# Social Marketing Analysis of Attitude Toward Compulsory Earthquake Insurance in Turkey

Gülnil AYDIN[*] Erdoğan KOÇ[**]

**ABSTRACT**

*This study aims to explore the reasons behind the low-level purchases of compulsory earthquake insurance policies in Turkey. Based on online surveys with 667 people the findings of the study point out that there is a major communications gap to be filled in by the authorities and the insurance companies. The findings of the study also show that in addition to the demographic variables the personality characteristics of people also influence the attitude towards and the purchasing of compulsory earthquake insurance policies.*

***Key Words**: Social Marketing, Attitude, Risk Perception, Personality Characteristics, Earthquake Insurance, Turkey.*

***JEL Classification:** M31, M38*

## Türkiye'de Zorunlu Deprem Sigortasına Yönelik Tutumun Sosyal Pazarlama Kapsamında Analizi

***ÖZ***

*Bu çalışma, Türkiye'de uygulanan zorunlu deprem sigortasına yönelik tutumu ve beklentilere kıyasla düşük düzeyde seyreden satışların nedenlerini araştırmak amacıyla gerçekleştirilmiştir. 667 kişinin katılımıyla tamamlanan çevrimiçi (online) anket çalışması sonucunda elde edilen bulgular, iletişim sorunlarına işaret etmektedir. Çalışmanın bulguları ayrıca, zorunlu deprem sigortasına yönelik tutum üzerinde bireylerin kişilik özelliklerinin ve demografik değişkenlerin de etkili olduğunu göstermektedir.*

***Anahtar Kelimeler:** Sosyal Pazarlama, Tutum, Algılanan Risk, Kişilik Özellikleri, Deprem Sigortası, Türkiye.*

***JEL Sınıflaması:** M31, M38*

## Introduction and rationale for the research

Turkey ranks as the world's 17th largest economy and the 17th mostly populated country. However, Turkey is located in one of the most active earthquake and volcanic regions in the world (World Bank, 2016; Gurenko et al., 2006). This means that as much as 95% of all Turkey's land mass is susceptible to earthquakes. More than 70% of the population and 75% of all industrial facilities in Turkey are located in places which may be struck anytime by powerful earthquakes (Gurenko et al., 2006). For instance, the results of the Marmara Earthquake, which struck along the North Anatolian Fault Line in 1999, were extremely disastrous (Orhan, 2014). This earthquake with a magnitude of 7.4 (on Richter's Scale) resulted in one of the worst disasters in the world leaving more

[*] Yrd.Doç.Dr., Bandırma Onyedi Eylül Üniversitesi, IIBF,İşletme Bölümü, gulnilaydin@yahoo.com
[**] Prof. Dr., Bandırma Onyedi Eylül Üniversitesi, IIBF, İşletme Bölümü, erdogankoc@yahoo.com
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than 17000 dead and 44000 people injured. The Marmara Earthquake caused the collapse of more than 20000 buildings and the displacement of more than 250000 people (Gurenko et al., 2006).

In addition to the physical damages, the earthquakes may also cause severe economic, social and psychological damages. For instance, seven of the cities most affected by the 1999 Marmara Earthquake produce more than one third of all Turkey's Gross National Product, and almost half of all industrial production. As one of the most earthquake prone cities in the world, Istanbul, which is in the Marmara Region of Turkey, produces 27% of total Gross National Product in Turkey. Moreover, Istanbul contributes almost 40% of all taxes collected in the country. From a tax collection perspective Istanbul is important for Turkey as it produces a substantial surplus and contributes to the country's economy. This is important as especially 64 of the total of 81 cities in Turkey may be considered as burden on the country's economy as they fail to produce a surplus. In other words taxes collected in these 64 cities are not sufficient to cover their budget allocations by the State. Kocaeli, which is another city in the Marmara Region, also a net surplus producer, is the second largest contributor to total taxes collected in the country. If the city of Kocaeli had been a country, with its $ 33620 per capita income, it would have been the 25$^{th}$ richest country in the world (TSPO, 2001; TurkStat, 2012)

Earthquakes in Turkey pose a continuous threat as they have a recurring nature. Although more than a decade has passed since the Marmara Earthquake and the fact that a severe earthquake is imminent, Turkey's earthquake preparedness seems to be rather low. It is known that more than 70% of the buildings are still illegal, i.e. they do not have proper building permits and licenses (UCTEA Report, 2011).

After the establishment of Natural Disaster Insurance Authority in 1999 in Turkey, the insuring of houses, flats and any buildings under private ownership has been made compulsory. The compulsory earthquake insurance scheme is compulsory in the sense that no houses or flats cannot officially change hands without a valid CEIP. In Turkey the banks are not allowed to issue credits and mortgages of any sort for houses and flats unless that property is covered by a valid CEIP. Additionally, someone purchasing a house or a flat without a valid CEIP cannot have title or a right of ownership officially by getting a certificate of ownership. However, this obligation may be circumvented by not renewing the earthquake insurance after the initial purchase. As the renewals of earthquake insurance policies are not monitored and that there is no penalty for not renewing the earthquake insurance policies. Most homeowners, in general, tend to avoid renewing their earthquake insurance policies.

In spite of the vehement picture presented above and the fact that earthquake insurance is compulsory, the proportion of the houses which are insured is extremely low, standing at mere 25% (Erdik and Durukal 2002; TCIP, 2012). This means that somehow a significant proportion of people in Turkey do circumvent the CEIP. Recent statistics show that less than one-third of the

buildings in Istanbul, which was seriously affected by the Marmara Earthquake in 1999, actually have the CEIP (Ozdemir and Yilmaz, 2011). This is interesting as Turkey is classified as a highly risk averse culture (Hofstede, 2001; Manfredo and Shultz, 2007; Koc, 2013).

Based on the above presented facts and circumstances it is believed that it is important to explore the attitudes of people towards CEIP and their personality characteristics by investigating both demand and supply side causes. In particular, the study aims to investigate the attitudes of people towards CEIP and their personality characteristics from a social marketing perspective. It is believed that uncovering the personality characteristics and attitudes of people would help see the Natural Disaster Insurance Authority (DASK – Doğal Afet Sigortaları Kurumu) where it stands, i.e. to what extent it is being efficient and effective.

## I. SOCIAL MARKETING, ATTITUDES AND PERSONALITY CHARACTERISTICS

Large catastrophic events in many countries have raised public policy awareness and resulted in endeavour for developing disaster coverage programmes. Countries including France, Japan, New Zealand, Spain, Switzerland, Taiwan and Turkey have developed national programs for covering natural catastrophes (Born and Klimaszewski-Blettner, 2013; Hosseini, Hosseinioon and Pooyan, 2013).

Over the years, risk management strategies have focused on 'ex-post (post-disaster) rehabilitation', rather than on 'mitigating possible losses from future disasters or being prepared for possible losses' (Ozdemir and Yılmaz, 2011:19; Freeman and Kunreuther, 2002). Ex-ante measures to improve risk preparedness for natural disasters are generally considered to be more effective than ex-post measures (DeHoop and Ruben, 2010). One way of preparing for disasters like earthquakes is insurance. For certain, earthquake insurance does not reduce the physical impact of earthquakes nor represent a solution to potential earthquake risks. Yet being previously insured may enable the survivors to build homes and businesses again and restart their lives. With this aim in mind in 1999, just after the Marmara Earthquake, Natural Disaster Insurance Authority (DASK – Doğal Afet Sigortaları Kurumu) was established in Turkey. The central idea behind the successful implementation of this novel and ambitious programme is the transfer of the earthquake risk absorbed by the Turkish Catastrophe Insurance Pool (TCIP) to the international reinsurance market. The World Bank funded programme later became a larger initiative known as the Turkish Emergency Flood and Earthquake Recovery Programme (Boomer et al., 2002).

According to Cummins and Mahul (2009), the main reason behind the establishment of TCIP was the inability of Turkey's private insurance market to provide adequate types of catastrophy property insurance for homeowners, particularly to protect private properties against earthquake risks. Moreover, the insurers in Turkey appeared to be undercapitalized and poorly managed. The insurers were weak in terms of their capital structures and technical abilities and hence were unable to provide catastrophy coverage throughout the country. The

Turkish experience can be said to offer a model for how proxy direct insurance markets can be created.

However, as mentioned aboved, though there are many supporting reasons for the purchase of CEIP, the demand for CEIP appears to be rather low in Turkey. According to Gurenko (2006), a variety of factors can cause low level of demand for disaster insurance. One of them is the cognitive failure which may cause people to underestimate the risk of loss or even ignore this risk totally. In other words, when people receive ambiguous information about the risk and insurance policies, they tend to refrain from the purchase. The willingness of insurers to cover themselves against natural catastrophic threats is affected by ambiguity issues (Born and Klimaszewski-Blettner, 2013; Athavale and Avila, 2011).

Earthquake insurance is generally characterized as low-probability, high-severity catastrophic loss coverage. The standart homeowner's policy does not usually cover the insured person against the potential losses caused by an earthquake, unless the policy holder purchases an earthquake endorsement (Athavale and Avila, 2011). In short, earthquake insurances, in general, are expected to enable homeowners to confront future catastrophic disasters in addition to encouraging households to adopt relevant cost-effective measures to cope with catastrophic losses. Therefore, one of the most important themes in policy evaluation is to investigate the likely demand and the attitudes of property owners towards buying earthquake insurance and their willingness to pay for the insurance (Quiggin, 2002; Carson, McCullough, Pooser; 2013). An analysis of low level purchases of insurance requires the investigating of the potential lack of cognitive ability to assess the loss and probability of a catastrophe (Gregory, Lichtenstein and Slovic 1993; Kunreuther and Pauly 2004; Kriesel and Landry 2004). In general, many people tend to think that catastrophies will not happen to them (Kunreuther, 1978).

Attitudes of people towards issues that influence the society as a whole have been extensively investigated by marketing scholars specialising in social marketing (Kotler and Zaltman, 1971; Andreasen, 1994, 2012). Social marketing uses "marketing principles and techniques to influence a target audience to voluntarily accept, reject, or abandon a behaviour for the benefit of individuals, groups, or society as a whole" (Kotler, Roberto and Lee, 2002: 5) Govermental and nongovernmental agencies adopted social marketing mindset for addressing social issues such as improving health, preventing injury, protecting the environment, and encouraging community involvement (Andreasen, 2003; Kotler et.al. 2002). Especially, social marketing is highly instrumental in social issues towards which there is a lack of interest in the target audience to respond in a desirable manner and when regulations to coerce behavioural changes are inappropriate (Rothschild, 1999; Beerli-Palacio and Martin-Santana, 2015). Hence social marketing relies heavily on understanding attitudes of people. Attitudes are multidimensional and comprise affective, cognitive, and conative elements that are characterized by consistency in that a change in one attitude

element may lead to a related change in the others (Fishbein 1967; Howard and Sheth, 1969; Ajzen and Fishbein, 1980) Consumers are generally thought to engage in behaviors toward which they possess positive attitudes and vice versa (Sheth and Frazier, 1982). While it is difficult to influence and change behaviour of people directly, it is possible to do so indirectly by changing the components of attitudes. Marketing communications are frequently used to change attitudinal components to modify people's behavior (Foxall and Goldsmith, 1994). Sheth and Frazier's (1982) 'Strategy Mix for Planned Social Change Model's proposes different actions (marketing communications perspectives) based on four combinations of attitude-behaviour consistency or discrepancy.

**Figure 1** Strategy Mix for Planned Social Change Model

| | | **Attitude** | |
|---|---|---|---|
| | | *Positive* | *Negative* |
| **Relevant Behaviour** | *Engaged* | **Cell 1: Reinforcement Process**<br><br>**1.** Behavioural Reinforcement<br>**2.** Psychological Reinforcement | **Cell 2: Rationalization Process**<br><br>Attitude Change |
| | *Nonengaged* | **Cell 3: Inducement Process**<br><br>Behavioral Change | **Cell 4: Confrontation Process**<br><br>**1.** Behavioural Confrontation<br>**2.** Psychological Confrontation |

**Source:** Sheth and Frazier, 1982

According to Sheth and Frazier's (1982) model (Figure 1) four strategies may be expected to bring about social change. Firstly, when attitudes and behaviors are consistent, a reinforcement process *(engaged*) (Cell 1) may be used through focusing on behavioral and psychological reinforcement. Secondly, when the attitude is negative but the relevant behaviour is positive (*engaged*) (Cell 2) attitude change may be resorted to. Thirdly, when attitudes are positive but inconsistent with behaviour (*nonengaged*) (Cell 3), through an inducement process minimization or reduction of barriers that intervene to prevent the desired behaviour may be attempted. Finally, when both the attitude and the behaviours are negative (*nonengaged*) (Cell 4), behavioural and psychological confrontation may be needed.

Attitudes are shaped by many factors such as personality characteristics. For instance, as a personality characteristic tolerance for ambiguity, under uncertain circumstances such as the circumstances during the post-earthquake period could moderate the relation between message source and risk perception. Tolerance for ambiguity as a personality characteristic can be defined as the extent to which an individual perceives an ambiguous situation as a threat or a source of discomfort (Budner, 1962; Zhu, Xie and Xie, 2012).

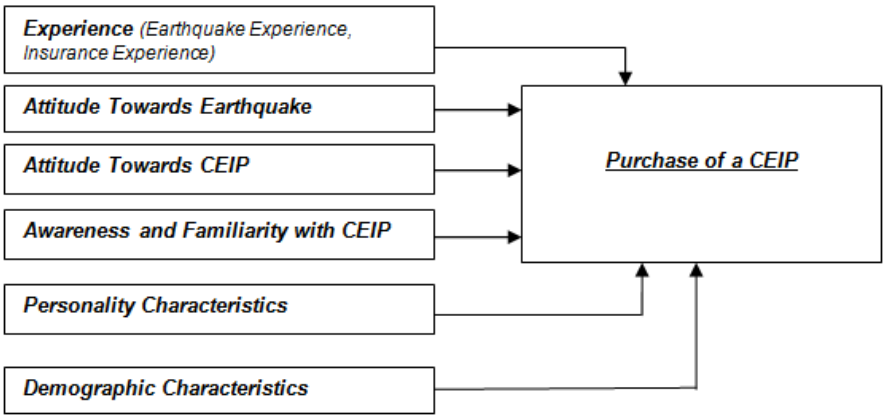
According to Zhu et. al. (2012), although people cannot control the occurrence of earthquakes, the damage and loss of life it entails are partially controllable by enhancing the effectiveness of risk communication. As a social marketing tool, risk communication, in the form of marketing communications, aims to change individuals' awareness or behaviours by the transmission of risk information. The effectiveness of this communication process is influenced by two groups of factors, the objective characteristics of the information (e.g. information source, and information valence) and the psychological characteristics of the receivers (e.g. tolerance for ambiguity, perfectionism, distrust, recklessness, responsive distress) (Haugtvedt and Petty, 1992; Olson and Zanna, 1993). Based on the above explanations this study explores the potential influence of attitudes and various personality characteristics on low level of CEIP purchases in Turkey.

## II.METHODOLOGY

An online survey with a structured questionnaire to explore the attitudes and personality characteristics of homeowners has been prepared and sent to people in Turkey. Initially, a pilot study has been carried out with 50 people to test the appropriateness of the questions in the questionnaire. The participants have been asked to choose the option which describes their true feelings to the statements provided on a seven-point Likert scale, 1 indicating total disagreement and 7 indicating total agreement.

For the sampling and collecting of data the services of a market research and consultancy company based in Istanbul, Turkey, PRP (Progressive Research Process), has been used in the sampling and collecting of data. The sample group consisted of 1052 homeowners from 27 different cities in Turkey particularly identified for this study. The cities have been determined based on factors such as the total number of houses in a particular city and the earthquake zone that city is located in. Out of the total homeowners 75% of the respondents were from 1st degree, 12% from 2nd degree, 5% were from 3rd degree and 8% were from 4th degree zones. The online survey was made accessible through the www.daskanket.net address. The survey has been completed by 667 people, out of 1052 homeowners identified, from the above 27 cities. The response rate was about 64%. As CEIPs are purchased by the homeowners only homeowners were asked to complete the questionnaire. Based on Sheth and Frazier's (1982) strategy mix for planned social change model the following model (Figure 2) has been developed to explore the attitudes and personality characteristics of homeowners towards CEIP.

**Figure 2** The Model for Purchasing of CEIP




The survey contained questions on i) personality characteristics, ii) attitudes towards CEIP iii)awareness and familiarity with CEIP, iv) past earthquakes and insurances experience,v) demographic variables of the respondents. Ten personality characteristics, namely *tolerance ambiguity tolerance/need for cognition (Cronbach's α: 0,78), complexity (Cronbach's α: 0,73), distrust (Cronbach's α: 0,79), dutifulness (Cronbach's α: 0,91), fearfulness (Cronbach's α: 0,85), hope/optimism (Cronbach's α: 0,83), perfectionism (Cronbach's α: 0,92), recklessness (Cronbach's α: 0,82), responsive distress (Cronbach's α: 0,92)* and *risk awareness (Cronbach's α: 0,81)* relevant for this study have been determined. These personality characteristics have been investigated by the use of 67 questions derived from 230 personality characteristics and 302 scales formed by International Personality Item Pool (IPIP, 2012). The personality characteristics scales developed by the IPIP have been extensively used, across diverse disciplines ranging from business management and pshychology to education and behavioural science (Barsky et.al.2004, Neetle 2005, Goldberg et.al. 2006, Chauvin et.al. 2007, Madjor 2008, Brown 2009, Armstrong and Anthoney 2009, Baer 2010 and Lam, Ozorio 2012).
In addition to above variables, past earthquake experiences and attitudes of participants towards earthquake disaster and CEIP were probed. A total of seven hypotheses (Table 1) have been developed to explore the personality characteristics and attitudes of homeowners.

## III. FINDINGS, ANALYSIS AND DISCUSSION

The findings of the study show that only 38,7% of the respondents have a valid CEIP and only 18% of the respondents have regularly purchased CEIPs (i.e. purchased compulsory earthquake insurance policies three times or more). This means that although it is compulsory, somehow people do avoid or circumvent purchasing compulsory insurance policies.

About 91% of the people who purchased CEIP stated that they did so because of legal obligations, to be able to get a home loan from a bank, etc. Only 9% of people purchased CEIP stated that they did so willingly without feeling any obligation. The general unwillingness of people may be due to a communications gap in terms of convincing people to purchase a CEIP. This finding also shows that overwhelmingly people have negative attitudes towards CEIP and they do not wish to committ (*engage*) themselves (Sheth and Frazier, 1982) (see Figure 1.- Strategy Mix for Planned Social Change). Insurance companies and public authorities may be recommended to change attitudes and behaviours of people through behavioural and psychological confrontation strategies (Cell 4 in Figure 1) by using various marketing communications tools and methods.

Hypotheses have been analysed through tests such as *χ2, t test*, *Mann Whitney U test*, etc. (See Table 1).

**Table 1** Research Hypotheses and Results

| ***(a)*** | | | | |
|---|---|---|---|---|
| ***χ2 TEST RESULTS*** | | | | |
| ***HYPOTHESES*** | ***χ2*** | ***sig.*** | | ***result*** |
| *$H_1$: There is a relationship between having been directly influenced by the earthquake and purchasing of CEIP* | 23,252 | 0,000 | | *Accept* |
| *$H_2$: There is a relationship between purchasing of any kind of insurance (e.g. car insurance, house insurance, health and life insurance) and purchasing CEIP* | 41,142 | 0,000 | | *Accept* |
| ***(b)*** | | | | |
| ***t TEST RESULTS*** | | | | |
| ***HYPOTHESES*** | ***t-value*** | ***sig.*** | ***mean*** | ***result*** |
| *$H_3$: Homeowners who regularly purchase CEIP (i.e. people who have purchased CEIP 3 and 4 or more times) are more aware about the threat of a severe earthquake.* | -3,738 | 0,000 | 5,96* 6,25 | *Accept* |
| *$H_4$: There is a difference between those homeowners who do not purchase CEIP and who regularly purchase CEIP based on the attitudes of the respondent.* | 4,451 | 0,000 | 4,49* 3,79 | *Accept* |
| *$H_5$: Homeowners who have insufficient information about TCIP are less likely to purchase CEIP.* | -2,422 | 0,016 | 5,38* 5,00 | *Accept* |
| *$H_6$: Homeowners who purchase CEIP regularly have different personality characteristics compared with who do not.* | | | | |
| *$H_{6a}$: Need for Cognition/ Tolerance for Ambiguity* | 3,113 | 0,002 | 4,81* 4,46 | *Accept* |
| *$H_{6b}$: Complexity* | -1,689 | 0,092 | 5,30* 5,45 | *Reject* |
| *$H_{6c}$: Distrustful* | 3,316 | 0,001 | 4,88* 4,59 | *Accept* |
| *$H_{6d}$: Dutifulness* | -7,016 | 0,000 | 4,78* 5,47 | *Accept* |
| *$H_{6e}$: Fearfulness* | 5,182 | 0,000 | 4,25* 3,55 | *Accept* |

| | | | | |
|---|---|---|---|---|
| $H_{6f}$: *Hope/optimism* | -3,136 | 0,002 | 4,71*<br>5,05 | *Accept* |
| $H_{6g}$: *Risk Awareness* | -2,741 | 0,006 | 5,74*<br>5,98 | *Accept* |
| $H_{6h}$: *Perfectionism* | -5,542 | 0,000 | 4,40*<br>5,31 | *Accept* |
| $H_{6i}$: *Recklesness* | -5,407 | 0,000 | 4,75*<br>4,03 | *Accept* |
| $H_{6j}$: *Responsive distress* | -2,698 | 0,008 | 4,21*<br>4,65 | *Accept* |

| ***(c)*** | | | |
|---|---|---|---|
| ***χ2 TEST RESULTS*** | ***χ2*** | ***sig.*** | ***result*** |
| $H_7$: *Homeowners who purchase CEIP have different demographic characteristics than who do not.* | | | |
| *Gender* | *3,224* | 0,073 | *Reject* |
| *Education* | *30,257* | 0,000 | *Accept* |
| *Age* | *14,655* | 0,000 | *Accept* |
| *Income* | *58,399* | 0,000 | *Accept* |

| *(d)* | | |
|---|---|---|
| *Marital Status: Mann Whitney U : 30,698 Wilcoxon W: 43259* | 0,001<br>0,000 | *Accept*<br>*Accept* |

*Those people who do not have a valid CEIP.

$H_1$ - Of the people who have participated in the study 70% of them had not been negatively influenced by previous earthquakes that took place, i.e. through the collapse of buildings/houses, physical damages of any sort and financial or psychological damages of any sort. It appears that there is a relatively strong relationship between having been directly influenced by the earthquake and the purchasing of CEIP (Pearson $\chi^2$23.252 significance 0.000). This finding is in line with Wang et al's (2012) findings who found that an individual's previous earthquake experience plays an important role in the purchase of insurance policies. Of the people whose houses / flats had been damaged in previous earthquakes 57% of them purchased a CEIP. On the other hand, 71% of the people who were psychologically or financially damaged by previous earthquakes, purchased a CEIP. The findings point out that people who are negatively influenced have learnt through operant conditioning to develop a tendency to take precautions.

$H_2$ - Another important finding of the study is that there is a relatively strong relationship between purchasing of any kind of insurance (e.g. car insurance, house insurance, health and life insurance) and purchasing CEIP (See Table 2). Table 2 shows that people who have a tendency to purchase any kind of insurance have also a tendency to purchase compulsory earthquake insurance policies. This finding is similar to the findings of Wang et al.'s (2012) research who found that there is a strong relationship between already owning other insurance polices and purchasing earthquake insurance policy. This means that from the point of view of the insurance companies and the Natural Disaster Insurance Authority it would be relatively easier to reach and convince

people who have any kind of an insurance policy. This finding also points out that there is a relatively high probability of cross-selling opportunities in the insurance market.

**Table 2** *X2* Of A Breakdown Of Ownership Of Other Insurance Policies And CEIP

| | ***χ2Value*** | ***Asymp. Sig. (2-sided)*** |
|---|---|---|
| **Car Insurance** | 85,491 | ,000 |
| **Life Insurance** | 42,528 | ,000 |
| **Home Insurance** | 49,128 | ,000 |
| **Life Insurance** | 42,528 | ,000 |
| **Personal Retirement Insurance** | 46,645 | ,000 |
| **Health Insurance** | 6,592 | ,010 |

$H_3$ - Table 3 shows that people who regularly purchase CEIP (i.e. people who have purchased CEIP 3 and 4 times or more) are more aware and more convinced about the potential threats of severe earthquakes in the future. People who are more worried about the earthquake are less likely to leave things to chance (Tversky and Kahneman, 1992; Novemsky and Kahneman, 2005). Those homeowners who agree with the statements in Table 3 tend to purchase CEIP more regularly. This finding is fairly straightforward as people who are more convinced about the potential future threat are more likely to purchase CEIP.

**Table 3** Earthquake Threat And Risk

| | | **Mean** | **t-Value** | **Sig.(2tailed)** |
|---|---|---|---|---|
| A potential earthquake in the region where I live may have severe consequences. | Have not CEIP<br>Regularly purchase CEIP | 5,95<br>6,35 | -4,083 | ,000 |
| An earthquake is one of the most significant threats/risk which may influence Turkey. | Have not CEIP<br>Regularly purchase CEIP | 6,26<br>6,59 | -3,990 | ,000 |
| I am worried about the potential consequences of an earthquake. | Have not CEIP<br>Regularly purchase CEIP | 5,88<br>6,29 | -3,877 | ,000 |
| Unless it is impossible I do not like dependent on the chance factor. | Have not CEIP<br>Regularly purchase CEIP | 5,79<br>6,10 | -2,773 | ,006 |
| Compared with people around me I prefer to lead a risky life. | Have not CEIP<br>Regularly purchase CEIP | 3,76<br>4,47 | -3,524 | ,000 |
| I prefer to take precautions at the beginning rather than feeling sad afterwards. | Have not CEIP<br>Regularly purchase CEIP | 5,80<br>6,28 | -4,488 | ,000 |

According Mittal (1999) intangibility of services, especially services like insurance, results in *abstractness*, *nonsearchability*, *mental inpalpability*, *incorporeal existence* and *generality* as opposed to being specific renders the marketing communications of services and the understandibility of the marketing communications by the audience more difficult. A number of strategies to

overcome the disadvantages posed by the intangibility of services may be offered such as concentrating of physical/tangible aspects of the service (*physical representativeness*), *visualisation*, narrating of marketing communications messages, spreading of positive word of mouth and making specific claims (Berry and Clark, 1986; Mittal, 1999). Moreover, as CEIP is both an intangible and an abstract product its benefits should be explained by providing better quality and more information and enabling the audience to have easier access to information (Koc, 2013). This would enable the changing and strengthing of the cognitive component of attitudes. In other words the Natural Disaster Insurance Authority may increase awareness about the potential earthquakes and their consequences through various communications methods.

The findings of the study relating to threat and risk perception are in line with Savage's (1993) findings. According to his research hazards that make people become nervous when they think about them (i.e., when they dread) are generally associated with a higher willingness-to-pay to reduce that hazard. Sjöberg (1999) argues that the demand for risk reduction is influenced by the severity of the hazard, not by the probability of risk. However, hazards for which the risk is considered unknown results in a lower of willingness-to-pay. A number of studies support the relationships between awareness of risk and mitigation measures taken (Ozdemir and Yilmaz, 2011; Lindell and Perry, 2000; Lindell and Whitney, 2000; McDaniels et al. 1992). In their study, McDaniels et al. (1992) make a distinction between 'well-defined' and 'less-defined' hazards and put forward that willingness to pay for well-defined hazards is most influenced by personal exposure. On the other hand, willingness to pay for less-defined risks is most influenced by the levels of dread and severity.

$H_4$/ $H_5$ - The question regarding the attitudes of the respondents towards CEIP shows a meaningful difference between those people who do not purchase CEIP at all and who regularly purchase CEIP. Those people who do not purchase CEIP in general agree with the statement that *it is not a clever thing to purchase a CEIP* (4.26). On the other hand those people who purchase CEIP do not agree so much with the statement *it is not a clever thing to purchase a CEIP* (3.16) (See Table 4). Again those people who do not purchase CEIP agree with the statement *purchasing a CEIP is a waste of money* (4.17). Yet again these findings show the need for the strengthening of the cognitive component of the attitude towards CEIP through effective marketing communications messages and the conative component through various inducements. People who purchase CEIP appear to be consistent as they do not agree with the statement *purchasing a CEIP is a waste of money* (2.86). Those people who do not purchase CEIP do not wish to deal with the burdensome details of purchasing CEIP (5.10). Although the level of agreement with this statement decreases among people who purchase CEIP, there is still an overall agreement that people in general do not wish to deal with the burdensome details of purchasing CEIP (4.74). The Natural Disaster Insurance Authority is recommended a) to ease the purchase of a CEIP b) to communicate and convince the audience that purchasing CEIP is not strenuous.

**Table 4** Attitudes Of Homeowners Towards CEIP

| | Purchasing CEIP | Mean | Std. Deviation |
|---|---|---|---|
| It is not a clever thing to purchase a CEIP | Have not CEIP | 4,26 | 1,875 |
| | Regularly purchase CEIP | 3,16 | 1,989 |
| CEIP is a waste of money | Have not CEIP | 4,17 | 1,904 |
| | Regularly purchase CEIP | 2,86 | 2,007 |
| People whose ideas I value say that purchasing CEIP is not rational. | Have not CEIP | 4,20 | 1,790 |
| | Regularly purchase CEIP | 3,23 | 1,888 |
| I prefer CEIP fees to be added to the taxes I pay, rather than dealing with CEIP procedures. | Have not CEIP | 5,10 | 1,561 |
| | Regularly purchase CEIP | 4,74 | 2,135 |
| Purchasing CEIP is not a clever thing to do for hedging a high value house as CEIP compensates only a small proportion of the value of the house. | Have not CEIP | 4,38 | 1,710 |
| | Regularly purchase CEIP | 3,79 | 1,912 |

Questions measuring attitudes towards CEIP show that there is a lack of trust too. People agree with the statement that they do not think that their damages will be compensated when they have valid CEIP policies. They also agree with the statement that they have not heard that compensation payments were made to people in the past after an earthquake (See Table 5). Homeowners do not seem to be aware of the fact that TL 47 million were paid for 14.231 claims made after 346 earthquakes occurred since 27th September 2000, after the introduction of compulsory earth insurance program. Over TL 26 million was paid alone in 2011 for 3.067 claims after 31 earthquakes in 2011, especially after the eathqauake in the city of Van (TCIP, 2012).

Above findings point out to a cognitive failure (Gurenko, 2006) on the part of the homeowners. A cognitive failure results in underestimating or totally ignoring of the potential risk. The findings strengthen the belief that there is a marketing communications gap to be filled in by the Natural Disaster Insurance Authority and the insurance companies operating in Turkey. Without effective marketing communications the cognitive, affective and conative elements of attitudes towards CEIP would not be established.

**Table 5** Trust for CEIP

| | | Mean | t Value | Sig.(2tailed) |
|---|---|---|---|---|
| I do not think it is a clever thing to purchase a CEIP | Have not CEIP | 4,26 | 5,552 | ,000 |
| | Regularly purchase CEIP | 3,16 | | |
| Purchasing a CEIP is a waste of money | Have not CEIP | 4,17 | 6,502 | ,000 |
| | Regularly purchase CEIP | 2,86 | | |
| If it were not compulsory, I would not buy a CEIP | Have not CEIP | 4,41 | 4,332 | ,000 |
| | Regularly purchase CEIP | 3,46 | | |
| I believe that compulsory earthquake | Have not CEIP | 4,62 | 3,145 | ,000 |

| | | | | |
|---|---|---|---|---|
| insurance policies are too expensive. | Regularly purchase CEIP | 3,99 | | |
| I do not believe that the promises regarding the CEIP will be kept and my damages will be compensated after an earthquake. | Have not CEIP | 4,48 | 3,019 | ,005 |
| | Regularly purchase CEIP | 3,91 | | |
| Those people whose opinions I value believe that it is not a culvert thing to purchase a CEIP. | Have not CEIP | 4,20 | 5,114 | ,000 |
| | Regularly purchase CEIP | 3,23 | | |
| I do not think there will be a difference between those people who have or do not have after an earthquake disaster. | Have not CEIP | 4,31 | 4,201 | ,000 |
| | Regularly purchase CEIP | 3,48 | | |
| If it were, I would take out a CEIP. | Have not CEIP | 5,52 | 4,385 | ,000 |
| | Regularly purchase CEIP | 4,54 | | |
| Rather than dealing with all CEIP procedures, it would be more appropriate to add CEIP to current taxes. | Have not CEIP | 5,10 | 1,682 | **,095** |
| | Regularly purchase CEIP | 4,74 | | |
| As CEIP compensates only a certain amount of the damages, it would be unwise to have CEIP for houses/flats which have a high value. | Have not CEIP | 4,38 | 3,014 | ,003 |
| | Regularly purchase CEIP | 3,79 | | |
| The state has to compensate my damages, even though I may not have a CEIP. | Have not CEIP | 5,08 | 4,071 | ,000 |
| | Regularly purchase CEIP | 4,20 | | |
| I do not think that I have been sufficiently informed regarding the details of CEIP in terms of its scope and payments. | Have not CEIP | 5,38 | 2,422 | ,016 |
| | Regularly purchase CEIP | 5,00 | | |

Moreover, the willingness of homeowners to provide coverage against natural catastrophic threats is also influenced by the level of ambiguity (Born and Klimaszewski-Blettner, 2013; Athavale and Avila, 2011) they felt. When people encounter ambiguous information about the insurance polices and potential risks they tend to refrain from the purchase.

$H_6$ - Based on the data collected regarding the personality characteristics of the respondents it is seen that the respondents could be put into three clusters. The findings of the study show that there is a meaningful relationship between the purchase of CEIP and the personality clusters formed. While people in cluster 1 (*planned fatalists*) are more likely to purchase CEIP (distribution of people who have CEIP; 53%), people in cluster 3 (n*eglecters*) are less likely to purchase CEIP (distribution of people who have CEIP; 33%). People in cluster 2 (*untidy pessimists*) have a moderate level of tendency to purchase CEIP (33%). Some of the details which may shed light on CEIP purchasing behaviour are as follows:

### *Planned fatalists (Cluster 1)*

***Personality characteristics of planned fatalists***

*This cluster has the the highest ratio of who CEIP purchases. The people in this cluster do not much like things which are unplanned with uncertain consequences. They do not care about the opinions of others (i.e. they are principle oriented rather than status oriented). They are not curious to find out what others talk about and what they think deep down. They can trust people. They think, in general, people are good. They like following instructions and obeying rules. They claim that they keep the promises they make. They like paying bills on time. They are optimists. They are able to see things positively which may be seen negatively by others.*

***Demographic characteristics of planned fatalists***

*About 53% of them purchase CEIP. About 60% of people in this cluster are between the ages of 23 and 44. 67% are married. 66% are males. 45% of them are university graduates. Their average monthly level of income is between TL 1000 and TL 2500.*

### *Untidy pessimists (Cluster 2)*

***Personality characteristics of untidy pessimists***

*The overall characteristic of people in this cluster is pessimism as they expect the worst to happen in general.When embarking on a task they tend to have problems of concentration. They beat around bush a lot before actually getting down to the work They do not wish to spend time on things for which the results are not clear beforehand. They are quite conservatives and not so much open to new ideas compared with the other two clusters. Bad things and events may easily discourage them. They tend to be quite untidy. They do not mind disorders and disarrays. They like behaving as they wish. They do not feel pity for other people's sorrows and mishaps.*

***Demographic characteristics of untidy pessimists***

*About 33% of them purchase CEIP. About 50% of the people in this cluster are between the ages of 16 and 35. 32% of the people in this group are high school graduates. Majority of the people in this cluster are self-employed. Their average monthly level of income is between TL 1000 – TL 3000.*

***Personality characteristics of neglecters***

*In general people in this cluster do not purchase CEIP. They like doing things without a plan. They are curious to find out what others talk about and laugh at. They are curios to find out deep down what people get at. They do not trust other people. According to them people, in general, are bad. They do not pay attention to rules. According to them rules are to break. They like doing the opposite of what has been asked or recommended. They believe that laws do not apply to them.*

***Demographic characteristics of neglecters***

*About 14% of them purchase CEIP. They are mainly people of above 45 (59%) years old. 92% of them are married. They have the lowest level of education compared with the other two clusters. 51% of them have only primary school education. A majority of them are retired people. Their level of income is the lowest. 57% of them have a monthly average income of TL 1000 or less.*

$H_7$ - A demographic analysis of the respondents who have or do not have CEIP shows that the age of the respondents is an important variable (Kruskal Wallis variance analysis; $\chi 2$14,655 sig.0,000< ,01). 63% of people who have not had a CEIP are 44 years old or under. As willingness to pay differs systematically with age, gender, education, and marital status, as well as a number of attitudinal and subjective health-perception variables (Krupnik et al., 2012, Koc, 2002, 2005). Older people may be required to pay lower premiums for CEIP.

It is also determined that (Mann Whitney U Test) there is a statistically meaningful difference in terms people's marital status of homeowners and CEIP purchases. 85% of people who have CEIP are married, and 70 % of people who have not are not married. In other words, it may be said that being married is one of the determinants of having CEIP (Mann Whitney U: 30,698 Wilcoxon W: 43259 Sig. 0,001<0,01). As a demographic variable the level of education plays an important role in the purchases of CEIP too. More than half of the (54%) respondents who have purchased CEIP are university graduates. Likewise, the level of income also appears to be a major factor influencing the purchase of CEIP as 73% of those people who have not purchased a CEIP are people in the low income group. On the other hand 58% of people who have a CEIP are in the mid-to high level income groups.

Finally, it is important to note that 63% of the homeowners do not know the level of vulnerability (i.e. 1st, 2nd. or 3rd degree earthquake zone etc) of their cities they live in. This may be to do with nonchalance, ignorance or fatalism (Paradise, 2005) of people. Although Istanbul is located the 1st degree zone (i.e. highly vulnerable), 37% of the respondents did not have a clue about the degree level of Istanbul. Additionally, the remaining 34% of the people thought that Istanbul was in 2nd degree earthquake zone, i.e. they thought they lived in a somewhat less vulnerable place. However, people living in the province of Van are more aware of the earthquake degree level as there was a recent severe earthquake in the fall of 2011. A significant portion of people (71%) who live in 1st degree zone (i.e. high risk location) have not purchased CEIP at all. However, more importantly 91% of people living in these regions do not have a valid CEIP.

## CONCLUSION

There has been an increasing concern for the coverage of large catastrophes over the past decades on the part of governments. Governments have

reacted to the lack of insurance by establishing the necessary conditions for a private market to emerge (usually by acting as a reinsurer of last resort) or by establishing government- sponsored insurers (or pools of insurers) to provide coverage. As discussed above in the findings section this study shows that there is a lot to be done on the part of insurance companies and the Natural Disaster Insurance Authority in Turkey. There are both attitudinal and behavioural problems behind the low level CEIP purchases.

The study points out that there is a major communications gap to be filled in by the practitioners. The study shows that people have not been adequately informed neither on the benefits and features of CEIP and the potential dangers of a severe earthquake. The practitioners are recommended to use market segmentation strategies based on the demographic variables, personality and other characteristics of the target audience so as to be able to reach and convince them.

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