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From East to West: Contrasting Türkiye and Europe in Terms of Sustainable Consumer Behavior

Doğudan Batıya Sürdürülebilir Tüketici Davranışı Açısından Türkiye ve Avrupa'nın Karşılaştırılması

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ÖΖ

Sürdürülebilir tüketim, bireylerin benimsedikleri tüketim alıskanlıklarının daha sürdürülebilir alternatifler yönünde kullanılmasıdır. Günümüzde sürdürülebilir, çevre dostu ürünler genellikle geleneksel ürünlere kıyasla ya daha pahalı ya erişimi zor ya da daha az konforludur. Bu nedenle sürdürülebilir tüketim çoğu zaman benzer ürüne daha fazla ücret ödemeyi ya da konfordan feragat etmeyi gerektirir. Bu çalışmada, ISSP 2010 Environment III veri setini kullanarak Türkiye ve anket calısmasına katılmış 22 Avrupa ülkesini sürdürülebilir tüketici davranışı açısından karşılaştırılmaktadır. Çalışmada sürdürülebilir tüketim davranışı, çevreyi korumak için daha fazla ücret ödemeye, daha fazla vergi vermeye ve yaşam standartlarından feragat etmeye yönelik istekliliği ölçen 3 soru ile ölçeklendirilmiştir. Bu sorulara verilen yanıtlar hem ülkeler hem kadın ve erkek katılımcılar bazında parametrik olmayan hipotez testleri ile karşılaştırılmış; yaş, eğitim ve kişisel gelirin sürdürülebilir tüketim üzerindeki etkileri korelasyon anlamlılığı ile analiz edilmiştir. Analizlerde elde edilen bulgulara göre kişi başı gayri safi yurt içi hasıla bakımından yüksek gelirli ülkelerin vatandaşlarının sürdürülebilir tüketim konusunda daha fazla isteklilik gösterdiği görülmektedir. Eğitim seviyesi arttıkça bütün ülkelerdeki sürdürülebilir tüketim istekliliği anlamlı olarak artış göstermektedir. Kişisel aylık gelir seviyesi de ülkelerin çoğunluğunda sürdürülebilir tüketim istekliliğini desteklemektedir. Bütün sonuçlar bir araya getirildiğinde görülmektedir ki Türkiye, sürdürülebilir tüketim davranışına yönelik isteklilik bakımından Avrupa ortalamasına yakın olsa da ortalama altındadır.

ABSTRACT

Sustainable consumption involves the redirection of individual consumption habits towards more sustainable alternatives. Presently, sustainable and environmentally friendly products are often either more expensive, less accessible, or less comfortable compared to traditional products. Consequently, sustainable consumption frequently necessitates paying higher prices for comparable products or sacrificing convenience. This study compares Türkiye and 22 European countries that participated in the ISSP 2010 Environment III dataset in terms of sustainable consumer behavior. This study utilizes data from the ISSP 2010 Environment III dataset to compare sustainable consumer behavior in Türkiye and 22 European countries. Sustainable consumption behavior is assessed through three questions evaluating willingness to pay higher prices, accept higher taxes, and sacrifice living standards to protect the environment. Responses are analyzed at both the country level and by gender using non-parametric hypothesis testing. Furthermore, the effects of age, education, and personal income on sustainable consumption are explored through correlation significance analyses. The findings reveal that citizens of high-income countries, as determined by GDP per capita, exhibit greater willingness for sustainable consumption. Across all countries, higher levels of education are significantly associated with increased willingness to engage in sustainable consumption. Personal monthly income also positively influences sustainable consumption willingness in most countries. Overall, the results indicate that while Türkiye's willingness for sustainable consumption is close to the European average, it remains slightly below the median.

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1. Introduction

Sustainability is the term used to describe the efforts made to ensure that all activities, primarily economic, carried out today can be sustained in the future also, enabling future generations to inherit a livable environment and society. It involves the careful consumption of resources and aims to minimize social, economic, and environmental negative impacts. In this context, the first thing that comes to mind is sustainability activities aimed at preserving the environment. On the individual level these efforts take the name "sustainable consumption behavior".

Currently the production technology for sustainable and environmentally friendly products is not as efficient as the traditional production systems due to factors like limited technological maturity, high initial costs, and systemic barriers such as entrenched supply chains and economies of scale. (Grin, 2010; Geels, 2011). This results in higher production costs for the sustainable alternative for the traditional products. Hence, sustainable consumer products are usually more expensive than traditional counterparts. Additionally, sustainable products may have some difficulty to access and use them which requires the consumer to sacrifice some comfort in an effort to obtain these sustainable products. For these reasons and in order to promote sustainable consumption it is important to understand the factors affecting the willingness of the consumers towards sustainable behaviors.

Among demographic factors such as gender, age, education and income, culture also affect sustainable consumption behavior of the individuals. The society and the culture we live in, shape our values and beliefs about the environment, restrict our behavior through traditions, societal expectations and unwritten rules, direct our consumption behavior through status perceptions, education and awareness levels. As a result, it is just natural that there should be differences in terms of sustainable consumer behavior among different countries.

Studying the different sustainable consumption behavior exhibited in different country citizens is a major step in understanding how these behaviors are affected and how they can be spread to the nations for a sustainable future. In this paper, we compare Türkiye and 22 European countries in terms of sustainable consumer behavior using the ISSP (International Social Survey Programme) 2010 Environment III dataset.

This comparison firstly, reveals the position of Türkiye among European countries in terms of sustainable consumption behavior serving as a benchmarking study. Also helps understand the differences and similarities between Türkiye and the other twenty-two countries in terms of how sustainable consumer behavior is affected by demographic factors. Analyzing countries with higher sustainable consumption willingness, we can identify what improvements can be made to spread sustainable consumption among Turkish citizens. To the best of our knowledge this is the first scientific study contrasting Türkiye and Europe in terms of sustainable consumption. In this sense we believe this study is an important contribution to the present literature.

2. Literature Review

Sustainable consumer behavior encompasses the actions and decisions of individuals motivated by environmental and social considerations, aiming to minimize negative impacts on the environment while fostering sustainability. This behavior is pivotal for promoting environmental conservation and is shaped by a diverse range of psychological, social, economic, and demographic factors.

Key demographic factors influencing sustainable consumer behavior include age, gender, education, and income. Research highlights generational differences in sustainable consumption patterns. While older consumers often exhibit less sustainable behavior (Bulut et al., 2017), context matters. For example, some studies suggest that younger consumers, despite their environmental awareness, may harbor skepticism about sustainable products, which can lead to reduced sustainable consumption (Witek and Kuźniar, 2020).

Gender differences are well-documented, with women consistently demonstrating higher levels of sustainable consumption, such as purchasing eco-friendly products and reusing items (Bulut et al., 2017; Witek and Kuźniar, 2020; Vecchio and Annunziata, 2015; Chekima et al., 2016). Education also plays a crucial role, as higher education levels correlate with greater environmental awareness and sustainable practices (Witek and Kuźniar, 2020; Panzone et al., 2016; Chekima et al., 2016). Similarly, income levels influence sustainable consumption, with higher-income individuals more likely to engage in environmentally responsible behaviors (Witek and Kuźniar, 2020; Vecchio and Annunziata, 2015; Sardianou and Genoudi, 2013).

Psychological determinants significantly affect sustainable consumption behavior. Environmental attitudes and beliefs (Han, 2021), emotional responses (Unger-Plasek et al., 2024; Han, 2021), knowledge and awareness of environmental issues (Wardhana, 2022), and ethics or morality (Fredericks et al., 2015; Caniëls et al., 2021) all contribute to sustainable decision-making. Perceived behavioral control—an individual's confidence in their ability to act sustainably—is another critical factor (Fredericks et al., 2015; Alzubaidi et al., 2021).

Social norms and the broader cultural context significantly shape sustainable behavior. The societal norms and expectations of the community an individual belongs to (Mansoor et al., 2022; Ejelöv et al., 2022), cultural values and peer influence (Vergura et al., 2023), and social environments that promote sustainable practices (Piligrimiene et al., 2020) all exert considerable influence. For an in-depth review of psychological and social factors driving sustainable behavior, see Sivarajah (2024). Out of the social factors, cultural factors will be discussed in more detail as they are related to the main theme of this paper. To understand the effect of these cultural factors, scientists have been conducting cross-national or crosscultural studies. Here a brief review of some of these studies are presented.

In the context of cross-cultural consumer behavior or environmental attitudes studies the extensive survey study International Social Survey Programme (ISSP) 2010 Environment III, which is conducted with thirty-one countries over the years 2010 to 2013 is a valuable source that has been analyzed with different research questions by many scientists. This survey is also being used in the current paper.

Among the studies that use ISSP 2010 data are Wang and Hao (2018) and Wang (2017). Wang (2017) investigated the impact of individual environmental attitudes and national environmental policies on sustainable consumer behavior. According to the findings of the study, effective environmental policies in high-income countries encourage individuals' sustainable consumption behavior. Conversely, in other countries, the more active the government is in environmental issues, the less individuals exhibit sustainable consumption behaviors. In high-income countries, when government environmental policies are weak, the environmentally sensitive individuals tend to increase their sustainable consumption behavior, whereas in low-income countries, the relationship between attitude and behavior strengthens as the government's environmental policies become stronger. Additionally, Wang and Hao (2018) examined the connection between internet access and sustainable consumer behavior. Although there is a significant correlation between the country averages of internet access rates and the sustainable consumer behavior index, no significant correlation was found at an individual level between these two variables. However, the findings of the study demonstrated that internet access significantly reinforces the transformation of individuals' environmentally sensitive attitudes into sustainable behaviors. The authors interpreted this as suggesting that although sustainable consumer behavior may appear to be entirely based on individual preferences, it is intricately linked to the opportunities and constraints within the individual's physical and social environment.

Studies comparing Western and Eastern cultures are more common among cross-cultural sustainable consumer behavior studies. For example, Ur Rahman and Luomala (2021) conducted a cross-cultural comparison of sustainable consumption behaviors between Finland and Pakistan using horizontal individualism and vertical collectivism. They found that horizontal individualism and vertical collectivism values did not significantly impact attitudes toward green products but positively influenced environmental responsibility. The authors demonstrated, through a survey, that horizontal individualism was significantly more dominant among Finnish participants, while vertical collectivism was more prevalent among Pakistani participants.

Another study that compared East and West was conducted by Bakr et al. (2022). Researchers examined factors influencing attitudes and purchasing behavior regarding plant-based meat alternatives among Canadian and Kuwaiti participants. They showed that individuals' attitudes, personal norms, and behavioral control significantly influenced purchase intentions. The authors also demonstrated that environmental concerns, preferences for cruelty-free products, attachment to meat, and resistance to new foods significantly impacted the intention to purchase these products and that there were significant differences between Canada and Kuwait in the level of this influence.

In a similar study, Ishaq et al. (2021) conducted a crosscultural study between Italy and Pakistan, examining sustainable consumption behavior through the intention to purchase organic food. The study showed that among Italian consumers, environmental and health concerns were the strongest factors determining personal norms and purchase intentions. In contrast, for Pakistani consumers, food safety concerns were the most influential factor in purchase intention. Additionally, ethical concerns and price sensitivity were shown to have a regulatory effect.

Studies comparing the United States, Europe, and East Asian countries have been prevalent in this field and have provided up-to-date and noteworthy insights. Minton et al. (2015) examined the impact of religious values on sustainable consumption behavior among American and South Korean consumers. The findings indicated that religiosity increased sustainable consumption behavior, such as purchasing environmentally friendly cleaning products, recycling, and buying organic food. Compared to Christian and atheist participants, it was observed that religious Buddhists had a higher likelihood of engaging in sustainable consumption behaviors. In another study within the same countries, Kahle et al. (2016) found that religious affiliation and the level of religiosity significantly affected sustainable consumption behavior. Additionally, South Korean consumers exhibited higher sustainable consumption behavior compared to American consumers.

In a different comparison between the West and the East, Minton et al. (2018) examined the effects of national culture and utilitarianism on sustainable consumption behavior among consumers in France, Japan, and the US. They showed that the level of individual utilitarianism partially affected sustainable consumption behavior. Moreover, the individual's sustainable attitude had a moderating effect on the relationship between utilitarianism and sustainable consumption behavior. In another study, Riley et al. (2012) investigated sustainable consumption behavior among elderly consumers in a cross-cultural study in the United Kingdom, Germany, Japan, and Hungary. Using a modified version of the Ecologically Conscious Consumer Behavior Scale, they demonstrated the existence of ecologically conscious consumer segments in each country, but these segments were not identifiable socio-demographically.

Significant differences can exist in sustainable consumption among consumers in different countries even though these countries are geographically close to each other. García-Salirrosas et al. (2023) compared Chile, Colombia, Mexico, and Peru consumers in terms of environmentally sensitive purchase intentions in the context of the Covid-19 pandemic. They conducted hypothesis tests and a multiple group structural equation model using approximately four hundred participants from each country, revealing that environmental awareness, sustainable consumption, and social responsibility positively influenced environmentally sensitive purchase intentions. The study also indicated that the country of residence and gender of the consumer affected the level of this influence.

Moreover Liobikienė et al. (2016) assessed the main determinants of green purchasing behavior among consumers in European Union (EU) countries using the Theory of Planned Behavior. They found considerable differences in green purchasing behavior among EU countries that could not be explained solely by the country's economic development. The study revealed that personal norms, knowledge about green products, and trust in these products significantly affected green purchasing behavior across all countries. Moreover, while cultural dimensions did not significantly affect purchasing behavior, they did influence factors that directly impacted purchasing behavior. Additionally, in a study involving two countries from Europe, Roseira et al. (2022) conducted an intercultural study with approximately 450 participants from Portugal and Norway to understand how collectivism affects organic food purchasing behavior. Using a structural equation model, the analysis indicated that collectivism positively influenced consumer attitudes, personal norms, perceived price, and environmental concerns related to organic food, which in turn positively influenced purchase intentions.

To the best of our knowledge, this is the first scientific study to specifically compare Türkiye and Europe in the context of sustainable consumption behavior. In this sense this study is an important contribution to the existing literature.

3. Methodology

In this study we use the International Social Survey Programme (ISSP) 2010 Environment III data set and nonparametric hypothesis testing and correlation analysis as methodology. Minitab software is used for the analyses.

ISSP 2010 data set includes thirty-one countries in total, of which twenty-two are European countries are analyzed in this article. These countries are listed in **Table 1**.

The responses of Turkish participants are compared against the responses of the participants from these 22 European countries using non-parametric hypothesis testing. The comparison is restricted to three questions, namely,

- SCB Q1. How willing would you be to pay much higher prices in order to protect the environment?
- SCB Q2. How willing would you be to pay much higher taxes in order to protect the environment?
- SCB Q3. How willing would you be to accept cuts in your standard of living in order to protect the environment?

The analyses are restricted to definite responses. In other words, the responses such as "don't know", "can't choose", "refuse to answer" are removed from the data before the analysis.

Additionally, the correlation of sustainable consumption behavior with gender, age, education and income level of the participants is also analyzed.

Gender data includes female, male and "refuse to answer" responses. "Refuse to answer" responses are removed from the data before analysis. Specifically other valid answers of these participants are kept in the analysis but the answer to gender question is removed.

Age data includes values from 1-99 as the age of the respondent. Some participants answered "don't know" and some refused to answer giving a "no answer" response. Both "don't know" and "no answer" responses are removed from the analyses. To clarify, the participants are not removed from the analyses, just their answer to the age question is removed.

Education in our study is measured with the number of degrees the respondent has completed. The responses are 0 - no formal education, 1 - primary school degree, 2-secondary school degree, 3 - high school degree, 4 - university degree not completed, 5 - university degree completed, "don't know", "no answer or other". Out of these "don't know" and "no answer or other" responses are removed from the analyses. Similar to the age and gender data, the participants are kept in the analysis, only the answer to the education question is removed.

As for income data, we use the country specific personal monthly income data in our analyses. For this variable, the income intervals are determined according to each country's economic conditions and the responses are recorded as the midpoint of each income interval. Here the "don't know", "refuse to answer" and "not applicable" responses are eliminated from the analyses and the data is used as it is presented in the source. Again, the participants are kept in the data, only the specific answers to income question are removed.

Number of participants and number of valid answers for each question and factor used in the analyses is presented in Table 1.

	# Valid Answers							
Country	# Whole	SCB Q1	SCB Q2	SCB Q3	Gender	Age	Degree	Income
Türkiye	1665	1594	1601	1576	1665	1636	1646	1523
Austria	1019	992	990	978	1019	1019	1019	829
Belgium	1142	1093	1103	1092	1142	1142	1142	1116
Bulgaria	1003	988	985	984	1003	1003	1003	809
Croatia	1210	1170	1171	1174	1210	1197	1195	772
Czech Republic	1428	1407	1395	1408	1428	1414	1423	913
Denmark	1305	1231	1238	1235	1238	1239	1304	1225
Finland	1211	1171	1178	1161	1211	1211	1207	1117
France	2253	2165	2177	2188	2253	2253	2225	1763
Germany	1407	1350	1326	1335	1407	1405	1402	1258
Great Britain	928	882	887	885	928	927	842	891
Iceland	798	766	767	772	796	794	705	798
Latvia	1000	947	943	945	1000	1000	1000	636
Lithuania	1023	956	954	947	1023	1018	1016	799
Netherlands	1472	1399	1417	1406	1472	1472	1399	1303
Norway	1382	1334	1336	1328	1382	1382	1370	1382
Portugal	1022	1017	1018	1007	1022	1019	1022	895
Russia	1619	1523	1530	1502	1619	1619	1619	1434
Slovakia	1159	1089	1085	1090	1159	1154	1158	1000
Slovenia	1082	1025	1037	1034	1082	1082	1074	743
Spain	2560	2495	2492	2480	2560	2550	2552	2036
Sweden	1181	1138	1142	1142	1181	1181	1157	973
Switzerland	1212	1205	1202	1206	1212	1212	1206	936

Table 1: Number of participants and number of valid responses

4. Analysis Results

Here we present the results of various comparisons Turkish participants' sustainable consumer behavior with European participants numerically and graphically. The comparison of distribution of the answers to the three sustainable consumption questions can be found in **Figure 1**, **Figure 2** and **Figure 3**. Here the differences between the countries in terms of sustainable consumer behavior can be seen vividly. For instance, in **Figure 1**, there is a dramatic difference between Türkiye and Bulgaria, Denmark, Germany and Latvia. We can also see how different these countries are from each other. The majority of Turkish respondents tend to cluster around the middle values (2 or 3) rather than the extremes (1 or 5), suggesting a more moderate stance compared to many European countries. Countries like Denmark, Norway, and Sweden show a higher percentage of respondents selecting "4" or "5" compared to Türkiye, indicating a stronger willingness to bear higher costs for environmental protection. This suggests that cultural and socio-economic factors may influence the general attitudes toward environmental responsibility in these countries.



Figure 1: Comparison of Türkiye and European countries in terms of willingness to pay higher prices to protect environment. 1: very unwilling, 5: very willing. CC or NA: Can't choose or Not available. Source: Author's calculations from ISSP 2010 data set

In contrast, countries like Bulgaria, Latvia, and Croatia show similar or even lower levels of willingness to pay higher prices compared to Türkiye. This may reflect similarities in economic conditions or public perceptions regarding environmental issues in these regions. The overall pattern suggests that economic factors, such as income levels and economic stability, as well as cultural attitudes towards environmental responsibility, significantly influence the willingness to pay higher prices. Countries with stronger economies and a more ingrained culture of environmentalism tend to show higher willingness levels.



Figure 2: Comparison of Türkiye and European countries in terms of willingness to pay higher taxes to protect environment. 1: very unwilling, 5: very willing. CC or NA: Can't choose or Not available. Source: Author's calculations from ISSP 2010 data set

Comparing **Figure 1** and **Figure 2**, we can observe the shift of the responses from willing to pay higher prices to unwilling to pay higher taxes. The responses of Turkish participants maintain a similar distribution with a little shift to the left while the change in most of the European countries such as Austria, Belgium and Portugal is more dramatic. Northern European countries sustain higher willingness to pay. Germany and Switzerland have a significant portion of respondents selecting higher willingness categories (4 and 5), suggesting a higher acceptance of tax increases if they contribute to environmental protection. This could be due to a stronger belief in the effectiveness of government action in these countries. This is parallel to the findings of the study by Hammar and Jagers (2006) which shows perceived fairness and efficacy of environmental tax systems positively



influence public willingness to pay such taxes.

Figure 3: Comparison of Türkiye and European countries in terms of willingness to cut living standards to protect environment. 1: very unwilling, 5: very willing. CC or NA: Can't choose or Not available. Source: Author's calculations from ISSP 2010 data set

Literature such as Anderson (2017) suggest that higher trust in the government is positively correlated with higher willingness to pay taxes. As such we can conclude that except or Switzerland, Denmark and Netherlands, the trust in the government, at least in terms of environmental protection is lower in European countries than Türkiye.

In **Figure 3** the shift in behavior we have seen in **Figure 2** is reversed. The data suggest that participants in Türkiye are generally less willing to make significant personal sacrifices

for the sake of the environment compared to those in most European countries. This could reflect differences in economic priorities, environmental awareness, or cultural attitudes towards sustainability. European countries, particularly in Northern and Western Europe, tend to show higher willingness to sacrifice, which may be influenced by stronger environmental policies, or higher levels of environmental education.

Table 2: Comparison of sustainable consumer behaviour of European participants with Turkish participants

	Willin to j	ngness to j protect the	pay highe e environ	er prices ment	Willingness to pay higher taxes to protect the environment		er taxes ment	Willingness to cut living standards to protect the environment			ving the	
Country	Mean	Median	Std. Dev	P-value	Mean	Median	Std. Dev	P-value	Mean	Median	Std. Dev	P-value
Türkiye	2.61	2.00	1.18		2.53	2.00	1.17		2.46	2.00	1.11	
Austria	2.64	3.00	1.19	0.35	2.26	2.00	1.12	0.00	3.12	3.00	1.14	0.00
Belgium	2.82	3.00	1.13	0.00	2.39	2.00	1.17	0.01	2.84	3.00	1.10	0.00
Bulgaria	2.28	2.00	1.27	0.00	2.07	2.00	1.21	0.00	1.89	1.00	1.13	0.00
Croatia	2.13	2.00	1.05	0.00	2.02	2.00	1.02	0.00	3.12	3.00	1.02	0.00
Czech Republic	2.27	2.00	1.08	0.00	2.07	2.00	1.06	0.00	3.50	4.00	0.96	0.00
Denmark	3.24	3.00	0.97	0.00	2.95	3.00	1.12	0.00	3.13	3.00	1.17	0.00
Finland	2.69	3.00	1.07	0.02	2.42	2.00	1.08	0.07	2.48	2.00	1.20	0.69
France	2.71	3.00	1.16	0.00	2.23	2.00	1.14	0.00	2.97	3.00	1.11	0.00
Germany	3.00	3.00	1.07	0.00	2.56	3.00	1.09	0.15	2.54	2.00	1.25	0.14
Great Britain	2.73	3.00	1.13	0.00	2.46	2.00	1.20	0.26	3.07	3.00	1.11	0.00
Iceland	2.71	3.00	1.08	0.02	2.33	2.00	1.13	0.00	2.73	3.00	1.15	0.00
Latvia	2.04	2.00	1.01	0.00	1.87	2.00	0.96	0.00	2.77	3.00	1.21	0.00
Lithuania	2.22	2.00	1.07	0.00	2.16	2.00	1.05	0.00	3.00	3.00	1.06	0.00
Netherlands	3.19	3.00	1.09	0.00	2.61	3.00	1.20	0.03	2.99	3.00	1.07	0.00
Norway	2.96	3.00	1.07	0.00	2.49	2.00	1.13	0.68	2.83	3.00	1.14	0.00
Portugal	2.45	2.00	1.18	0.00	2.07	2.00	1.14	0.00	2.42	2.00	1.15	0.52
Russia	2.23	2.00	1.12	0.00	2.08	2.00	1.08	0.00	2.16	2.00	1.12	0.00
Slovakia	2.46	2.00	1.10	0.01	2.29	2.00	1.07	0.00	2.01	2.00	1.02	0.00
Slovenia	2.71	3.00	1.15	0.00	2.35	2.00	1.12	0.00	2.61	3.00	1.10	0.00
Spain	2.65	3.00	1.12	0.13	2.39	2.00	1.10	0.00	2.22	2.00	1.07	0.00
Sweden	2.79	3.00	1.10	0.00	2.54	2.00	1.12	0.52	2.68	3.00	1.12	0.00
Switzerland	3.35	4.00	1.02	0.00	2.91	3.00	1.13	0.00	1.84	2.00	0.94	0.00

P-values are from nonparametric two-sided comparison with Türkiye. Green: More sustainable consumer behavior than Türkiye, Yellow: Less sustainable consumer behavior than Türkiye, White: Not significantly different from Türkiye. Source: Author's calculations.

The descriptive statistics of samples from each country and the comparison P-values are presented in **Table 2**. The table contains responses to the three sustainable consumption questions, namely willingness to pay higher prices, willingness to pay higher taxes and willingness to cut living standards to protect the environment. In **Table 2**, countries that have significantly higher sustainable consumption response are highlighted with green whereas yellow indicates countries that have significantly lower sustainable consumption responses. Countries whose responses are not significantly different from Türkiye are left white. The results of these comparisons are also graphically depicted in **Figure 4**, **Figure 5** and **Figure 6**.

When we compare the findings of willingness to pay higher prices comparison, a striking parallelism between the map in **Figure 4** and the map of GDP per capita emerges. The 2010 GDP per capita statistics and connection to the comparison presented in **Table 2** is presented in **Table 3** in which the countries are ordered according to their GDP per capita values. This table shows that the countries with higher willingness (than Türkiye) to pay higher prices to protect the environment are mostly countries with higher wealth.

Coming to willingness to pay higher taxes to protect the environment, of which the map comparison is presented in **Figure 5**, the willingness of the respondents to pay higher taxes is significantly less than their willingness to pay higher prices to protect the environment. This discrepancy can be attributed to lack of trust to the governments or that the taxes will be used as promised to protect the environment, or to the direct effect of paying higher prices. Still, **Table 3** shows that the respondents that have higher willingness than the Turkish respondents to pay higher taxes are from the wealthiest countries of Europe.

Table 3: GDP per capita PPP combined with sustainable consumption behaviour comparison.

Country	2010 GDP Per Capita	Willingness to pay higher prices	Willingness to pay higher taxes	Willingness to cut living standards
Croatia	2660.1			
Bulgaria	14679.6			
Türkiye	17360			
Latvia	17709			
Lithuania	20096.6			
Russian Federation	22070			
Slovakia	25222.5			
Portugal	27262			
Czechia	27768.4			
Slovenia	27823.6			
Spain	31692.7			
France	35912.1			
Great Britain	36585			
Finland	38956			
Germany	39677			
Iceland	39780.4			
Belgium	39838.7			
Austria	42021.2			
Sweden	42223.9			
Denmark	43008.3			
Netherlands	45044.8			
Switzerland	54352			
Norway	58232.7			

Source: Author's calculations using data from unece.org. Green: more willing than Türkiye, yellow: less willing than Türkiye.

(The three columns of the table are left blank on purpose.)



Figure 4: Map representation of willingness to pay higher prices to protect the environment. Source: Author's calculations. Map created with mapchart.net.



Figure 5: Map representation of willingness to pay higher taxes to protect the environment Source: Author's calculations. Map created with mapchart.net.

In terms of willingness to cut living standards, shown in **Figure 6**, although the wealthier countries are displaying higher willingness, we observe that some of the less wealthy countries are also willing to cut their living standards.

Overall, we can say that wealthier or more developed countries exhibit a higher willingness to pay higher prices and cut living standards for the sake of environmental protection. Hence, we can deduce that wealth is an important determinant of sustainable consumption behaviour. In comparison of Türkiye and the European countries, Türkiye is positioned in the less sustainable half of these countries close to the centre.



Figure 6: Map representation of willingness to cut living standards to protect the environment Source: Author's calculations. Map created with mapchart.net.

Next, we study the effect of various demographic factors, namely gender, age, education and personal income, on sustainable consumer behavior through correlation analysis. The results of the analysis are presented in Table 4, Table 5, and Table 6. Here lavender highlighted cells indicate positive and significant correlation coefficients, while orange highlighted cells indicate negative and significant correlation. In this analysis, gender is represented with 1=male, 2=female binary representation. Other answers and respondents refusing the answer are removed from the analysis. Hence the correlation coefficient indicates the effect of gender on sustainable consumer behavior. From these tables, we see that the correlation between gender and sustainable behaviors is typically weak and inconsistent, with some negative and some positive correlations. This indicates that gender is not a significant factor in determining sustainable behavior in most countries.. For Denmark, Finland, Lithuania, and Norway female respondents are significantly more willing to pay higher prices or taxes and cut living standards for the sake of the

environment. For Germany, Portugal and Spain, we see an opposite gender effect on these three behaviors. That is sustainable consumption behavior is more prevalent in male respondents. As for Turkish respondents although the correlation coefficients for all three sustainable consumer behaviors are negative, there is no significant gender effect on sustainable consumer behavior.

Here, we take a closer look at the gender differences and plot the average answers of male and female participants in **Figure 7**, **Figure 8** and **Figure 9**. In these graphs the dashed diagonal line represents female and male average responses being equal. A data point above this dashed line indicates that female respondents have higher averages, in other words higher willingness for sustainable consumption behavior. For willingness to pay higher prices, most of the countries appear below the dashed line, indicating that male respondents have higher willingness. Still, the gender gap is not very wide as the data points are positioned close to the equality line.

	Correlation with willingness to pay higher prices to protect the environment						
	Gender Age Education		Incom e				
Türkiye	-0.04	-0.021	0.213*	0.129*			
Austria	-0.01	-0.009	0.191*	0.04			
Belgium	0.029	0.084*	0.179*	0.085*			
Bulgaria	-0.041	-0.148*	0.295*	0.224*			
Croatia	0.003	-0.098*	0.162*	0.137*			
Czech Republic	0.025	-0.110*	0.235*	0.134*			
Denmark	0.066*	0.116*	0.104*	0.048			
Finland	0.066*	0.006	0.170*	0.054			
France	-0.037	-0.009	0.163*	0.198*			
Germany	-0.099*	-0.028	0.257*	0.222*			
Great Britain	-0.013	0.089*	0.206*	0.128*			
Iceland	0.033	0.154*	0.090*	-0.037			
Latvia	0.007	-0.038	0.105*	0.098*			
Lithuania	0.080*	-0.116*	0.236*	0.164*			
Netherlands	-0.013	0.087*	0.227*	0.158*			
Norway	0.115*	0.055*	0.151*	0.007			
Portugal	-0.086*	-0.149*	0.252*	0.185*			
Russia	-0.084*	-0.157*	0.144*	0.149*			
Slovakia	0.006	-0.130*	0.236*	0.193*			
Slovenia	0.024	-0.127*	0.264*	0.209*			
Spain	-0.055*	-0.148*	0.235*	0.155*			
Sweden	0.032	0.021	0.061*	0.035			
Switzerland	-0.007	0	0.239*	0.196*			

Table 4: Correlation analysis of demographic factors and willingness to pay higher prices.

Two-sided correlation values. * significant at 5% level. Lavender: Positive and significant, Orange: Negative and significant, White: Insignificant. Source: Author's calculations

In terms of willingness to pay higher taxes, from **Figure 7** to **Figure 8**, the data points all seem to move towards the lower end of the graph indicating an overall lower willingness to pay higher taxes to protect the environment than willingness to pay higher prices. Some gender gap is still observable in the data. However, in **Figure 9**, in willingness to cut living standards, the gender gap seems to be significantly reduced as the data points seem to be arranged around the equality line.

These graphs also point to the differences among the countries. In **Figure 7** and **Figure 9** Türkiye is observed to be close to the centre of the distribution of these countries. In **Figure 8** as most countries in the question have lower willingness to pay higher taxes, Türkiye ends up in the upper corner of the graph.

Table 5: Correlation	analysis of de	mographic fa	ctors and
willingness to pay hig	gher taxes.	• •	

	Correlation with willingness to pay higher taxes to protect the environment						
	Gender	Age	Education	Income			
Türkiye	-0.037	-0.041	0.181*	0.081*			
Austria	0.005	-0.036	0.138*	0.014			
Belgium	0.044	0.039*	0.154*	0.045*			
Bulgaria	-0.047	-0.150*	0.294*	0.21*			
Croatia	0.02	-0.104*	0.176*	0.12*			
Czech Republic	0.052	-0.101*	0.211*	0.129*			
Denmark	0.100*	0.076*	0.081*	0.026			
Finland	0.075*	0.039	0.184*	0.054			
France	-0.069	0.015	0.174*	0.173*			
Germany	-0.096*	-0.056	0.265*	0.2*			
Great Britain	-0.023	0.080*	0.216*	0.054*			
Iceland	0.037	0.137*	0.122*	-0.093			
Latvia	-0.037	-0.007	0.105*	0.077*			
Lithuania	0.079*	-0.104*	0.251*	0.18*			
Netherlands	-0.028	0.076*	0.243*	0.137*			
Norway	0.137*	0.018*	0.163*	-0.004			
Portugal	-0.116*	-0.183*	0.240*	0.181*			
Russia	-0.073*	-0.174*	0.155*	0.117*			
Slovakia	-0.006	-0.144*	0.198*	0.172*			
Slovenia	-0.006	-0.076*	0.210*	0.19*			
Spain	-0.068*	-0.134*	0.248*	0.139*			
Sweden	0.051	-0.059	0.111*	-0.061			
Switzerland	0.002	-0.064	0.200*	0.144*			

Two-sided correlation values. * significant at 5% level. Lavender: Positive and significant, Orange: Negative and significant, White: Insignificant. Source: Author's calculations

Next, we interpret the correlation of other demographic variables with sustainable consumption behaviour. In terms

of age effects, from **Table 4**, **Table 5** and **Table 6**, the dominant effect seems to be negative and about half of these are significant. In other words, for most of the countries age is negatively correlated with sustainable consumer behaviour. Especially in terms of cutting living standards, age seems to significantly lower willingness of the participants. This can be explained through younger generations being more knowledgeable and sensitive about environmental issues. However, for Belgium, Denmark, Great Britain, Iceland, Netherlands and Norway age is positively correlated with willingness to pay higher prices and higher taxes. For Türkiye age doesn't have a significant effect on sustainable consumer behaviour.

Table 6: Correlation analysis of demographic factors and willingness to cut living standards.

	Willingness to cut living standards to protect the environment					
	Gender	Age	Education	Income		
Türkiye	-0.01	0.014	0.144*	0.06*		
Austria	0.016	-0.011	0.168*	-0.013		
Belgium	0.03	0.073	0.081*	0.056		
Bulgaria	-0.031	-0.125*	0.173*	0.154*		
Croatia	-0.021	-0.075*	0.170*	0.117*		
Czech Republic	0.031*	-0.078*	0.158*	0.122*		
Denmark	0.088*	0.094*	0.075*	0.041		
Finland	0.119*	-0.022	0.169*	0.031		
France	0.013*	-0.044	0.213*	0.085*		
Germany	-0.080*	-0.078*	0.235*	0.152*		
Great Britain	-0.038	0.02*	0.252*	0.127		
Iceland	0.032	0.059*	0.177*	-0.037*		
Latvia	-0.023	0	0.063*	0.094		
Lithuania	0.075*	-0.040*	0.190*	0.132*		
Netherland s	0.031	0.091*	0.145*	0.033*		
Norway	0.163*	0.064	0.094*	0.011		
Portugal	-0.080*	-0.235*	0.246*	0.163*		
Russia	0.004*	-0.100*	0.149*	0.094*		
Slovakia	-0.001	-0.129*	0.218*	0.176*		
Slovenia	0.046	-0.135*	0.240*	0.148*		
Spain	-0.029*	-0.165*	0.252*	0.126*		
Sweden	0.088	-0.019*	0.081*	-0.059		
Switzerlan d	0.029	-0.029*	0.193*	0.087*		

Two-sided correlation values. * significant at 5% level. Lavender: Positive and significant, Orange: Negative and significant, White: Insignificant. Source: Author's calculations

In this correlation analysis education variable is measured with the number of education degrees from 0 to 5, 0 indicating no formal education and 5 indicating having completed college education. From **Table 4**, **Table 5** and **Table 6**, we can see that education consistently shows a positive and significant correlation with sustainable behaviors across most countries, including Türkiye. This suggests that higher education levels are associated with greater willingness to engage in sustainable behaviors, likely due to increased awareness and understanding of environmental issues. is significantly and positively correlated with sustainable consumer behaviors for all countries, which is also parallel with our expectations.

Finally, in **Table 4**, **Table 5** and **Table 6** we observe that personal monthly income is positively and significantly correlated with sustainable consumer behaviors for majority of the countries, though the strength varies. This indicates that higher income levels are often associated with a greater willingness to support environmental protection, potentially because wealthier individuals can afford the associated costs.

5. Conclusions and Recommendations

In this study Türkiye and 22 European countries are compared in terms of sustainable consumer behavior. Our findings indicate that Türkiye is positioned close to the median but on the lower side of the distribution in terms of sustainable consumer behavior. That is, Turkish participants are less willing than the average of the European participants, however there are some countries that are less willing than Turkish participants, as well. When the findings are projected to the map, we observe that the sustainable consumption willingness decreases as we move from West to East. That is also parallel with the economic conditions of these countries: as we move from West to East the per capita GDP adjusted according to purchasing power parities decreases. This finding is parallel with Wang (2017).

Additionally, our analyses reveal that consumer behavior in terms of paying higher prices and higher taxes differs significantly even though they are both monetary behaviors. Richer countries are more willing to pay higher prices but less willing to pay higher taxes in order to protect the environment. Moreover, the willingness to sacrifice living standards flips the comparison of the countries completely. In other words, consumers from richer countries are less willing to sacrifice their living standards. These findings suggest that sustainable consumption behavior has different dimensions that need to be considered separately from each other.

The data indicates that Turkish consumers have a moderate willingness to pay higher prices to protect the environment. This willingness is positively correlated with education and income, but not significantly influenced by gender or age. Compared to other countries, Türkiye falls in the middle, suggesting room for improvement, but also a foundation to build upon. Similar to the willingness to pay higher prices, Turkish consumers exhibit a moderate willingness to pay higher taxes for environmental protection. Education remains a strong positive influence, but age and income have weaker impacts. This indicates a general openness among more educated citizens to support governmental initiatives for environmental protection through taxation. The willingness to cut living standards is also moderate in Türkiye. While it is positively influenced by education and income, it shows that the public may be reluctant to make significant lifestyle sacrifices. This reflects a cautious approach where consumers may be more supportive of environmental actions that do not drastically impact their standard of living.



Figure 7: Gender comparison of willingness to pay higher prices to protect the environment/ Source: Author's calculations.



Figure 8: Gender comparison of willingness to pay higher taxes to protect the environment. Source: Author's calculations.



Figure 9: Gender comparison of willingness to cut living standards to protect the environment. Source: Author's calculations

Recommendations for Türkiye:

- In order to spread sustainable consumer behavior to the nation and promote these behaviors Türkiye can increase public awareness and education on environmental issues, targeting both younger generations and adults. Campaigns in schools, universities, and community centers could help raise the overall level of environmental consciousness. Additionally, the existing correlation between education and sustainable consumer behavior can be leveraged bv incorporating sustainability into the curriculum and public discourse.
- Another recommendation is introducing policies that encourage sustainable consumer behavior gradually. Given the moderate willingness across the board, abrupt changes might face resistance. Starting with incentivizing green goods and services, and slowly integrating more substantial measures such as taxes and regulatory changes can be more effective.
- Developing financial incentives for consumers to engage in sustainable practices, such as subsidies for green products, tax breaks for environmentally friendly purchases, or lower utility rates for reduced energy consumption has also potential to increase sustainable consumption.
- Promoting corporate social responsibility (CSR) initiatives among businesses to encourage them to

offer sustainable products at competitive prices, can make them more accessible to a broader audience.

- Running national campaigns that emphasize the importance of sustainable living and its benefits to future generations as well as tying environmental protection to national pride can motivate citizens towards sustainable behaviors.
- The government should take a proactive role in leading by example, implementing sustainable practices in public services and infrastructure, and incentivizing green businesses.
- The government should establish clear and transparent communication about the environmental goals and the steps they are taking, which can help build trust and encourage public buy-in.

This study is a brief exploratory study aiming to understand the position of Türkiye among European countries in terms of sustainable consumer behavior. For future studies a more targeted survey can be conducted with several different countries in order to better understand the effect of different factors on sustainable behaviors.

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