capacity of the country.

In line with the literature, our results show that, the degree of support is negatively affected by the visual effects originated from the OWFs. We used *visual concerns* as a proxy to test "*NIMBY hypothesis*" which is an indicator of self-interest and basically means support a particular subject as long as its unfavorable effects are undertaken by someone else. The significant negative sign of visual concerns variable indicates that "*NIMBY*" hold in the renewable energy context in Turkey.

As we hypothesized, positive *expectations from OWFs* increase the probability of support for the project by 3%. Positive expectations from OWFs such as economic advantages, strengthening of energy security and efficiency lead to a higher degree of support, while negative perceptions like higher electricity prices, harming wildlife and distortion of the natural view of the seas negatively affects the degree of support for OWFs.

The positive sign for *willingness to bear personal cost to solve environmental problems* indicates that, people who aware of environmental problems and have an urge to solve these problems by making personal sacrifices are more likely to support OWF project. Yet as we indicated earlier, this sign must be interpreted with caution since people who say they are willing to give a portion of their income to protect the environment and solve environmental problems might decide not to do that when this statement incur a real cost in their daily life.

Before performing empirical analyses, we indicated that, *concerns regarding environment and limited natural resources* have two aspects in giving the decision of support or oppose OWFs. On one aspect, higher concerns could increase the degree of support for OWFs. People who believe that there are things that humans should do to protect the environment and leave a cleaner world for the next generation could support renewable energy installations. On the other aspect, people who believe that climate change and environmental problems are already inevitable phase and cannot be prevented by precautions taken by human beings (at least domestically), even if they are aware of environmental problems and natural resource limitations, might not support renewable energy investments. The negative sign for the variable *concerns*

regarding environment and limited natural resources means that higher concerns does not lead to higher support OWF project.

We concluded that regardless of the reference category chosen for framing condition, there is no evidence of framing effect exist on support for OWFs. This implies that, framing a policy in line with the assertions of MFT does not generate a significant difference in people's support for OWFs. From our perspective, the reason for the moral framing not being effective could be explained in three dimensions. One, the topic was not a controversial topic, people's pre-knowledge about renewable energy bind their view and protect them from framing manipulations. Two, the political liberals and conservatives are different in Turkey in comparison with the way they are in United States. Harm/care and fairness/reciprocity might appeal to political liberals in United States but not in Turkey. The same logic follows for political conservatives. Three, environmentalism is not a debatable topic in Turkey as much as it is United States. People from different political orientation have different motivations to support environmentally friendly actions in Turkey therefore there is no need to frame renewable energy in Turkey.

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APPENDICES

APPENDIX A: Pretest Data Distribution

APPENDIX B: Survey

APPENDIX C: Framing Conditions

APPENDIX D: OLS Results

APPENDIX A

Table A.1 : Support for OWFs in pretest data

	Binding condition	**Individualizing condition**	**Control condition**	**Total**
Undecided	2	1	0	3
Support	6	5	3	14
Strongly Support	2	11	5	18
Total	10	17	8	35

APPENDIX B

UNDERSTANDING THE ATTITUDES OF PUBLIC TOWARDS OFFSHORE WIND FARMS IN TURKEY

Dear participant, the questionnaire that you will fill is prepared for a master thesis in Economics at İstanbul Technical University. The aim of this study is to measure the attitudes of citizens towards offshore wind power plants planned to be constructed in Turkey. Since the aim of the study is scientific, the answers you will give will remain strictly confidential. The total filling time for the survey is 5 minutes. Thank you for your contributions.

Student: Elif Akgün
Thesis Advisor: Asst. Prof. Dr. Christopher Michael Hannum

Are you knowledgeable of renewable energy?

□ Have no information □ Have a little information □ Have information

Please read the following brief text before answering a few questions.

Randomly chosen framing condition here…

Please answer each of these questions in terms of the way you generally feel. There are no right or wrong answers.Using the following scale, in the space provided next to each question simply state as honestly and candidly as you can what you are presently thinking.

Please indicate to what extent do you agree or disagree with each of the following statements.

(1)=Strongly Disagree, (2)=Disagree, (3)=Undecided, (4)=Agree, (5)=Strongly Agree

I think environmental pollution has increased.	(1)	(2)	(3)	(4)	(5)
I think fossil fuels will run out in the future.	(1)	(2)	(3)	(4)	(5)
I think offshore wind farms could be an efficient tool tackling climate	(1)	(2)	(3)	(4)	(5)
I think the advantages of offshore wind farms outweighs their	(1)	(2)	(3)	(4)	(5)
I think building offshore wind farms will contribute to economy.	(1)	(2)	(3)	(4)	(5)
I rather use electricity produced from renewable energy even though it is more expensive.	(1)	(2)	(3)	(4)	(5)
To protect the environment, I am willing to give a portion of my income	(1)	(2)	(3)	(4)	(5)
I think Turkey should build offshore wind farms.	(1)	(2)	(3)	(4)	(5)
I do not want to see offshore wind farms where I live.	(1)	(2)	(3)	(4)	(5)
I believe, more offshore wind farms will decrease the amount of fossil	(1)	(2)	(3)	(4)	(5)
I support the deployment of a nuclear power plant in Turkey.	(1)	(2)	(3)	(4)	(5)
I think environmental quality can be compromised for economic growth.	(1)	(2)	(3)	(4)	(5)

I think offshore wind farms will distort the natural view of the seas.	(1)	(2)	(3)	(4)	(5)
I think fossil fuels like coal have negative effects on human health.	(1)	(2)	(3)	(4)	(5)
I think fossil fuels causes air, water and environmental pollution.	(1)	(2)	(3)	(4)	(5)
I think Turkey should not build offshore wind farms.	(1)	(2)	(3)	(4)	(5)

Rank the following options according to their importance in relation to your energy consumption. (1 being very important, 2, 3, 4 respectively being less important)

(___) Being harmless to the environment.
(___) Being cheap
(___) Being produced via domestic and national resources
(___) Being able to supplied uninterruptedly

To what extent do you support the offshore wind farm project?

Strongly do not support	Do not suuport	Undecided	Support	Strongly support

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Year of birth:_____ **Gender:** □ Male □ Female

The place where you grew up

□ Village/Town □ City □ Bigcity/Metropol

What is your general opinion about the policies of the current government is conducting?

□ Support □ Do not support □ Undecided

In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking? (Choose one number)

Left | **1** | **2** | **3** | **4** | **5** | **6** | **Right**

Your household income as Turkish liras

□ 0-3000 □ 3001-7000 □ 7001-10000 □ 10001 and above

APPENDIX C

Individualizing condition

Increased energy use leads to an increase in air, water and environmental pollution. Poor people are the ones who have to bear the consequences of this pollution the most. Yet, living in a clean environment and consuming clean water and healthy foods are rights that everyone should have access. Since pollution poses a threat to human health and the sustainability of nature, we must act before it is late. According to many scientists, replacing fossil fuels such as coal -the current source of energy- with renewable energy is among the actions that can be taken. In this respect, Turkey has started to increase the investments on renewable energy. The Ministry of Energy and Natural Resources of Turkey has announced that Turkey will built the biggest offshore wind farms in the world. Saros and Gallipoli located in the Marmara region and Kıyıköy in Thrace were named the candidate regions for the power plant.

Below the positive and negative aspects of offshore wind farms are indicated. Please answer the questions in the light of this information.

Offshore wind farms

Positive aspects	Negative aspects
➢ *Compared to fossil fuels such as coal, it is more environmentally friendly. It does not cause air, water and environmental pollution.* ➢ *Clean air can improve human health* ➢ *Since seas are almost always windy, energy can be supplied uninterruptedly.* ➢ *They can operate for long years (Approximately 20 years).* ➢ *Electricity produced from offshore wind farms can be transferred to other places.*	➢ *Electricity produced from renewable energy is more expensive than electricity produced from fossil fuels.* ➢ *More expensive electricity can hurt economic growth.* ➢ *The set-up costs of offshore wind farms are high.* ➢ *They are built 7-15 km away from the shore, thus they can be seen.* ➢ *Offshore wind farms may harm sea life.*

Binding condition

Self-sufficiency in energy is important for maintaining a country's independence and dignity. However, increasing energy demand and insufficient fossil resources in our country increase our dependence on foreign sources. In addition, fossil sources damage the natural state of the environment and other living things during their use. We are also forbidden by religion to hu the living things and harm the nature. Therefore, in order to reduce our dependence on foreign countries, to preserve the purity of our nature which is a national value and to respect nature as a necessity of our religion, it is necessary to support investments in renewable energy in our country. In this respect, investments in increasing renewable energy has increased in recent years. In this regard, Turkey's Energy and Natural Resources Ministry announced that Turkey will establish the largest offshore wind farms in the world. Saros and Gallipoli located in the Marmara region and Kıyıköy in Thrace were named the candidate regions for the power plant.

Below the positive and negative aspects of offshore wind farms are indicated. Please answer the questions in the light of this information.

Offshore wind farms

Positive aspects	**Negative aspects**
➢ *Since it is domestic and national, there is no possibility that the electricity obtained may be interrupted due to political relations between countries.* ➢ *Compared to fossil fuels, it causes less damage to the purity and the sanctity of nature.* ➢ *They can operate for long years (Approximately 20 years).* ➢ *Electricity produced from offshore wind farms can be transferred to other places.*	➢ *Electricity produced from renewable energy is more expensive than electricity produced from fossil fuels.* ➢ *The set-up costs of offshore wind farms are high.* ➢ *Offshore wind farms can be seen from the shore.* ➢ *Offshore wind farms may harm the sea creatures.*

Control condition

Renewable energy has come into prominent in recent years due to increasing energy demand. %24 of electricity production in Turkey is obtained from renewables. However, the rate of utilization of our renewable energy sources is behind Europian Union. In this regard, Turkey's Energy and Natural Resources Ministry announced that Turkey will establish the largest offshore wind farms in the world. Saros and Gallipoli located in the Marmara region and Kıyıköy in Thrace were named the candidate regions for the power plant.

The positive and negative aspects of the offshore wind farms are briefly mentioned below. Please answer the questions to be asked in the light of this information.

Offshore wind farms	
Positive aspects	**Negative aspects**
➢ *It does not cause air, water and environmental pollution as much as fossil fuels does.* ➢ *Clean air can improve public health.* ➢ *Since seas are almost always windy, energy can be supplied uninterruptedly.* ➢ *They can operate for approximately 20 years.* ➢ *Electricity produced from offshore wind farms can be transferred to other places.*	➢ *Electricity produced from renewable energy is more expensive than electricity produced from fossil fuels.* ➢ *More expensive electricity can hurt economic growth.* ➢ *The set-up costs of offshore wind farms are higher compared to other renewable energy sources.* ➢ *They are built 7-15 km away from the shore, thus they can be seen.* ➢ *Offshore wind farms may harm sea life.*

APPENDIX D

Table D.1 : OLS results

	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)	(Model 6)
	Support for OWFs	Support for OWFs	Support for OWFs	Support for OWFs	Support for OWFs	Support for OWFs
Gender	0.116*	0.116*	0.116*	0.114*	0.114*	0.114*
	(0.0598)	(0.0598)	(0.0598)	(0.0590)	(0.0590)	(0.0590)
Income	0.00109	0.00109	0.00109			
	(0.0336)	(0.0336)	(0.0336)			
Place grew up	0.0275	0.0275	0.0275			
	(0.0415)	(0.0415)	(0.0415)			
Political view	0.0186	0.0412	0.0578*	0.0160	0.0406	0.0522*
	(0.0420)	(0.0359)	(0.0316)	(0.0416)	(0.0357)	(0.0310)
Control condition	-0.190		0.0617	-0.199		0.0435
	(0.177)		(0.160)	(0.175)		(0.160)
Binding condition	-0.252	-0.0617		-0.243	-0.0435	
	(0.157)	(0.160)		(0.156)	(0.160)	
Individualizing condition		0.190	0.252		0.199	0.243
		(0.177)	(0.157)		(0.175)	(0.156)
Political view*control condition	0.0227		-0.0166	0.0246		-0.0116
	(0.0538)		(0.0461)	(0.0533)		(0.0454)
Political view*binding condition	0.0392	0.0166		0.0361	0.0116	
	(0.0507)	(0.0461)		(0.0501)	(0.0454)	
Political view*individualizing condition		-0.0227	-0.0392		-0.0246	-0.0361
		(0.0538)	(0.0507)		(0.0533)	(0.0501)
Prioritizing economic growth	0.104***	0.104***	0.104***	0.108***	0.108***	0.108***
	(0.0318)	(0.0318)	(0.0318)	(0.0316)	(0.0316)	(0.0316)
Visual concerns (NIMBY)	- 0.252***	-0.252***	-0.252***	-0.250***	-0.250***	-0.250***
	(0.0298)	(0.0298)	(0.0298)	(0.0291)	(0.0291)	(0.0291)
Expectations from OWFs	0.345***	0.345***	0.345***	0.343***	0.343***	0.343***
	(0.0309)	(0.0309)	(0.0309)	(0.0310)	(0.0310)	(0.0310)
Willingness to bear personal costs to solve environmental problems	0.123***	0.123***	0.123***	0.123***	0.123***	0.123***
	(0.0303)	(0.0303)	(0.0303)	(0.0302)	(0.0302)	(0.0302)
Concerns regarding environment and limited natural resources	-0.0566*	-0.0566*	-0.0566*	-0.0537*	-0.0537*	-0.0537*
	(0.0311)	(0.0311)	(0.0311)	(0.0302)	(0.0302)	(0.0302)
Observations	459	459	459	464	464	464

CURRICULUM VITAE

Name Surname **:** Elif Akgün

Place and Date of Birth **:** 15.07.1992

E-Mail **:** akgunn.elif@gmail.com

EDUCATION **:**

- **B.Sc.** **:** 2015, İstanbul University, Public Finance

PROFESSIONAL EXPERIENCE AND REWARDS:

- 2015- today Research Assistant at Marmara University
- 2010-2015 Scholarship from Istanbul University Rectorate and Vakıf Bank

PUBLICATIONS, PRESENTATIONS AND PATENTS ON THE THESIS:

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