

Purchase Intentions of Turkish Electric Vehicle in Perspectives of Consumer Ethnocentrism and Consumer Innovativeness: A Pre-assessment

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ABSTRACT

Purpose: This paper aims to assess the purchase intentions of forthcoming Turkish electric vehicle (TEV), in the context of consumer ethnocentrism and consumer innovativeness.

Methodology: Multiple linear regression analysis was applied to data consisting of 303 observations acquired through a face-to-face survey along with the reliability and validity analyses of the utilized scales.

Findings: Purchase intentions of TEV were found to be affected positively by consumer ethnocentrism and functional innovativeness, which is one of the four dimensions of consumer innovativeness.

Practical Implications: We propose that the marketing management of TEV emphasizes the domestic origin of TEV in its national marketing program, and functional attributes be put forward over symbolic attributes to attract innovative consumers.

Originality: In this paper, we empirically tested how consumer ethnocentrism and various motivations to adopt innovations can influence the purchase intentions of TEV.

Keywords: consumer ethnocentrism, consumer innovativeness, electric vehicle adoption, Turkish electric vehicle.

Jel Codes: M13, M31.

Tüketici Etnosentrizmi ve Tüketici Yenilikçiliği Açısından Yerli Elektrikli Otomobili Satın Alma Niyetleri: Bir Ön Değerlendirme

Öz

Amaç: Bu çalışmanın amacı henüz pazarda satışta olmayan yerli elektrikli otomobili (YEO) satın alma niyetlerinin tüketici etnosentrizmi ve tüketici yenilikçiliği açısından değerlendirmektir.

Yöntem: Yüz yüze anket yöntemiyle toplanmış 303 gözlemden oluşan veriye, ölçüklerin güvenilirlik ve geçerlilik analizlerinin yanında çoklu doğrusal regresyon analizi uygulanmıştır.

Bulgular: YEO'yu satın alma niyetleri tüketici etnosentrizmi ve tüketici yenilikçiliğinin bir boyutu olan fonksiyonel yenilikçilikten olumlu yönde etkilenmektedir.

Sonuç ve Öneriler: YEO'nun pazarlama yönetimine ulusal pazarlama programında, YEO'nun yerli menşei vurgulaması önerilmektedir. Buna ek olarak, yenilikçi tüketicileri çekmek için sembolik özelliklerden daha ziyade işlevsel özellikler öne çıkarılmalıdır.

Özgün Değer: Bu çalışmada, tüketici etnosentrizmi ve yenilikleri benimsemede farklı motivasyonların YEO'yu nasıl etkileyebileceği görgül olarak test edilmiştir.

Anahtar Kelimeler: tüketici etnosentrizmi, tüketici yenilikçiliği, elektrikli araçların benimsenmesi, yerli elektrikli otomobil.

JEL Sınıflandırması: M13, M31.

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1. Introduction

Increasing greenhouse gas emissions is identified as a major problem of economies worldwide due to its irrevocable damages to the environment. The effect of the transport sector on the problem is quite notable. While sources of fossil energy are also getting scarcer, electric vehicles (EVs) are regarded as important solutions. Although EV adoption has been expanding rapidly, especially in the settings of developing countries, many obstacles are considered to be existing to adopt EVs including favorable policies, the lack of infrastructure, consumer awareness, economic incentives, affordable prices, etc. (İmre et al., 2019). For example, in Turkey, the present share of EVs and hybrid cars count for only 0,3 % of all registered automobiles in the country as of 2020 (TUIK, 2020). Therefore, much more effort is required to raise EV adoption to the desired level. Another way to raise EV adoption might be to promote domestic brands since the patriotic thought is arising as an important factor to influence consumer behaviors in countries with high nationalism (Guo and Bunchapattanasakda, 2020), and also in more expensive product categories (Li and Wyer, 1994; Herche, 1992).

Consumer Ethnocentrism (CE) is likely to influence domestic purchases more for expensive product categories (Li and Wyer, 1994), particularly for cars, as they contribute more to the economy (Balabanis and Siamagka, 2017). Herche (1992) also empirically found that CE explained more variance ($R^2=0,3$) in purchase behavior of car owners than in that of computer owners ($R^2=0,1$) over a comparison of two product categories; cars and computers. This relationship was also empirically confirmed by Wel et al. (2018) within the Malaysian context. For this reason, CE could be a pivotal determinant of domestic vehicle purchase intentions.

On the other hand, EV industry is a growing market and EVs seem relatively novel inside the automotive industry, especially in developing countries. Whereas numerous brands have created their own EVs in the market, purchase intentions of EVs have also been associated with CE in countries with high levels of nationalism. In China, for instance, a positive correlation between CE and purchase intentions of Chinese EVs among Chinese consumers was found (Guo and Bunchapattanasakda, 2020). In another study conducted on a sample of Chinese consumers, Björck and Lu (2019) reached similar results. While many countries are being compelled to develop policies to expand EV usage in a national base, and while several car brands have created their own EVs, CE as a widely searched determinant in consumer behavior is also neglected in EV adoption research except for few studies.

Extensive research has also shown that personality traits, perceptions, and characteristics of consumers are influential on EV adoption (Khazaei, 2019, He et al., 2018, Morton et al., 2016) as well as instrumental/functional perceptions of EV attributes and pro-environmental behaviors (Asadi et al., 2020, Tu and Yang, 2019, Quak et al., 2016, Schuitema et al., 2013, Egbue and Long, 2012). Since EV is commented as a new technology in transport, authors paid attention to the concept of consumer innovativeness (CI) in views of personality trait, tendency/perceptions, or actualized behavior in EV adoption research. Although pro-environmental behavioral effects are commonly acknowledged factors, taking consumer innovativeness as a determinant in EV adoption seems to be quite rare. Moreover, an extensive view comprising consumer-product relationship as pointed out by Vandecasteele and Geuens (2010) concerning different motivations of innovativeness is lacking. Schuitema et al. (2013) adopted this view of consumer innovativeness as we did in this study.

Previous studies conducted on Turkish samples indicated that Turkish consumers generally display high and moderate levels of ethnocentrism on average (Akin et al., 2009; Erdogan and Uzkurt, 2010; Acikdilli et al., 2017; Zaren et al., 2020). This implies that ethnocentric emphasis can be used to market TEV and ensure its adoption domestically. For this reason, we thought CE might influence the purchase intentions of EV. In brief, the purpose of this study is to contribute to the EV adoption literature by evaluating whether and to what extent the purchase intentions of TEV are influenced by CE and CI. We propose that these two main concepts are likely to influence EV adoption in the Turkish case by virtue of TEV's distinctive feature, the first EV with a Turkish brand (refers to CE) electric vehicle (refers to CI).

The structure of this paper is as follows: In Section 2, the concept of TEV, the present situation of EV industry in Turkey, and the theoretical background about CE, CI, and adoption behavior of EVs as innovations are presented. Section 3 includes sample selection, data collection, measures, and analysis. In Section 4, the reliability and validity of scales utilized and hypothesized relationships are discussed. Finally, results and implications as well as the limitations and suggestions for further research, are presented in Section 5.

2. Literature Review

2.1. About Turkish Electric Vehicle

A basic classification is made among electric vehicle (EV) types in the literature as battery-electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV), and hybrid electric vehicles (HEV). PHEV and HEV are electric vehicles with two

engines: an internal combustion engine and an electrical engine driven by a battery. However, BEV has one full electric engine driven by a battery (Schuitema et al., 2013: 40). Turkish electric vehicle (TEV), the product investigated in this study, is a battery-electric vehicle. It is called TEV as it is the first electric vehicle (actually the first automobile) that will originate from and will be manufactured in Turkey. However, the automotive industry is the pioneer in exports of Turkey (Ergocun, 2020). Hence, TEV is the first vehicle with intellectual property rights owned by a Turkish company.

The very first attempt by the government to create a Turkish brand vehicle in 1961, with the brand name "Devrim" meaning "Revolution" in Turkish, was unsuccessful. A second attempt to produce a national vehicle was the case of "Anadol". This brand name referred to Anatolia, the peninsula of land where most Turkish citizens live today. Anadol brand named vehicles were produced and sold in Turkey for 16 years with an ethnocentric marketing orientation. However, they were developed by a foreign company named British Reliant Motor upon the order of Otosan Automobile Industry Inc., and engines of Ford were used to manufacture them (Güneş, 2012). Since then, creating a domestic vehicle brand has become a national issue in Turkey. TEV is expected to contribute to the national economy of Turkey with a reduction of USD 7,5 billion in the current account deficit and an increase of USD 50 billion in GDP (Investment Office, 2020).

The first two prototypes of TEV were exhibited in December 2019, which are one C-SUV and one Sedan. They will be launched by Turkey's Automobile Joint Venture Inc. (TOGG). Moreover, TOGG will have also produced five different models by 2030 (Investment Office, 2020). TOGG is a consortium consisting of four local companies (BMC, Zorlu, Anadolu Group, Kök Group) and TOBB (the Union of Chambers and Commodity Exchanges of Turkey) as a coordinator (Gönül et al., 2021). Long before the introduction of TEV, Aktan (2010) found that while perceived risks negatively affected the purchase intentions of a prospective local car brand, product image positively affected it. Limited research was found about TEV as it is a novel product. In Kocagöz et al. (2020)'s qualitative study, 44,6% of respondents thought the first two prototypes of TEV were successful, and 24,1 % thought they were somewhat successful as they are not seen in the market yet. Also, respondents stressed some functional features of TEV (electrical, fast recharge) along with its design in general. In another study, CI and CE significantly explained the purchase intentions of TEV (Avcı, 2020).

According to Automotive Distributers' Association (ADA), while EV sales increased by 92,2%, HEV sales also increased by 18,0% compared to the previous year, as displayed in Table 1. Diesel sales decreased due to the declining trend in vehicles with more emission values. However, petrol and diesel engine vehicles still have the highest shares in the market, while EV and HEV shares are summated by only 2,9% (Erce, 2020). One reason why the EVs are adopted in low shares is the non-homogenous spread of EV charging stations in Turkey (Gönül et al., 2021). In spite of this low share of EVs in Turkey, 30% of all passenger vehicles are estimated to be EVs in 2032 globally (Rietmann et al., 2020: 5). As of October 2020, there are eleven models on sale in the Turkish EV market including BMW i3, Audi eTron, Renault Zoe, Jaguar I Pace, Smart ForTwo, Mini Cooper SE, Tesla Model S, Tesla Model X, Tesla Model 3, Mercedes Benz EQC, Porsche TAYCAN and that number tends to increase in time along with the number of EV charging stations (TEHAD, 2020).

Table 1. Vehicle Sales in Turkey according to Engine Type*

ENGINE TYPE	2019 End of June		2020 End of June		Change
	Quantity	Share	Quantity	Share	
Petrol	57.666	36,9%	101.998	50,1%	76,9%
Diesel	87.680	56.1%	86.684	42,6%	-1,1%
Autogas	6.110	3,9%	9036	4,4%	47,9%
Hybrid	4.832	3,1%	5.704	2,8%	18,0%
Electric	90	0,1%	173	0,1%	92,2%
Total	156.378	100%	203.595	100%	30,2%

*Source: Automotive Distributers' Association Press Release, July 3, 2020

2.2. Consumer Ethnocentrism

Ethnocentrism, originally a sociological concept, states the separation of ingroups (groups that individuals feel belonging) and outgroups (those regarded as opposite to ingroups). Based on this concept, Shimp (1984) used the term "consumer ethnocentrism" to express cognitive and emotional evaluations of consumers towards products of other countries. Hence, CE is a complex, multifaceted construct that includes cognitive, normative, and affective orientations of consumers towards foreign products (Shimp, 1984).

The concept enounces the beliefs held by consumers about the appropriateness and morality of purchasing foreign-origin products (Shimp and Sharma, 1987: 280). It is expected that those with higher ethnocentric tendencies believe that purchasing domestic products is more moral and appropriate and vice versa for foreign-origin products. Thus, Shimp (1984), who first discussed the concept, pointed out that purchasing foreign-made products harms the domestic economy, causes people to lose their jobs, and is inconsistent with patriotic thought and the belief that domestic products are superior to offerings from other countries.

CE has long been researched in marketing literature in many countries bearing divergent ethnic identities (Watson and Wright, 2000; Kaynak and Kara, 2002; Balabanis and Diamantopoulos, 2004; Wang and Chen, 2004; Shankarmahesh, 2006; Erdogan and Uzkuurt, 2010; Banna et al., 2018). A common finding is that consumers with high ethnocentric tendencies hold more positive attitudes toward domestic products and are more willing to buy them. Consumers with high ethnocentric tendencies refuse to purchase imported products and even castigate others to buy them (Sharma, 2015, p. 381). It is commonly acknowledged that ethnocentric consumers are more disposed to have positive attitudes towards domestic products while they have developed more negative attitudes towards foreign products (Netemeyer et al., 1991, Watson and Wright, 2000, Kwak et al., 2006). These positive attitudes motivate consumers to be more willing to buy domestic products (Nguyen et al., 2008, Han and Guo, 2018).

However, the relationship between ethnocentric tendencies and attitudes of consumers toward foreign and domestic products might change according to the country of origin of the product, product category (Balabanis and Diamantopoulos, 2004), and also quality evaluations of consumers about the product (Huddleston et al., 2001; Wang and Chen, 2004; Ranjbarian et al., 2010). Balabanis and Diamantopoulos (2004) found that the effect of CE on British consumers' preference for different products of different countries, including Britain, was differentiated on various product categories such as TV sets, cars, food, toys, etc. This study asserted that CE explained domestic product preferences. But when consumers preferred foreign products, it was rather related to product category, not CE. Hence, they concluded that CE was related to domestic product preferences but only sometimes related

to foreign product preferences; mostly, it was even unrelated (Balabanis and Diamantopoulos, 2004).

As the empirical evidence suggests, the impact of CE on buying intentions of domestic products becomes more important in buying more expensive products (Li and Wyer, 1994). Because it is acknowledged that consumers can better justify domestic purchases for expensive products since they contribute more to the economy (Balabanis and Siamagka, 2017). Conversely, consumers could value foreign products above domestic ones, especially in developing countries with high imports. Thus, the general attitude towards foreign products in these countries is likely to be positive (Douglas and Nijssen, 2003). It indicates a lack of consensus regarding the relationship between product category and CE.

In summary, extant empirical evidence indicates that domestic products somehow benefit from CE. Nevertheless, as Balabanis and Siamagka (2017: 167) inquired, "Do all domestic products benefit equally from CE?". For example, when consumers judge the product for having low quality, the impact of CE on purchase intentions of domestic products tends to be weaker. Thus, the importance of a product to the consumer is likely to influence ethnocentric perceptions (Erdogan and Uzkurt, 2010: 396). Hence, it is hypothesized that:

H_1 : CE is positively related to the purchase intentions of TEV.

2.3. Consumer Innovativeness

Consumer innovativeness has been discussed in different veins for decades in the literature. Bartels and Reinders (2011) assess consumer innovativeness in three categories due to the systematic literature review about the concept: Innate innovativeness (personality trait), domain-specific innovativeness (depends on product category), and innovative behavior (real purchase, trial, or purchase intention of innovations). They detected that most researchers used at least one of these aspects in their study.

Firstly, CI was evaluated as an observed behavior regarding the relative time of adoption as in diffusion theory of innovation (Rogers and Shoemaker, 1971). Rogers defines innovativeness as "the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than the other members of the system" (Rogers, 2003: 22). This view divides adopters into five distinct

categories according to their relative time of adoption: Innovators, early adopters, early majority, late majority, laggards. These groups adopt an innovation in time respectively (Rogers, 1983).

CI was also discussed in personality as innate innovativeness rather than observed behavior. Midgley and Dowling (1978) first made this distinction between innate and actualized innovativeness. They considered the adoption of innovation as a complex function of product interest, individual situations, and personal characteristics, but most importantly, the communication between individuals for the majority of the population (Midgley and Dowling, 1978: 234). Midgley (1977: 49) described innate innovativeness as: "Innovation is the degree to which an individual makes an innovation-decision independently of the communicated experience of others." Thus, CE is a personality trait that people naturally have, not an acquired tendency. In brief, all members of society have a lesser or greater degree of innovativeness (Bartels and Reinders, 2011: 602). In a similar vein, Steenkamp et al. (1999) defined CE as a predisposition to buy new and different products/brands rather than insisting on previous choices. Thus, CI is likely to affect the adoption of innovative products. However, the strength of this effect is moderated by some other factors such as innovation characteristics, marketing, and others (Steenkamp et al., 1999: 56).

Goldsmith and Hofacker (1991) criticized the arguments used to measure innovativeness in previous research. These arguments are the relative time of adoption and treating it as a global personality trait in a broad view. Due to the idea that these views do not provide practical insights about innovativeness to marketers, especially in specific product classes, they developed a self-report measure of the concept called domain-specific innovativeness. It aimed to measure innovativeness according to the product category interested. They found that domain-specific innovativeness mediated the relationship between innate innovativeness and (actualized) innovative behavior (Goldsmith et al., 1995). Moreover, Roehrich (2004) discussed innovation in two dimensions: Hedonist innovativeness and social innovativeness, based on two main motivational needs, namely the need for stimulation and the need for uniqueness.

Literature suggests that consumer innovativeness has different motivational bases. For this reason, there has been no consensus about the nature of it yet (whether it is a personality trait, an observed behavior, or a tendency).

Vandecasteele and Geuens (2010) present a new approach and scale that embraces different motivational sources of innovation. The authors asserted that consumer innovativeness is a part of and covered by innate innovativeness, which is a broader category, based on the conceptualization of Foxall et al. (1998: 41), “a tendency to buy new products in a given product category soon after they appear in the market and relatively earlier than most other consumers in their market segment” (Vandecasteele and Geuens, 2010: 309). These motivations are displayed in different dimensions such as functional, hedonic, social, cognitive innovativeness in one structure of motivated consumer innovativeness (MCI). These are explained in more detail below.

Functional innovativeness (fMCI) focuses on functional attributes of innovations like quality, reliability, usefulness, efficiency etc. *Hedonic innovativeness (hMCI)* focuses on sensory and affective attributes and gratification of innovations such as escape from routine, excitement, pleasure, fun. *Social innovativeness (sMCI)* arising from the social need of differentiation focuses on the attributes of innovations such as being unique, prestigious, visible, symbolic, trendy. *Cognitive innovativeness (cMCI)* is based on cognitive goals like exploration, understanding, intellectual creativity, focuses on contributing to expanding the knowledge, thinking, insight, reason, mental stimulation (Vandecasteele and Geuens, 2010).

Im et al. (2003) found that innate innovativeness as a personality trait had less influence on new product adoption in the consumer electronics category than the personal characteristics of age and income. However, Bigné-Alcañiz et al. (2008) found a positive relationship between domain-specific innovativeness and online shopping behavior. Hirunyawipada and Paswan (2006) also found that cognitive and domain-specific innovativeness increased actual new product adoption. In another research, in which the MCI scale is used, three dimensions of MCI except for cognitive innovativeness were significant predictors of attitude towards drone food delivery services (as an innovation), and functional innovativeness positively influenced behavioral intentions to use the innovation (Hwang et al., 2019). Cha (2020) also found that hedonic and social innovativeness dimensions positively affected attitude towards using robot-serviced restaurants. In brief, literature mainly suggests that consumer innovativeness positively affects behavioral attitudes and intentions on new product adoption, regardless of the disagreement about its nature. However, since different motivations could influence adopting innovations depending on product characteristics (Vandecasteele and Geuens,

2010: 317), we believe that it is worth noting the previous research regarding the adoption of EV as an innovation which is in special line with the aim of our study.

2.4. Adoption of Electric Vehicles as Innovation

EVs as sustainable innovations have the potential to reduce carbon dioxide emissions and to provide fuel efficiency. Hence, they have the power to reduce the negative effects of transportation on global warming (He et al., 2018). A considerable amount of literature has been published on the adoption of EVs. We mostly focus on the research that approach the issue in terms of the adoption of innovation in this study. The mainstream research emphasized that the probability of adoption of EVs mainly depends on their functional attributes (Asadi et al., 2020). EVs as products of new transportation technology could be evaluated in terms of consumer innovativeness since it might attract the attention of innovative consumers (He et al., 2018). Morton et al. (2016) found that negative functional attitudes towards EVs significantly reduced EV preference while consumer innovativeness (actualized) increased EV preference, despite the low explanatory power of their models.

Another research to detect the early adopter group of EVs in Germany indicated that the first users of EVs in Germany were likely to be middle-aged men with families who care about the environment and new technology and live in rural and suburban areas. Factors such as the ease to recharge the battery due to having their own garages and driving high annual number of kilometers make EVs attractive to this group (Plötz et al., 2014). According to Khazaei (2019), consumer innovativeness (cited as personal innovativeness in their study) positively impacted the purchase intention of EVs, along with the other variables such as social influence, price value, and performance expectancy. However, Tu and Yang (2019) revealed that personal innovativeness did not significantly affect the adoption of EVs. Schuitema et al. (2013) also focused on functional/instrumental attributes of EVs such as recharging time, purchase price, performance, reliability, running costs, and driving range were important on their adoption when consumers had functional motives to adopt them. Moreover, they stated that the relationship between functional attributes and the intention to adopt EVs was mediated by hedonic and symbolic functions (Schuitema et al., 2013: 47). He et al. (2018) also found that consumer innovativeness and environmental concern, which were thought as personality traits positively impacted the adoption of EVs.

In summary, we aimed to explain the purchase intentions of TEV with CE and CI. Because CE was thought to be much more important in expensive product categories like vehicles. Furthermore, Turkish consumers generally displayed moderate and high scores of CE according to the previous research. Additionally, as TEV is an innovative product, the purchase intentions of TEV were associated with the innovative tendencies of consumers. These cover different functional, social, cognitive, and hedonic motivations to adopt innovations, as Vandecasteele and Geuens (2010) stated. We hypothesized that:

H_2 : fMCI is positively related to the purchase intentions of TEV.

H_3 : sMCI is positively related to the purchase intentions of TEV.

H_4 : cMCI is positively related to the purchase intentions of TEV.

H_5 : hMCI is positively related to the purchase intentions of TEV.

Figure 1 below illustrates the proposed research model.

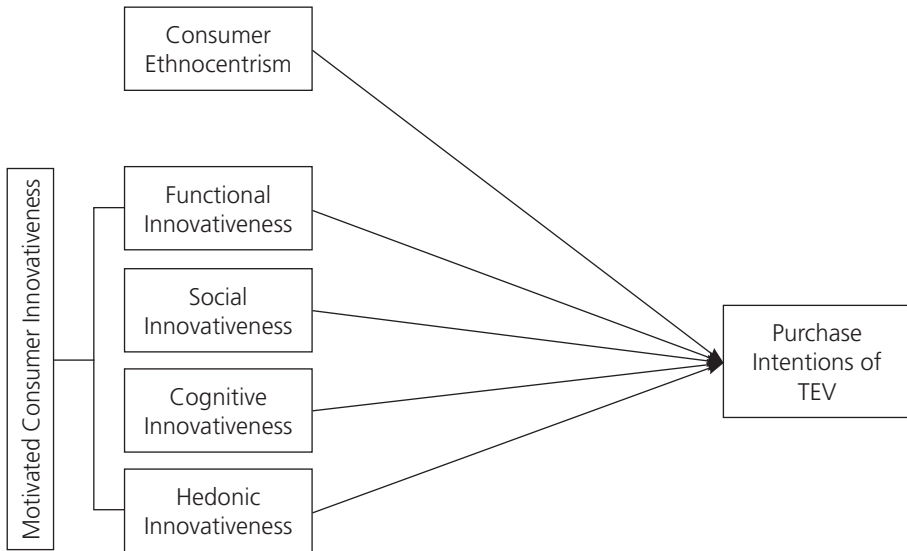


Figure 1. Proposed Research Model

3. Research Method

3.1. Sample Selection and Data Collection

The population of the study is Turkish people above 18 who are employed and have a regular income and live in a rural area as it is in compliance with Plötz et al. (2014) who defined the potential customers of EVs are likely to live in rural and suburban areas rather than metropolitans. The primary data needed for this research were gathered from customers who live in Afyonkarahisar and have their own income via face-to-face survey method using convenience sampling. Afyonkarahisar is a city where most of the residents live in rural areas. Interview forms were collected by four students trained about data collection, and surveys were applied to respondents within a period of three weeks in April 2018. Surveys were conducted in two big shopping malls in the city depending on the consent of respondents. In concern with detecting the necessary sample size, at least a 5:1 cases-to-variable ratio, but a 10:1 ratio is considered acceptable (Hair et al., 2014). We had 34 metric variables in our question form. A total of 400 surveys were distributed, and 360 of them were collected; 303 of them were ready for analysis. Particular attention was paid to choosing the respondents from those who have their own income as they are the potential customers of TEV, not from those who are students.

The sample of the study consists of people older than 18. 74,9% of respondents are male, and most of them have at least a high school degree. 41,3 % of respondents have a monthly income of more than 3000 TLs (more than the minimum wage in Turkey). More than 50 % of them define their occupation as "freelancers". This group mainly consists of small business owners working for no one and day laborers. Demographic characteristics of the sample are displayed in Table 2.

Table 2. Sample characteristics

Variable	Item	Count	%
Gender	Female	76	24,1
	Male	227	74,9
Age	18-26	39	12,9
	27-35	99	32,7
	36-44	60	19,8
	45-53	78	25,7
	≥ 54	27	8,9
Income	≤ 1000 TLs	6	2,0
	1001-1500 TLs	21	6,9
	1501-2000 TLs	69	22,8
	2001-2500 TLs	42	13,9
	2501-3000 TLs	40	13,2
	3001-3500 TLs	26	8,6
	≥ 3500 TLs	99	32,7
Education	Primary school	84	27,7
	High school	97	32,0
	Bachelor	113	37,3
	Postgraduate	9	3,0
Occupation	Worker (Blue Collar)	37	12,2
	Public servant	41	13,7
	Freelancer	154	50,8
	Private Sector (White Collar)	55	18,2
	Retired	16	5,3

3.2. Measures

The survey contains four main parts: Reduced 10-item Consumer Ethnocentrism Tendencies (CET) Scale, Motivated Consumer Innovativeness (MCI) Scale, items to measure purchase intentions, and demographic characteristics.

Reduced CETSCALE is a reduced version of the 17-item CETSCALE (Shimp and Sharma, 1987) and different translated versions of the 17- item CETSCALE were used in some studies conducted in Turkey (Armağan and Gürsoy, 2011; Arı ve Madran, 2011; Erdogan and Uz Kurt, 2010; Kaynak and Kara, 2002) and in some other countries (Netemeyer et al., 1991; Bawa, 2004; Luque-Martinez, 2000; Supphellen ve Rittenburg, 2001). In this research, the 10-item scale was used not to distract the respondents. This reduced version was used by authors such as Nielsen and Spence, (1997), Steenkamp and Baumgartner (1998), Lindquist et al. (2001). However, it has not been used in any Turkish studies in the marketing literature as far as we see. The translated items of Turkish version of CETSCALE were adapted from Poyraz (2014).

MCI scale consists of four dimensions reflecting divergent motivations to adopt innovations. These are functional, social, hedonic, and cognitive innovativeness constructs that each of which contains five items. The items of Turkish version of the scale were adapted from Özoğlu and Bülbül (2013). This scale was used by some other Turkish authors (Koç et al, 2017; Kavak et al., 2016).

Lastly, four items were generated by the authors to measure the purchase intentions of TEV by referring to the studies of Lai et al. (2015) and Schmalfuß et al. (2017). We also obtained the demographic characteristics of respondents such as age, income, education, occupation, and gender. Besides demographic characteristics, we measured all variables in a response format with a five-point Likert scale from strongly disagree (1) to strongly agree (5). Both English and Turkish versions of the scales were given in Appendix.

3.3. Analysis

We reached a total of 360 consumers, and 57 surveys that missed data were excluded. Hence, 303 observations were ready for analysis. All measures consisted of metric variables. We did not prefer structural equation modeling in this study because of poor model fit under the cutoff value of 0,90 for the indices GFI: 0,781; CFI: 0,866; TLI (NNFI): 0,853 (Hair vd., 2014: 582). Instead, we conducted multiple linear regression analysis since our data met such assumptions of linearity, multivariate normality, homoscedasticity, and no multicollinearity based on the visual inspection of data (Tabachnick and Fidell, 2007). We also

applied reliability analysis, exploratory factor analysis (EFA), and construct validity analysis to test the reliability and validity of the scales.

In order to test whether ethnocentric and innovative tendencies of consumers influence purchase intentions, we conducted a multiple linear regression analysis with ordinary least squares (OLS) estimation method. In this test, the dependent variable was the purchase intention of TEV and the independent variables were four dimensions (functional, social, hedonic, cognitive) of CI and CE. An EFA with varimax rotation method also was applied to the CETSCALE and MCI scale both to control the dimensionality of scales and the validity of measurements. Results are indicated below.

4. Findings and Discussion

Regarding the validity of constructs, factor loadings only higher than 0,4 are taken for interpretation (Hair et al., 2014: 115). EFA results of CETSCALE indicated a measure of sampling adequacy (MSA) of 0,87. Hence the data is appropriate for factor analysis. Barlett's measure was also significant ($p < 0,001$). Two factors explain 61,98 % of the total variance. Although the multidimensionality of CETSCALE is also evident in certain research (Douglas and Nijssen, 2003; Chrysochoidis et al., 2007; Teo et al., 2011; Jiménez-Guerrero et al., 2014), the original CETSCALE measurement suggested a unidimensional structure. But construct validity (both convergent and discriminant validity) of the two-factor structure was violated. Therefore, we confined the CETSCALE items into one factor in EFA as it is already a reliable and validated scale. The total variance explained of one factor was 50%. The summary statistics for reduced CETSCALE are indicated in Table 3. The construct validity of the scale was also confirmed in terms of convergent and discriminant validity. AVE for the scale is 0,50, which is right in the threshold. That confirms convergent validity. We evaluated the discriminant validity by examining if the AVE score for one construct is greater than the squared correlation estimates of that construct (Hair et al., 2014: 620). In Table 5, AVE scores are displayed on the diagonal. And squared correlations are displayed off-diagonal. AVE of CE is greater than its squared correlation estimates, which provides sufficient evidence for discriminant validity.

Table 3. Summary of Reduced CETSCALE

Items	Mean	SD	Item Loading	α	AVE
Consumer Ethnocentrism				0,89	0,50
1. Only those products that are unavailable in Turkey should be imported.	2,92	1,23	0,538		
2. Turkish products, first, last, and foremost.	3,03	1,25	0,628		
3. Purchasing foreign-made products is un-Turkish.	3,51	1,16	0,689		
4. It is not right to purchase foreign products because it puts Turks out of jobs.	3,28	1,22	0,753		
5. A real Turk should always buy Turkish-made products.	3,29	1,20	0,818		
6. We should purchase products manufactured in Turkey instead of letting other countries get rich off us.	3,57	1,19	0,767		
7. Turks should not buy foreign products, because this hurts Turkish business and causes unemployment.	3,90	1,00	0,773		
8. It may cost me in the long-run but I prefer to support Turkish products.	3,80	1,08	0,677		
9. We should buy from foreign countries only those products that we cannot obtain within our own country.	3,83	0,98	0,646		
10. Turkish consumers who purchase products made in other countries are responsible for putting their fellow Turks out of work.	3,76	1,09	0,734		

SD: Standart Deviation. AVE: Average Variance Extracted.

Table 4 displays the summary statistics of MCI and purchase intentions measurements. Cronbach's Alpha levels for all constructs are above 0,80, which indicates a high internal consistency. From the EFA conducted on the MCI scale, an MSA value of 0,88 was gained, and Barlett's measure was also significant ($p < 0,001$). 4 factors were extracted, and they explain 67,60% of total variance, which is a factor structure that is very close to that of the original scale (Vandecasteele and Geuens, 2010). This result is consistent with that of Özoğlu and Bülbül (2013) which contains a sample of 402 respondents in Turkey. Our results suggested items load on (sMCI), (hMCI), (cMCI), and (fMCI) dimensions by complying with the theory. So, consumers perceive consumer innovativeness

in motivations close to what is suggested theoretically in the original MCI scale, although these results cannot be extrapolated to all Turkish consumers.

Additionally, all AVE scores displayed in Table 4 are greater than 0,50, and their squared correlation estimates are shown in Table 5. This result confirms the convergent and discriminant validity of the MCI scale. Moreover, items that we used to measure purchase intentions indicate reliable and valid structure because of the sufficient α and AVE scores.

Table 4. Summary of MCI Scale and Purchase Intentions Measures

Items	Mean	SD	Item Loading	α	AVE
Social Innovativeness				0,89	0,68
1. I love to use innovations that impress others.	3,33	1,18	0,74		
2. I like to own a new product that distinguishes me from others who do not own this new product.	3,38	1,21	0,85		
3. I prefer to try new products with which I can present myself to my friends and neighbors.	3,19	1,22	0,85		
4. I like to outdo others, and I prefer to do this by buying new products which my friends do not have.	2,84	1,29	0,83		
5. I deliberately buy novelties that are visible to others and which command respect from others.	3,10	1,28	0,83		
Functional Innovativeness				0,81	0,57
1. If a new time-saving product is launched, I will buy it right away.	3,68	1,02	0,69		
2. If a new product gives me more comfort than my current product, I would not hesitate to buy it.	3,82	0,97	0,82		
3. If an innovation is more functional, then I usually buy it.	3,82	1,00	0,81		
4. If I discover a new product in a more convenient size, I am very inclined to buy this	4,04	0,87	0,69		
5. If a new product makes my work easier, then this new product is a "must" for me.	3,71	1,11	n/a		
Hedonic Innovativeness				0,91	0,65
1. Using novelties gives me a sense of personal enjoyment.	3,83	0,98	0,75		

2. It gives me a good feeling to acquire new products.	3,88	1,02	0,80		
3. Innovations make my life exciting and stimulating.	3,87	1,00	0,83		
4. Acquiring an innovation makes me happier.	4,00	0,92	0,85		
5. The discovery of novelties makes me playful and cheerful.	4,02	0,99	0,78		
Cognitive Innovativeness				0,85	0,55
1. I mostly buy those innovations that satisfy my analytical mind.	3,95	0,92	0,48		
2. I find innovations that need a lot of thinking intellectually challenging and therefore I buy them instantly.	3,81	0,93	0,77		
3. I often buy new products that make me think logically.	3,81	0,96	0,81		
4. I often buy innovative products that challenge the strengths and weaknesses of my intellectual skills.	3,80	0,97	0,84		
5. I am an intellectual thinker who buys new products because they set my brain to work.	3,93	0,96	0,76		
Purchase Intentions				0,82	0,65
1. I have an intention to purchase the domestic electric vehicle when it comes onto the market.	3,50	1,21	0,79		
2. I would love to buy the domestic electric vehicle when it comes onto the market.	3,43	1,25	0,78		
3. I would buy the domestic electric car even if it's price is slightly higher than the alternatives.	2,95	1,27	0,81		
4. I would like to sell my present car to buy the domestic electric car when it comes onto the market.	3,10	1,29	0,86		

SD: Standart Deviation, n/a: Not Available. AVE: Average Variance Extracted.

In order to test whether the purchase intentions of TEV are influenced by CE and four dimensions of CI, we utilized multiple linear regression analysis. The regression model was significant ($R^2 = ,087$, $F(5, 297) = 5,66$, $p < ,001$). Variance inflation factors (VIF) were also presented in the last column of Table 6. All values are far less than the threshold value of 10, which means there are no serious multicollinearity problems (Hair et al., 2014: 200). In Table 6, results indicate that CE ($B = ,203$, $p < ,05$) and fMCI ($B = ,212$, $p < ,05$) were both positive and significant estimators of purchase intentions of TEV. The constant term was

also significant, which has an intuitive meaning that other factors than CE and CI could also influence the purchase intentions of TEV. Hence, H1 and H2 were supported. However, H3, H4, and H5 were not supported. These results are in line with that of Avcı (2020) research in which CE and CI were empirically suggested to influence the purchase intentions of TEV. However, it can be criticized that he measured consumer innovativeness in one dimension with only three items. This approach could be insufficient to understand the different motivations of consumers to adopt an innovation.

Table 5. Correlation Matrix

Variable	Mean	SD	1.	2.	3.	4.	5.	6.
1. Consumer Ethnocentrism	3,49	0,80	(0,50)					
2. Social Innovativeness	3,17	1,04	0,01	(0,68)				
3. Functional Innovativeness	3,81	0,75	0,06	0,03	(0,57)			
4. Cognitive Innovativeness	3,86	0,75	0,07	0,05	0,36	(0,55)		
5. Hedonic Innovativeness	3,92	0,84	0,06	0,12	0,29	0,20	(0,65)	
6. Purchase Intentions	3,24	1,01	0,06	0,01	0,07	0,05	0,04	(0,65)

The diagonal shows AVE scores (in brackets) of the related constructs. Squared correlations are shown off-diagonal.

Our results revealed that TEV might benefit from CE in domestic sales (H1 is supported). Hence, the nativeness stress can be implicated in the domestic marketing program of TEV. Although the positive effect of CE on purchase intentions of domestic products is mostly evident in different product categories, studies regarding this effect on EV purchase intentions are quite limited. For example, Guo and Bunchapattanasakda (2020) indicated CE was significantly related to the purchase intentions of EVs in China. However, ethnocentric U.S. consumers had more positive attitudes towards U.S. car brands than Japanese ones (Brodowsky, 1998). Moreover, the effect of CE is greater on a more expensive product category like cars than computers (Herche, 1992). Such previous research supports our findings when we take EVs within an expensive product category.

Table 6. Multiple Linear Regression Analysis Results

Variable	<i>B</i>	<i>SE B</i>	<i>b</i>	<i>t</i>	<i>p</i>	<i>VIF</i>
Intercept	1,327**	0,385		3,443	0,001	
Consumer Ethnocentrism	0,203*	0,073	0,161	2,785	0,006	1,118
Social Innovativeness	0,001	0,057	0,001	,021	0,984	1,774
Functional Innovativeness	0,212*	0,099	0,158	2,134	0,034	1,642
Hedonic Innovativeness	0,06	0,082	0,049	0,725	0,469	1,495
Cognitive Innovativeness	0,042	0,096	0,031	0,443	0,658	1,090

* $p < 0.05$. ** $p < 0.01$.

Moreover, functional motivations are influential on the adoption of TEV as an innovation (H2 is supported). This result implies that respondents who prioritize functional attributes of innovations are likely to be potential customers of TEV in the context of our sample. Authors generally place emphasis on functional/instrumental attributes about the adoption of EVs. For example, Graham-Rowe et al. (2012) explored EV users prioritized functional attributes such as running costs, vehicle range, and performance features over environmental concerns. In another research, the functionality of EVs is proved to be an essential but indirect determinant to adopt them potentially (Schuitema et al., 2013).

Similarly, battery range and costs are the major concerns of consumers about EVs (Egbue and Lang, 2012). Skippon and Garwood (2011) reached similar results. They identified higher purchasing cost, lower range, and long recharging times as the main obstacles to prefer EVs over conventional vehicles. These results suggest that marketers should mind functional attributes of TEV over both conventional vehicles and other EVs. Noppers et al. (2014) also empirically suggested the instrumental attributes on adoption of EVs along with the environmental attributes. However, they also discourse EV use is not an all-functional experience in essence, and it may have symbolic attributes (contributions to self and social status). Furthermore, they consider these symbolic attributes might be more critical to adopt EVs in the actual behavior of consumers. In our study, hMCI and sMCI which refer to symbolic attributes were not found to be significant (H3 and H4 are not supported). This might be due to the fact that we asked directly to identify motivations to adopt innovations.

Because when asked directly, consumers might not have been aware of their actual motivations of behavior or tend to give socially desirable responses (Noppers et al., 2014). Finally, as argued by Vandecasteele and Geuens (2010), cMCI that is defined as adopting innovations for cognitive reasons like expanding one's knowledge and mental stimulation, is distinguished from the other dimensions. Because few innovations are primarily adopted based on cognitive motives (H5 is not supported). Therefore, EVs are not bought for cognitive motives as well (Schuitema et al., 2013).

5. Conclusion and Suggestions for Further Research

In conclusion, we have identified that purchase intentions of TEV are affected by CE and fMCI dimension of MCI. Our findings propose marketers of TEV put more emphasis on its nativeness and functional features in its national marketing program. Because ethnocentric consumers have more intentions to purchase the prospective TEV. Marketers can generate a particular marketing program by targeting this group since they might be the early adopters of TEV. Potential customers will also likely have functional motivations to adopt TEV as an innovation. That might suggest they prioritize TEV if it has superior functional attributes over alternatives. However, we failed to confirm that consumers may also have symbolic (hedonic or social) motivations to adopt TEV. The underlying reason could be this study is a pre-assessment such that TEV has not been seen on roads yet.

For this reason, consumers might not be aware of its potential contributions to their self and social status. After TEV is launched and customers experience the product, researchers can put more emphasis on this issue. Another reason might be that they are directly asked what motives them to adopt innovations. Consumers may avoid directly saying "buying an innovation to impress others is a good motivation" even if this is the actual motivation, or they even might not be aware of their actual motivation. So, we suggest that this issue could be evaluated in future research, especially by using indirect methods to identify the actual motivations.

An important limitation of this study is that this is a pre-assessment, which means the featured product is not for sale in the market yet. Hence it needs support from further research when the product is launched to the market, since

the perceptions of consumers might change in time. For example, experiencing the product might break down a prejudice or, reversely, be disappointing. Another issue that limits our research is that we did not consider the prospective price of TEV. The price could be an essential determinant of the purchase intentions of an innovation.

Moreover, this product is expected to contribute to the national economy via exports. For this reason, evaluating TEV on a sample of only Turkish consumers is yet another limitation of the study. For further research, there is a need to understand the attitudes of foreign consumers toward the product in terms of CE, CI, and other issues such as price, competition, and product/country image.

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APPENDIX

Constructs (English Version)	Constructs (Turkish Version)
<i>Reduced CETSCALE</i>	<i>Azaltılmış CETSCALE</i>
1. Only those products that are unavailable in Turkey should be imported.	1. Sadece "Türkiye'de olmayan ürünler" ithal edilmelidir.
2. Turkish products, first, last, and foremost.	2. Türkiye'de üretilen ürünler her zaman benim için ön sırada yer alır.
3. Purchasing foreign-made products is un-Turkish.	3. Yabancı ürünlerin satın alınması yakışsız bir davranıştır.
4. It is not right to purchase foreign products because it puts Turks out of jobs.	4. Yabancı ürünler satın almak doğru değildir, çünkü vatandaşlarımızı işinden eder.
5. A real Turk should always buy Turkish-made products.	5. Gerçek bir Türkiye vatandaşı her zaman yerli malı ürünler satın almalıdır.
6. We should purchase products manufactured in Turkey instead of letting other countries get rich off us.	6. Diğer ülkelerin bizden daha zengin olmasına izin vermek yerine Türkiye'de üretilmiş ürünleri satın almalıyız.
7. Turks should not buy foreign products, because this hurts Turkish business and causes unemployment.	7. Vatandaşlarımız yabancı ürünleri satın almamalıdır, çünkü bu Türkiye'nin işlerini bozar ve işsizliğe sebep olur.
8. It may cost me in the long-run but I prefer to support Turkish products.	8. Uzun dönemde bana maliyeti olabilir ama yerli ürünleri desteklemeyi tercih ederim.
9. We should buy from foreign countries only those products that we cannot obtain within our own country.	9. Sadece kendi ülkemizde elde edemediğimiz ürünleri yabancı ülkelere satın almalıyız.
10. Turkish consumers who purchase products made in other countries are responsible for putting their fellow Turks out of work.	10. Yabancı ülkelerde üretilmiş ürünleri satın alan tüketiciler, kendi ülke vatandaşının iş kayıplarından sorumludur.
<i>Social Innovativeness</i>	<i>Sosyal Yenilikçilik</i>
1. I love to use innovations that impress others.	1. Başkalarını etkileyecek yenilikleri satın almayı severim.
2. I like to own a new product that distinguishes me from others who do not own this new product.	2. Başkalarından ayıracak yeni bir ürüne sahip olmayı isterim.
3. I prefer to try new products with which I can present myself to my friends and neighbors.	3. Kendimi arkadaş ve komşularıma gösterebileceğim yeni ürünleri denemek isterim.

4. I like to outdo others, and I prefer to do this by buying new products which my friends do not have.	4. Arkadaşlarımla sahip olmadıkları yeni ürünleri alarak onların önünde olmayı isterim.
5. I deliberately buy novelties that are visible to others and which command respect from others.	5. Başkalarının görebileceği ve saygınlığımı artıracak yenilikleri kesinlikle satın alırım.
<i>Functional Innovativeness</i>	<i>Fonksiyonel Yenilikçilik</i>
1. If a new time-saving product is launched, I will buy it right away.	1. Zaman tasarrufu sağlayacak yeni bir ürün, piyasaya çıktığında hemen satın alırım.
2. If a new product gives me more comfort than my current product, I would not hesitate to buy it.	2. Daha konforlu yeni bir ürünü satın almak konusunda tereddüt etmem.
3. If an innovation is more functional, then I usually buy it.	3. Daha fonksiyonel yeni bir ürünü satın alma konusunda tereddüt etmem.
4. If I discover a new product in a more convenient size, I am very inclined to buy this	4. Daha kullanışlı yeni bir ürün bulursam onu satın almayı tercih ederim.
5. If a new product makes my work easier, then this new product is a "must" for me.	5. İşimi daha da kolaylaştıracak yeni bir ürünü almak benim için bir zorunluluktur.
<i>Hedonic Innovativeness</i>	<i>Hedonik Yenilikçilik</i>
1. Using novelties gives me a sense of personal enjoyment.	1. Yenilikleri kullanmak bana haz verir.
2. It gives me a good feeling to acquire new products.	2. Yeni ürünler almak kendimi iyi hissettirir.
3. Innovations make my life exciting and stimulating.	3. Yenilikler hayatımı heyecanlı ve canlı kılar.
4. Acquiring an innovation makes me happier.	4. Bir yeniliğe sahip olmak beni mutlu eder.
5. The discovery of novelties makes me playful and cheerful.	5. Yeniliklerin keşfi beni mutlu eder.
<i>Cognitive Innovativeness</i>	<i>Bilişsel Yenilikçilik</i>
1. I mostly buy those innovations that satisfy my analytical mind.	1. Çoğunlukla sorunu çözmeye yardım eden yenilikleri satın alırım.
2. I find innovations that need a lot of thinking intellectually challenging and therefore I buy them instantly.	2. Bilgilerimi geliştirecek yenilikleri bulur ve bu yenilikleri hemen satın alırım.
3. I often buy new products that make me think logically.	3. Beni mantıksal olarak düşünmeye sevk eden yeni ürünleri sıklıkla satın alırım.
4. I often buy innovative products that challenge the strengths and weaknesses of my intellectual skills.	4. Yeteneklerimi geliştirecek yeni ürünleri sıklıkla satın alırım.

5. I am an intellectual thinker who buys new products because they set my brain to work.	5. Zihnimi çalıştıran yeni ürünleri satın alan bir insanımdır.
<i>Purchase Intentions</i>	<i>Satın Alma Niyeti</i>
1. I have an intention to purchase the domestic electric vehicle when it comes onto the market.	1. Yerli elektrikli otomobil piyasaya çıktığında alma niyetim var.
2. I would love to buy the domestic electric vehicle when it comes onto the market.	2. Yerli elektrikli otomobil piyasaya çıktığında almayı çok isterim.
3. I would buy the domestic electric car even if its price is slightly higher than the alternatives.	3. Yerli elektrikli otomobilin fiyatı benzerlerinden yüksek olsa bile, onu almak isterim.
4. I would like to sell my present car to buy the domestic electric car when it comes onto the market.	4. Yerli elektrikli otomobil piyasaya çıktığında şimdiki aracımı satıp, onu almak istiyorum.

