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Do culture and consciousness matter? A study on motivational drivers of household food waste reduction in Turkey

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1 **Do culture and consciousness matter? A study on motivational drivers of household food**
2 **waste reduction in Turkey**

3 **Abstract**

4 Food waste reduction has taken a remarkable place in the objectives of the United Nations'
5 Sustainability Goals and it has been considered a relevant topic by scholars, companies, and
6 governmental organizations. This study aims to design and compare two competing models
7 describing the influence of personally (consciousness) and socially (culture) determined factors
8 on consumers intention to reduce household food waste in Turkey. To do so, a cross-sectional
9 study was conducted in three metropolitan cities of Turkey: Ankara, Izmir, and Adana. The
10 primary data were collected from 710 individuals by using face-to-face interviews and
11 analyzed through two Structural Equation Models (SEM) based on Motivation-Opportunity-
12 Ability theoretical framework. Results from the SEM model investigating the role of cultural
13 factors identify motivation as a significant driver of food waste reduction, which is directly
14 influenced by religiosity, media effects, and good provider identity. Results from the SEM
15 model related to consumer consciousness also show that motivation is a significant and robust
16 driver of intention, and that economic consciousness has a strong effect on motivation, while
17 environmental consciousness has a weak influence on intention to reduce food waste. Findings
18 of this study increase the knowledge of consumers' drivers to reduce food waste in an emerging
19 country as Turkey and provide policymakers and practitioners insights to elaborate
20 interventions to reduce household food waste tailored on consumers' cultural and consciousness
21 factors.

22

23 **Keywords:** motivation; cultural factors; consumer consciousness; structural equations model;
24 Motivation-Opportunity-Ability.

25 1. INTRODUCTION

26 Along the food supply chain, household food waste accounts for roughly one-third of
27 the total (FAO, 2011) and, over the last twenty years, reducing food waste has been considered
28 a crucial action by the United Nations to achieve the Sustainable Development Goals (SDGs).
29 In particular, SDG Target 12.3 specifically aims at "*halving per capita global food waste at the*
30 *retail and consumer levels and reducing food loss along production and supply chains*
31 *(including post-harvest losses) by 2030*". This target also co-contributes to achieving other
32 SDGs such as Zero Hunger goal (SDG 2), Sustainable Water Management (SDG 6), Climate
33 Action (SDG 13) and terrestrial ecosystems, forestry, biodiversity (SDG 15) (FAO, 2019).
34 Given this prominent role, an in-depth comprehension of behavioral factors influencing
35 household food waste reduction is crucial in defining effective actions, policies, and strategies.

36 Household food waste has been generally considered a relevant problem particularly in
37 developed countries and big efforts have been taken there to provide effective policy
38 interventions while preserving the sustainability of the food system (Stenmarck et al., 2016).
39 However, in recent years, food waste has become a top-line topic also in emerging countries,
40 where food waste reduction policies and interventions are adopted with increasing frequency
41 (UNEP, 2021).

42 On the other hand, most of the scientific studies on the determinants of household food waste
43 still remain focused on European countries, in particular Italy, Romania, United Kingdom,
44 Switzerland, and Germany, as well as in Japan and the USA. Since food waste drivers can be
45 highly context related (van Geffen et al., 2020a) this lack of case studies from many areas of
46 the world might cause a gap in the literature, which this work contributes to fill.

47 Although cross-country comparability is not always straightforward, this study aims to
48 contribute to the literature on the analysis of behavioral drivers of household food waste in a
49 country that is rising in this field of research and constitute a bridge between Europe and Asia:

50 Turkey. According to United Nations Environmental Programme (UNEP) around 7.7 million
51 tons/year of food waste is generated in Turkish households, a much higher value than some
52 countries in Europe (4.0 million tons/year in Italy; 3.6 million tons/year in Spain) and Western
53 Asia (4.7 million tons/year in Iraq; 3.6 million tons/year in Saudi Arabia). Also, the yearly
54 average per capita of food waste generated in Turkey is higher than the global average, with 93
55 kg against 74 kg globally (UNEP, 2021).

56 This work investigates the behavioral drivers of household food waste in three Turkish
57 metropolitan cities, Ankara, Izmir, and Adana. These three cities account for the 14,7% of the
58 total population of Turkey allowing to reach consumers from different age groups, income and
59 educational level, and facilitating comparability with other studies related to food waste, since
60 big cities are generally preferred as case studies.

61 To investigate the impact of behavioral drivers on household food waste reduction, this
62 study adopts two competing models grounded on the widely recognized Motivation-
63 Opportunity-Ability (MOA) framework. The MOA describes food waste as an unplanned
64 consequence of decisions and behaviors related to household food management, driven both by
65 individual (Motivation and Ability) and contextual (Opportunity) factors (van Geffen et al.,
66 2020a). This study aims to expand the knowledge on the role of Motivation in individuals'
67 propensity to reduce food waste in context of Turkey. In particular the two competing models
68 explore the role of culture and consumer consciousness. These drivers refers both influence
69 individual motivations but refer to two different dimensions, one personally determined,
70 defined by consumers' awareness and attitude (consumer consciousness) and one socially
71 determined, influenced by the social context (cultural factors).

72 To the best of the authors' knowledge, this study is the first to investigate motivational
73 drivers affecting the intention to reduce food waste in Turkey. This study contributes to food
74 waste literature from different perspectives. First, it contributes to the still limited literature on

75 food waste reduction in emerging countries. Second, it provides findings on the effect of
76 motivation as a mediator between cultural factors and consumer consciousness and the
77 reduction of food waste. Within the former, it investigates the direct and indirect effects of
78 culture, considering media effects, good provider identity, and the still under-investigated
79 religiosity. Within the latter, it explores the direct and indirect effects of consumer
80 consciousness in the form of its three subdimensions, environmental consciousness, economic
81 consciousness, and ethical consciousness, on individual intention to reduce household food
82 waste.

83

84 **2. LITERATURE REVIEW**

85 Scientific literature has focused on exploring the complexity of factors influencing the
86 generation of food waste at household level like consumers' demographic characteristics
87 (Grasso et al., 2019; Jungowska et al., 2021; Stancu et al., 2016) and behavioral drivers such as
88 attitudes, social norms, perceived control (Neff et al., 2019; van Geffen et al., 2020b; Vittuari
89 et al., 2021), food purchasing and preparing routines (Delley and Brunner, 2017; Liang et al.,
90 2021), knowledge (Kavanaugh and Quinlan, 2020; Quested et al., 2013; Richter, 2017) and
91 awareness (Attiq et al., 2021; Jarjusey and Chamhuri, 2017; Qi and Roe, 2016). Previous studies
92 have suggested that personal motivations (Pappalardo et al., 2020; Vittuari et al., 2020) are a
93 relevant driver of the intention to reduce food waste, while being affected by social and cultural
94 factors as religion, media effects, cultural specificities (Aktas et al., 2018; Elshaer et al., 2021),
95 and sustainability consciousness (Hansen, 2022). However, there is still a gap in understanding
96 the direct and indirect effects of cultural factors and of consumer consciousness on the intention
97 to reduce food waste.

98 A theoretical approach widely adopted to describe the relations between the behavioral
99 drivers of consumers' food waste is based on the Motivation-Opportunity-Ability (MOA)

100 framework developed in the seminal work of Rothschild (1999) and extended to the food waste
101 domain by van Geffen et al., (2016). This framework describes the drivers of human behaviors
102 and choices related to social issues and public health behaviors as influenced by a combination
103 of personal (Motivation and Ability) and contextual (Opportunity) factors.

104 Motivation (M) describes the personal willingness to take actions to reduce or avoid
105 consequences of their doings, as the generation of household food waste. It includes awareness
106 about the consequences of food waste, concerns about its financial and environmental impacts,
107 and concerns for food safety (Principato et al., 2015; Setti et al., 2018; Vittuari et al., 2020).
108 Motivation also encompasses intentions, attitudes, injunctive norms, and moral norms as well
109 as perceived behavioral control (Stancu et al., 2016), subjective norms, and the good provider
110 identity (Aktas et al., 2018; Schanes et al., 2018; Stangherlin and de Barcellos, 2018).

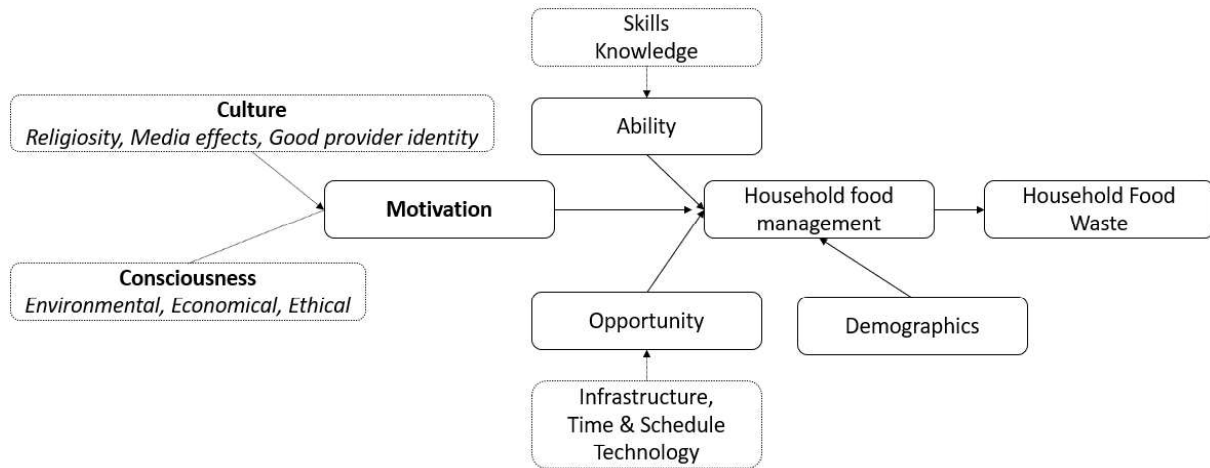
111 Opportunity (O) refers to the possibility to access external materials and resources
112 allowing behavioral change (Shwom and Lorenzen, 2012). In the food waste domain,
113 Opportunity includes the availability of time to be dedicated to food preparation, the possibility
114 to schedule food management activities, kitchen materials, and technologies, and infrastructure
115 such as, portion or package size, discount promotions in shops, etc. (Stancu et al., 2016; van
116 Geffen et al., 2020a).

117 Finally, Ability (A) includes the knowledge and skills needed to manage food in an
118 efficient way, thus minimizing the generation of food waste. Most relevant are the proficiency
119 in understanding food labels and in estimating the edibility of food (Smith and Landry, 2020;
120 van Geffen et al., 2020a), food preparation skills, and more in general, the proficiency to solve
121 the problems encountered during the process of behavioral change, as the overcoming of
122 consolidated habits and routines and the contrasting arguments of peers (Rothschild, 1999). The
123 MOA framework has been adopted in studies related to different countries, as Italy (Masotti et

124 al., 2023; Vittuari et al., 2020), Canada (Soma et al., 2021), the Netherlands (Aramyan et al.,
125 2021; Masotti et al., 2023; Vittuari et al., 2021).

126

127 **Figure 1** the Motivation-Opportunity-Ability (MOA) theoretical framework



128

129

130 2.1.TWO COMPETING MODELS LINKING MOTIVATION AND INTENTION TO 131 REDUCE HOUSEHOLD FOOD WASTE

132 Within the theoretical setting of the Motivation-Opportunity-Ability framework, defines 6
133 research hypotheses on the relations between Motivation and a set of behavioral drivers related
134 to culture and consciousness.

135 **Hypothesis 1:** *Motivation is directly associated with the intention to reduce food waste.*

136 **Hypothesis 2:** *Behavioral factors referring to Motivation are related to two different
137 dimensions, one personally determined (consciousness) and one socially determined (cultural
138 factors).*

139 Literature on behavioral drivers of household food waste explored motivational factors
140 influencing its generation. Those drivers can be categorized in factors determined by social
141 elements, as the cultural factors (Graham-Rowe et al., 2015; Visschers et al., 2016), and
142 elements determined by intrinsic personal characteristics like consciousness (Abeliotis et al.,

143 2014; Stancu et al., 2016). This study explores whether a stronger motivation to perform a goal
144 is correlated with a stronger intention to enact a particular behavior (Iwasaki et al., 2021;
145 Schanes et al., 2018). Since consumers generally perceive food waste as an unethical behavior
146 (National Academy of Science, 2020; Roodhuyzen et al., 2017; Setti et al., 2018) this work
147 explores the level of concern about the effects of household food waste expressed by Turkish
148 consumers, since the issue is considered to have relevant moral and ethical consequences. Also,
149 it explores how this concern is influenced by personally or socially determined Motivation-
150 related factors.

151 ***Hypothesis 3:*** *Cultural factors (religiosity, media effects and good provider identity) are*
152 *directly associated with the intention to reduce food waste.*

153 ***Hypothesis 4:*** *Motivation has a mediating effect between cultural factors and the intention to*
154 *reduce food waste.*

155 In the current study, religiosity, the influence of media, and good provider identity are
156 considered to reveal the effect of culture on food waste related behavior and on individual
157 motivation to reduce food waste. Culture is broadly defined by Tylor (1871) as "that complex
158 whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities
159 and habits acquired by man as a member of society". (Solomon et al., 2013) underline that
160 consumption choices can only be figured out in their cultural conditions. Considering culture
161 as a holistic system, previous studies highlighted a strong relationship between culture and
162 behaviors related to food purchasing, management, preparation, and consumption, (Nemeth et
163 al., 2019; Sibal, 2018; Thyberg and Tonjes, 2016). Other authors emphasized that also food
164 waste generating patterns are shaped by cultural beliefs and habits (Aschemann-Witzel et al.,
165 2015; Pelau et al., 2020; Phasha et al., 2020). Among cultural factors, religiosity is considered
166 to play a relevant role in the individual intention to reduce household food waste (Nemeth et

167 al., 2019). So, behaviors aimed at avoiding wasting food might be shaped by ethical values,
168 rules, doctrines, or norms derived from religious precepts (Aschemann-Witzel et al., 2015).

169 Since religion is a cross-national phenomenon, studies from different countries can
170 contribute to better understand how religiosity affects individual food waste related behavior
171 and what are the differences among communities from a religious point of view. For example,
172 some authors explored the effects of religiosity (Elshaer et al., 2021) or religious rituals like
173 Ramadan on food waste in Qatar (Aktas et al., 2018), in Egypt (Abdelradi, 2018). In particular,
174 Elshaer et al. (2021) found that religious beliefs indirectly affects intentions to reduce food
175 waste as a mediator between different factors, as the intensity of religious beliefs, precepts, and
176 restrictions related to food consumption and management. Also, even if religiosity has an
177 influence over individuals' attitudes or behaviors, as mentioned by Elshaer et al. (2021), the
178 attitudes or behaviors are influenced by the intensity of the religious sentiment. So, people
179 belonging to a community may comply to religious practices, doctrines or values from religious
180 beliefs with different degrees of intensity. In Turkey, the most common religion is Islam, that
181 is adopted by the 99.8% of the population. Islam states that all opportunities (materials or assets)
182 are donated to people by Allah and accepted as trusts. They should be used for purposes that
183 are suitable for gaining Allah approval and bringing happiness to people. Following that, the
184 Holy Quran states that "*Children of Adam! beautify yourselves for every act of worship, and*
185 *eat and drink (freely), but do not waste: verily, he does not love the wasteful*" in surah al-A'raf.
186 Another verse in this holy book points out that "*And render to the kindred their due rights, as*
187 *(also) to those in want, and to the wayfarer; but squander not in the manner of a spendthrift*"
188 in surah al-Isra. Also, in surah al-Furkan, it is suggested that "*They are those who spend*
189 *neither wastefully nor stingily, but moderately in between*". As McDaniel and Burnett (1990)
190 stressed, this teaching may generate individual commitment to following the teachings of God.

191 In Turkish culture, it can be observed that even these teachings have impact on community life,
192 people's final behavior is quite varied as many other countries.

193 The second element of cultural identities explored in this work is the role of media.
194 Media has an influence on individuals' food purchasing and eating habits and as a consequence,
195 on the generation of household food waste (Monteiro et al., 2013). Recently, Turkish and
196 international mass media produced an increasing quantity of content related to food, as TV
197 programs conducted by food celebrities, food competitions, and other typologies of culinary
198 activities. These productions received public attention and stimulated consumers to try and
199 consume an increasing and excessive quantity of food of different varieties (Temeloğlu and
200 Taşpınar, 2018). A consequence of this exposure of food related content in media might result
201 in an increase in food waste at the household level. Moreover, posts on social media about food
202 consumption have an impact on eating preferences, in particular by stimulating overbuying and
203 impulsive buying of food products that often requires high preparation skills (Azazz and
204 Elshaer, 2022; Lahath et al., 2021), indirectly increasing the production of food waste (Seçer
205 and Boğa, 2017).

206 While some studies explore the effects of social media on consumers' intention to reduce
207 food waste (Ponis et al., 2017; Wakefield and Axon, 2020; Young et al., 2017), to the best of
208 the authors' knowledge, there are no studies exploring the effects of mass media and social
209 media on consumers' motivation and intention to reduce food waste in Turkey.

210 Finally, the "Good Provider Identity" is recognized as one of the main motivational
211 factors influencing food waste generation (Stangherlin and de Barcellos, 2018). When receiving
212 guests, parents, partners, or friends, individuals tend to increase their propensity to buy, prepare
213 and present an amount or variety of food greater than those that will be consumed by hosts, as
214 a sign of their hospitality and caring (Graham-Rowe et al., 2014; Visschers et al., 2016; Werf

215 et al., 2019). In other words, having stronger willingness to be a good provider may create a
216 conflict with individuals' intention to reduce food waste and the propensity to generate it.

217 ***Hypothesis 5:*** *Consumer consciousness is directly associated with the intention to reduce*
218 *food waste.*

219 ***Hypothesis 6:*** *Motivation has a mediator effect between consumer consciousness and the*
220 *intention to reduce food waste.*

221 Consciousness is defined as "the ability of a person to recognize her/himself and her/his
222 surroundings" and an individual is aware of her/his activities and behaviors through
223 consciousness (Zureik and Mowshowitz, 2005). In this study, consumer consciousness about
224 consequences of food waste is considered in its three sub-dimensions: environmental, ethical,
225 and economic.

226 Environmental consciousness is defined as a person's judgments, attitudes, awareness, and
227 motivation regarding environmental problems (Fujiki and Zheng, 2013; Takács-Sánta, 2007).

228 According to this definition, involvement in pro-environmental behaviors is associated with
229 individuals' beliefs, knowledge, and a favorable tendency towards personal activities that can
230 have positive effects on preserving the natural environment. An increasing number of research
231 shows that environmentally conscious consumers who are aware of the negative effects of food
232 waste, as the increase of greenhouse gases emissions, energy consumption, and soil
233 contamination, may be more propense to adopt actions and behaviors aimed to reduce it
234 (Elhoushy, 2020; Neff et al., 2015; Russell et al., 2017).

235 The economic perspective of consumers is influenced by their experiences, knowledge, and
236 social relations with peers (Annunziata et al., 2020; Hao et al., 2022). Also, productive and
237 distributive inefficiencies related to food waste can have disruptive effects on social equality,
238 welfare, and well-being of consumers, (Morone et al., 2018). Hence, it is fundamental to
239 promote the development of sustainable and efficient food systems, that minimize the quantity

240 of wasted food waste (Buerke et al., 2017; Graham-Rowe et al., 2014). On this basis, literature
241 found that an increased consumer consciousness on economic impact of food waste can affect
242 consumers motivation to minimize it (Hao et al., 2022; Setti et al., 2018; Stancu et al., 2016).
243 Huh (2011) stressed that individuals tend to adhere to ethical values when purchasing food and
244 consider them as a relevant parameter of choice. Ethical consumption is defined as “*the*
245 *conscious and deliberate decision to make certain consumption choices due to personal moral*
246 *beliefs and values*” (Crane and Matten, 2007). As Budhathoki et al., (2019) stressed, an
247 increasing number of studies aim to understand ethical consumption behavior both adopting
248 qualitative and quantitative approaches. Other studies found that individuals are propense to
249 consider ethical values such as fair trade, animal welfare, labor right, or sustainability through
250 their consumption patterns and behaviors (Bray et al., 2011; Sebastiani et al., 2013; Zollo et al.,
251 2018). So, the increase of consumers’ consciousness about economic, social and environmental
252 impacts of food waste might be an incentive to reduce it (Stancu et al., 2016).

253

254 **3. MATERIALS AND METHODS:**

255 3.1 THE QUESTIONNAIRE AND THE SAMPLE

256 A cross-sectional study based on the results of a consumer survey was conducted to
257 investigate the behavioral factors affecting consumers' intention to reduce food waste among
258 Turkish citizens living in Ankara, Izmir, and Istanbul. This subsection introduces the
259 questionnaire design, sample size, and the data collection process.

260 The questionnaire included five sections. Section A investigated the consumers'
261 demographic characteristics, Section B included questions related to consumers' motivation to
262 reduce food waste, Section C presented questions on cultural factors, and Section D and E
263 focused on consumer consciousness. Sections B to E were central for the definition of the
264 factors included in the two models describing the role of Motivation on consumers’ intention

265 to reduce household food waste. In particular, Section B investigated consumers' habits related
266 to food management and disposal waste, as the share of food wasted in the household, the
267 communication channels through which information about food is collected, and the perceived
268 reasons for food waste in the household. Then, Section C investigated the self-reported
269 motivations to reduce food waste through questions on perceived factors influencing its
270 generation. Section D measured the consumer consciousness about food waste consequences
271 through questions concerning environmental, ethical, social, and economic consciousness.
272 Finally, section E measured food-waste related behavior specific for the Turkish context, as
273 influence of religiosity, mass-media effects, and country specific eating and good-provider
274 identity habits.

275 In all sections of the questionnaire questions asked to indicate the level of agreement
276 with specific statements according to a 5-point Likert scale, with categories ranging from
277 strongly disagree (1) to strongly agree (5). Items adopted in the questionnaire were designed
278 from validated questions from previous studies (Aktas et al., 2018; Stancu et al., 2016;
279 Visschers et al., 2016), with some new ones developed by the authors. Questions were also
280 adapted to represent the common habits and traditions of consumers in Turkey. The
281 questionnaire was developed in English, translated in Turkish by the authors, validated by three
282 Turkish-speaking external experts and pilot-tested with 20 respondents. The final version of the
283 questionnaire was developed and adopted for data collection The English version of the
284 questionnaire is included as Supplementary material.

285 Primary data was collected face-to-face by a professional research company between
286 March and April 2021 in Turkey. To obtain a representative sample of the citizens of Ankara,
287 Izmir, and Adana, sample size was defined in 710 respondents distributed considering the
288 population size of the three cities: 303 respondents from Ankara, 205 from Izmir, and 202 from
289 Adana. The sample was designed to represent the research area in terms of socio-demographic

290 and economic characteristics using adequate quotas in terms of gender, age and income.
291 Respondents were selected among individuals aged between 18 and 65 years, equally divided
292 across genders. They were also selected according to their income level, close to the country
293 average, and their role and responsibility in food preparation within the household. The
294 respondents represented their household to avoid duplicated answers.

295 Although surveys on food waste are well established in the literature, they present some
296 limitations that should be considered. First, self-declarations of respondents on self-perceptions
297 may present social desirability biases and incorrect estimation of purchased and discarded food.
298 Also, even if the questionnaire was validated by experts and tested through pilot submissions,
299 differences between English and Turkish languages may lead to slight misinterpretation of the
300 meaning of questions and answers. Both shortcomings are considered to have a small impact
301 on this research since, this work is not focused on the precise estimation of food waste quantities
302 generated by respondents and the face-to-face interviews allowed respondents to clarify their
303 doubts with the interviewers.

304

305 3.2 DATA ANALYSIS

306 Survey data were analyzed in three stages. First, descriptive statistics (frequencies,
307 ratios, and averages) were calculated to explore the socio-demographic characteristics of the
308 sample. Then, a confirmatory factor analysis was implemented to describe the structures of the
309 latent factors. Finally, the relationship between consumers' intention to reduce food waste and
310 its Motivation-related determinants were investigated through a Structural Equations Modelling
311 (SEM) approach. The competing roles of consumer consciousness and cultural factors on the
312 intention to reduce household food waste are disentangled in the two models highlighting which
313 dimension, between personally and socially determined ones, better describe the intention of
314 respondents to reduce household food waste.

315 Structural Equation Model is one of the most adopted methodologies to elaborate
 316 behavioral and survey data since it allows to simultaneously analyze many relationships and
 317 includes latent constructs in the analysis as explanatory variables.

318

319 **4. RESULTS**

320 **4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS**

321 The sample represents the demographic structure of the population of Adana, Ankara,
 322 and Izmir. It is slightly unbalanced towards women (55.6% of the total) and the most
 323 represented age classes are 20-29 (41.1% of the sample) and 30-39 years old (35.9% of the
 324 total). The majority of the sample has at least a high school diploma (95.3% of the total), and
 325 the most common occupations, beside students, are employed in private sector and government
 326 staff, with shares of 38.6% and 11.4% of the total of the respondents (Table 1).

327 **Table 1.** Demographic characteristics of respondents

Char.	Groups	f	%	Char.	Groups	f	%
Provinces	Adana	203	28.6	Age	18-29	292	41.1
	Ankara	302	42.5		30-39	255	35.9
	İzmir	205	28.9		40-49	115	16.2
	Total	710	100.0		50-65	48	6.8
Gender	Woman	395	55.6	Total	710	100.0	
	Man	315	44.4	Average	33.4		
	Total	710	100.0	Private Sector	274	38.6	
Education Level	Primary Sch.	21	3.0	Government Staff	81	11.4	
	Secondary Sc	12	1.7	Self - Employed	93	13.1	
	High Sch.	292	41.1	Retired	24	3.4	
	Undergraduate	319	44.9	Unemployment	54	7.6	
	Postgraduate	66	9.3	Housekeeper	69	9.7	
	Total	710	100.0	Student	115	16.2	
				Total	710	100.0	

328

329 Almost 60% of households are composed of 3 or 4 members, while the remaining 40%
 330 is divided almost equally between small families of 1-2 members and large households, with
 331 more than 5 members. Moreover, 21.4% of households have 1 child, and almost 10% have 2 or
 332 more children. Concerning income level, the households interviewed in this study are almost
 333 equally distributed between the three income classes, with a small prevalence of low-income
 334 families (income lower than 4,000 Turkish Liras per month), while the high-income households
 335 (income higher than 7,001 TL per month) represent the relative minority of the sample (Table
 336 2).

337

338 **Table 2.** Household characteristics of respondents

Char.	Groups	f	%	Char.	Groups	f	%	
Household Size	1-2	150	21.1	Family Type	Single person household	94	13.2	
	3-4	424	59.7		Married without children	65	9.2	
	5+	136	19.2		Married with children	522	73.5	
	Total	710	100.0		Parents with children living out	2	0.3	
Number of children below 12 years old	0	490	69.0		Single Parent Family	1	0.1	
	1	152	21.4		Extended Family	26	3.7	
	2 and more	68	9.6		Total	710	100.0	
	Total	710	100.0		<100	190	26.8	
Income Level (TL/Month)	<400	269	37.9		Food Expenditure (TL/Month)	101-200	304	42.8
	401-700	241	33.9			201	201	28.3
	701-	200	28.2	Total		695	97.9	
	Total	710	100.0	No answer		15	2.1	

339 Note: income levels and food expenditure are expressed in Turkish Liras (TL) per month. 20 TL=1 Euro
 340 (December 2022)

341

342

343 4.2 MODEL 1: THE ROLE OF CULTURAL FACTORS ON INTENTION TO AVOID 344 FOOD WASTE

345 Confirmatory factor analysis is adopted to identify the items at the base of the latent
 346 variables of cultural factors (Intention to avoid food waste= Int; Religiosity = Rel; Media Effect
 347 = ME and GPI = Good Provider Identity) to be included in the Structural Equation Models.

348 Latent variables are assessed through factor loadings, that represent the correlation coefficient
349 for the variable and factor, Cronbach's alpha values, composite reliability (CR), and average
350 variance extracted (AVE). All factor loading estimates are above 0.5 and significant at the 1%
351 level ($p < .001$) (Table 3) meaning that all items are strongly correlated to the assumed latent
352 variables. The Cronbach's Alpha test is used to measure the internal consistency of each factor
353 indicating reliability for the model. Generally, the values ensuring a high level of consistency
354 of the data are greater than 0.7. In the study, Cronbach's alpha value for each factor is also found
355 to be above cut-off level ranging from 0.724 to 0.872 (0.797 for intention; 0.872 for motivation;
356 0.724 for religiosity; 0.790 for media effect; 0.809 for good provider identity). CR and AVE
357 values are also evaluated to confirm the internal reliability and convergent validity,
358 respectively. As Fornell and Wernerfelt (1987) suggested the CR values, being above 0.70 for
359 each factor (from 0.82 to 0.96), showed that all factors had high internal reliability.
360 Furthermore, AVE values give information about convergent validity that must be above 0.50
361 (Fornell and Larcker, 1981). In this study, AVE values for all factors were found to be around
362 0.50 (from 0.46 to 0.58). However, as Malhotra and Dash (2011) suggested, since CR values
363 give better information on the convergent validity of the construct, those values confirm that
364 this model satisfies the requirements for convergent validity.

365 **Table 3.** Factor loadings for cultural factors

Items			Coeff.	S.E.	C.R.	P-value
Intention						
Int1: Eating all purchased foods	<	Int	1.000			
Int2: Using all leftovers	<	Int	.695	.051	13.771	***
Int3: Reducing food waste in the near future	<	Int	.895	.048	18.638	***
Int4: Tell friends and family to reduce food waste	<	Int	.677	.051	13.211	***
Int5: Trying very hard not to throw away food	<	Int	.961	.048	19.904	***
Motivation						
Mot1: Feeling bad about discarding food	<	Mot	1.000			
Mot2: Feeling of obligation	<	Mot	.958	.058	16.427	***
Mot3: Discarding food is contrary to my principles	<	Mot	1.009	.066	15.407	***
Mot4: Being educated to not waste food	<	Mot	1.066	.062	17.327	***
Mot5: Reducing FW leads to better quality of life	<	Mot	1.176	.064	18.247	***
Mot6: Preventing FW is everyone responsibility	<	Mot	.866	.054	15.934	***
Mot7: Seeing FW gives me bad feelings	<	Mot	.883	.053	16.723	***
Religiosity						
Rel1: Abundance of food preparation in general during Ramadan month	<	Rel	1.000			
Rel2: Abundance of food preparation for guests during Ramadan month	<	Rel	1.074	.105	10.204	***
Rel3: Abundant of food preparation for guests during Eid festivals	<	Rel	1.985	.159	12.447	***
Rel4: Weddings, births and funerals cause FW	<	Rel	1.811	.147	12.345	***
Media Effect						
ME1: Food advertisements cause food waste	<	ME	1.000			
ME2: Posts on social media increase food waste	<	ME	1.016	.065	15.659	***
ME3: TV programs on cooking increase food waste	<	ME	1.387	.088	15.750	***
Good Provider Identity						
GPI1: I always have abundance of fresh products	<	GPI	1.000			
GPI2: I buy fresh products regularly	<	GPI	1.156	.086	13.475	***
GPI3: I cook more than necessary for the family	<	GPI	1.439	.100	14.334	***
GPI4: Feeling of preparing food more than necessary when having guests	<	GPI	1.391	.095	14.639	***
GPI5: Feeling of preparing a large variety of foods more than necessary for guests	<	GPI	.813	.072	11.271	***

366 ***p<0.001 **p<0.01 *p<0.05

367

368 The path analysis can be adopted to investigate the results since the measurement model

369 satisfies the requirements. Goodness of fit values ($\chi^2/df = 4.774$; CFI= 0.869; RMSEA= .073;

370 RMR=0.077; NFI=0.840; NCP= 913,235; SRMR= .0646) confirmed that the model is fitting

371 the data from the results of the survey ($R^2=0.52$). All variables covariate significantly in the

372 same direction. All mediating effects are tested with the Bootstrap (n=2000, 95% CI) method.

373 Figure 2 describes the direct and indirect effects of cultural factors, and motivation on intention
374 to reduce food waste, with motivation as mediating factor. According to the results of the
375 analysis, motivation has a significantly positive impact on the intention to reduce food waste (β
376 = 0.71). In other words, more motivated consumers have more tendency to reduce food waste.
377 Religious sentiment is positively associated with motivation ($\beta = 0.186$). It can be assumed that
378 religious people may have a better consciousness of wood waste as an issue related to society
379 and the environment.

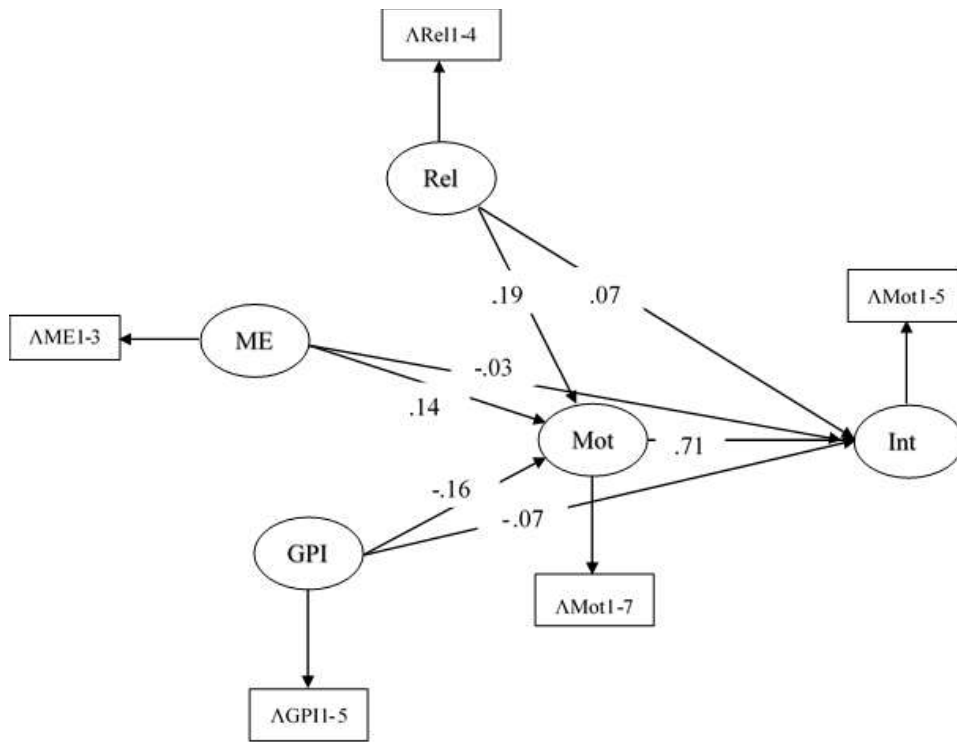
380 Media effect is also positively related to motivation ($\beta = 0.139$), while good provider
381 identity has a slight negative association with intention to reduce food waste ($\beta = 0.044$). When
382 considering direct effects, religiosity, media effects and good provider identity do not have a
383 significant impact on the intention to reduce food waste. Moreover, motivation has a significant
384 mediating effect between religiosity ($\beta = 0.139$), media effect ($\beta = 0.139$) and good provider
385 identity ($\beta = 0.139$) and intention to reduce food waste. Since those factors are not significantly
386 associated with intention, motivation acts as full mediator between these factors and intention
387 (Table 4).

388

389

Figure 2. Impact of cultural factors on individual intention to reduce food waste

390



391

392

393

Table 4. Impact of cultural factors on individual intention to reduce food waste

Hypothesis Path	Coefficient	S.E.	P-value	Results
RELIGIOSITY – MOTIVATION	.186	.060	.001	Accepted
MEDIA EFFECT – MOTIVATION	.139	.039	.003	Accepted
GPI - MOTIVATION	-.157	.044	.003	Accepted
MOTIVATION - INTENTION	.714	.066	.001	Accepted
RELIGIOSITY – INTENTION	.074	.063	.114	Rejected
MEDIA EFFECT – INTENTION	-.028	.042	.464	Rejected
GPI - INTENTION	-.065	.047	.133	Rejected
Indirect Effect 1: RELIGIOSITY – MOTIVATION - INTENTION	0.133	.041	.001	Accepted
Indirect Effect 2: MEDIA EFFECT – MOTIVATION - INTENTION	0.099	.038	.005	Accepted
Indirect Effect 3: GOOD PROVIDER IDENTITY - MOTIVATION - INTENTION	-0.112	.034	.001	Accepted

394

R²=0.52

395

396 4.3 MODEL 2: THE ROLE OF CONSUMER CONSCIOUSNESS ON INTENTION TO
397 AVOID FOOD WASTE

398 According to the results of confirmatory factor analysis of consumer consciousness
399 concept (Intention to avoid food waste=Int; Environmental Consciousness=EnvC; Ethical
400 Consciousness = EthC; Economic Consciousness = EnvC), all factor loading estimates are
401 above 0.5 and were significant at 1% level ($p < .001$) (Table 5). The Cronbach's Alpha values
402 ranged from 0.796 to 0.829 (0.809 for intention; 0.822 for motivation; 0.796 for environmental
403 consciousness; 0.829 for ethical consciousness; 0.825 for economic consciousness). In this
404 study, AVE values were found above 0.50 (ranging from 0.50 to 0.64) and CR values were
405 gathered larger than 0.70 (ranging from 0.86 to 0.93). Given the values of the compliance
406 indicators, results from factor analysis can be the starting point for the following Structural
407 Equation Model.

408

409 **Table 5.** Factor loadings for consumer consciousness

Item		Estimate	S.E	P-value
Intention				
Int1: I always try to eat all purchased foods.	< Int	1.000		
Int3: I intend to seriously reduce my food waste in the near future	< Int	.871	.050	***
Int5: In general, I try very hard not to throw away food	< Int	1.031	.053	***
Motivation				
Mot1: I feel bad when I throw food away.	< Mot	1.000		
Mot2: I feel obliged not to waste any food.	< Mot	.937	.042	***
Mot3: Being educated to not waste food	< Mot	.776	.041	***
Environmental Consciousness				
EnvC1: FW causes Waste of environmental resources	< EnvC	1.000		
EnvC2: CO ₂ emissions are generated from production and transport of food	< EnvC	1.162	.086	***
EnvC3: Loss of biodiversity and desertification are generated from production of food	< EnvC	1.304	.089	***
EnvC4: Global warming and climate change problems are increased by intensive food production and consumption.	< EnvC	1.379	.091	***
Ethical Consciousness				
EthC1: FW is in relation with undernourished people	< EthC	1.000		
EthC2: Reducing FW is a way to save money	< EthC	1.676	.095	***
EthC3: Generating FW would give me a bad conscience	< EthC	1.573	.090	***
Economic Consciousness				
EcoC1: I think that wasting food is a waste of money	< EcoC	1.000		
EcoC2: FW generates loss of economic resources for the purchase of food that is not consumed.	< EcoC	1.054	.039	***
EcoC3: reducing FW is a way to save money	< EcoC	.847	.048	***
EcoC4: In Turkey, the food waste generated by households has great financial consequences	< EcoC	.633	.046	***
EcoC5: Positive economic effects of sorting food waste and garbage	< EcoC	.804	.046	***

410 ***p<0.001 **p<0.05

411 According to path analysis results, goodness of fit values ($p<.01$; $\chi^2/df = 4.362$; CFI=
 412 0.927; RMSEA= .069; RMR=0,059; NFI=0.908; NCP= 420,262; SRMR=0.0636) confirmed
 413 the validity of the model. Covariance analysis showed that all variables covariate significantly
 414 in the same direction, and all mediating effects are tested with the Bootstrap method (n=2000,
 415 95% CI). The direct and indirect effects of the intention to reduce food waste and the consumer
 416 consciousness concept mediating motivation are shown in Figure 3.

417 According to the results of the analysis, motivation has a significantly positive impact
 418 on the intention to reduce food waste ($\beta =0.544$). Considering motivation, economic
 419 consciousness has a consistent positive impact with this factor ($\beta=0.553$). Also, environmental

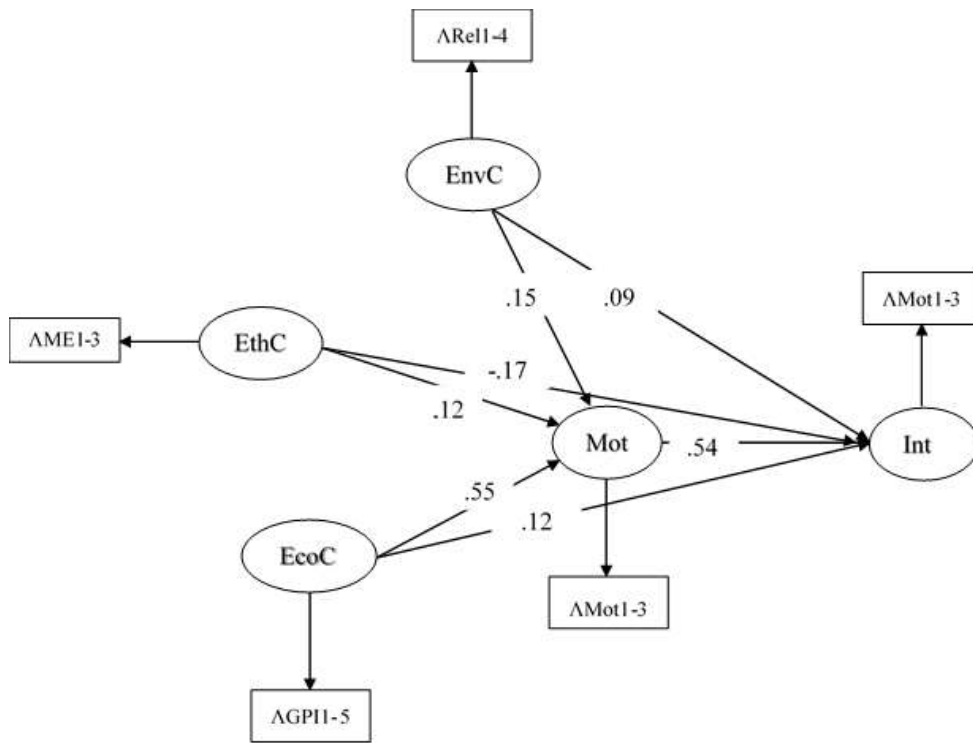
420 consciousness ($\beta=0.146$) and ethical consciousness ($\beta = 0.120$) have a positive impact on
421 motivation to reduce food waste, even if with a lower magnitude than the economic motivation.
422 So, individuals who are more aware of the consequences of food waste may be more motivated
423 to act to reduce it.

424 Also, the model shows that ethical consciousness has a negative direct impact on
425 individual intention to reduce food waste ($\beta= -0.166$), while economic consciousness has a
426 positive direct impact ($\beta=0.123$) on it. Moreover, economic consciousness has a positive
427 relationship with intention mediating motivation ($\beta=0.301$), while environmental consciousness
428 ($\beta=0.079$) and ethical consciousness ($\beta=0.065$) have less impact on intention mediating
429 motivation, they are positively associated with intention to reduce food waste.

430 Motivation to reduce household food waste is then influenced by environmental,
431 ethical, and economic consciousness and acts as mediator between these three constructs and
432 the intention to reduce food waste (Table 6). Since consumer consciousness has also direct and
433 positive effects on intention to reduce food waste, it has a partial mediating role between these
434 constructs.

435

436 **Figure 4.** Impact of consumer consciousness on individual intention to reduce food waste



437

438

439 **Table 6.** Hypotheses testing for consumer consciousness concept

Hypothesis Path	Coefficient	S.E.	P-value	Results
ENVIRONMENTAL C-MOTIVATION	.146	.056	***	Accepted
ETHICAL C. – MOTIVATION	.120	.063	.004	Accepted
ECONOMIC C. MOTIVATION	.553	.052	***	Accepted
MOTIVATION-INTENTION	.544	.067	***	Accepted
ENVIRONMENTAL C-INTENTION	.087	.064	.072	Rejected
ETHICAL C. – INTENTION	-.166	.072	***	Accepted
ECONOMIC C. INTENTION	.123	.069	.043	Accepted
Indirect Effect 1: ENVIRONMENTAL C-MOTIVATION - INTENTION	.079	.049	.006	Accepted
Indirect Effect 2: ETHICAL C. – MOTIVATION - INTENTION	.065	.047	.003	Accepted
Indirect Effect 3: ECONOMIC C. –MOTIVATION - INTENTION	.301	.070	.001	Accepted

440 **Note:** R²=0.38

441

442 5 DISCUSSION

443 This study focuses on how cultural factors and consumers' consciousness can be
444 considered as precursors of consumers' motivation to reduce food waste at household level.
445 When comparing results from the two proposed competing models, data shows that the one
446 describing the impact of cultural factors better explains data collected through the household
447 survey. Therefore, socially determined factors better explain the consumers' intentions to
448 reduce food waste, when compared to personally determined ones. Results from Model 1,
449 investigating the role of cultural factors on intention to reduce food waste, suggests that
450 motivation is its strongest driver (H1) coherently with previous results found in literature
451 (Russell et al., 2017; Vittuari et al., 2021). Results of the model show also no direct effects of
452 religiosity on the intention to avoid food waste (H2). However, religiosity has an indirect
453 positive effect on the intention to avoid food waste, acting as a full mediator on respondents'
454 motivation (H3). Given this relationship, it is expected from people who have more religious
455 beliefs to have stronger feelings, attitudes, and personal norms against food waste (Graham-
456 Rowe et al., 2014; Russell et al., 2017).

457 Results also highlight the presence of a gap between religiosity and consistency to reveal
458 these beliefs into real actions for Turkish consumers. This result is in line with Elshaer et al.
459 (2021) that find religion to have a significant positive effect on intention to reduce household
460 food waste. Furthermore, (Elhoushy and Jang, (2021) also found similarly that religiosity is
461 positively associated with personal norms. By contrast, in some cultures, religious implications
462 may lead to an increase of food waste related to over-consumption, especially during religious
463 holidays and events. For example, some food related habits during Ramadan month may
464 increase food waste quantity as a result of higher food consumption, as found for Qatar (Aktas
465 et al., 2018).

466 Results from this study show also that media exposition has a small indirect effect on the
467 intention to reduce food waste, since it directly influences motivation (H3). Recently,
468 information campaigns to promote food waste reduction and to increase the awareness on its
469 consequence of this issue are being promoted in Turkish mass media, but probably they could
470 not lead to significant reduction of food waste produced by Turkish households. Also, some
471 trends of new television productions focused on food may stimulate consumers to prepare more
472 food than they can consume, thus generating food waste. Similarly, a study from China also
473 revealed that social media has only quite a limited positive effect to change consumer behavior
474 toward food waste generation (Tsai et al., 2020).

475 Also, the good provider identity presents a negative indirect impact on intention, while
476 being a full mediator with the motivation to reduce food waste (H3). This result is coherent
477 with previous findings from literature, showing that people who would like to be generous and
478 good hosts have a high propensity to present food more than they would consume (Graham-
479 Rowe et al., 2014; Visschers et al., 2016; Delley and Brunner, 2017). This propensity derives
480 from personal expectations and cultural habits that push consumers to over-prepare and over-
481 purchase food to offer to hosts, to follow strong hospitality traditions and behaviors.

482 Results from Model 2, related to the impact of consumer consciousness on individual
483 intention to reduce food waste, show that motivation is one of the most robust drivers of
484 willingness to waste less food (H1). In this model, the strongest factor to increase individual
485 motivation to reduce food waste is economic consciousness (H4). Being aware of the financial
486 cost of food waste is usually indicated by other authors as driver of food waste stronger than
487 other factors related to environmental, ethical, or social consciousness (Graham-Rowe et al.,
488 2014; Palmieri and Perito, 2020). The indirect impact of economic consciousness on intention
489 through motivation is also an important role even being relatively lower than the direct effect
490 (H5).

491 Results of this study found that environmental consciousness has no significant direct
492 effect on intention to reduce household food waste (H4). This contrasts with other studies
493 (Amirudin and Gim, 2019; Katt and Meixner, 2020; Lin and Guan, 2021) that found positive
494 correlations between individuals' environmental awareness and intention to decrease the
495 quantity of food waste generated in their households. However, results from Model 2 show that
496 environmental consciousness has a direct positive impact on motivation (H4) and an indirect
497 positive impact on the intention to reduce food waste of Turkish consumers (H5). So,
498 motivation has the role of full mediation between environmental consciousness and intention.

499 In some cases, consumers do not perceive any association, or perceive a slight correlation
500 between the loss of environmental resources and food waste (Quested and Johnson, 2012;
501 Rasool et al., 2021). Turkish consumers are substantially aware of the direct link between
502 economic loss and household food waste while their awareness of the link between
503 environmental concern and food waste is quite weak in line with the literature that sees
504 consumers generally aware of economic losses of food waste but not of the environmental
505 consequences (Graham-Rowe et al., 2014; Parizeau et al., 2015).

506 Finally, ethical consciousness has a significant negative indirect effect on intention (H4).
507 Surprisingly, in the same line with the current study, the intention for wasting less food is not
508 determined by ethical aspects in previous studies (Stancu et al., 2016).

509

510 5.1 POLICY IMPLICATIONS

511 Food waste is well known to have economic, environmental, and social impacts and it is
512 generated by various determinants such as cultural factors, consumer consciousness, and daily
513 food consumption habits. This study revealed the effects of cultural factors (religiosity, media
514 effects, and good provider identity) and consumer consciousness (environmental, economic,
515 and ethical) on the intention to reduce food waste in two competing models. This study has

516 produced results that can be at the base of policy recommendations for both practitioners and
517 policymakers aiming to promote interventions to reduce food waste generated by Turkish
518 households.

519 According to research findings, cultural factors have a significant impact on the food
520 waste-related behavior of Turkish consumers. Motivation has been found as the most robust
521 driver of intention to reduce food waste in this model. Religiosity may also have a power on
522 the Turkish people to reduce food waste. So, information and motivation campaigns aimed to
523 reduce food waste could adopt strategies relying on messages connected with religion or themes
524 to change individuals' behavior connected to food waste generation.

525 Model 2 shows that exposition to media effect has an indirect effect on motivation and a
526 direct effect on intention to reduce food waste. This instrument can be used as a lever to increase
527 consumer consciousness and the ability to control food waste. Cooking programs may introduce
528 easy and accessible tools or methods to reduce food waste. Since social media also may be an
529 effective instrument to reach large communities and shape their habits, they can be used to
530 vehiculate information about causes, effects, and potential solutions to the generation of
531 household food waste from governmental, non-governmental, and private organizations to the
532 public in general. Also, tailored social media tools, such as dedicated pages and channels, can
533 help consumers to learn the ways and techniques to manage, store and dispose correctly of food
534 and leftovers.

535 Concerning consumer consciousness, Turkish consumers' intention to reduce food waste
536 is highly influenced by the awareness of the economic consequences of wasting food and, to a
537 lesser extent, by its environmental consequences.

538 Consumers tend to consider economic loss coming from food waste instead of the
539 environmental and social effects of this global issue. Governmental organizations can take the
540 lead in supporting and organizing broadcasting about the environmental, economic, and social

541 consequences of generating food waste. Educational organizations might take advantage of
542 traditional and social media spaces to inform consumers about the effects of food waste for
543 future generations and to promote tools and techniques aimed to generate less food waste.

544 Increasing consumers' consciousness about consequences of food waste and leveraging
545 on cultural factors to promote more sustainable food related behaviors can contribute to a
546 general change of social norms related to food waste. These changes could influence both
547 consumer behavior and the general organization of the food supply chain, that could be
548 encouraged to adopt procedures and standards aiming to satisfy the demand for products and
549 services that generate low levels of food waste (Southerton and Yates, 2014). Also,
550 interventions aiming to enhance the social desirability of food waste reduction can change the
551 perception of what consumers consider as food waste, also reducing concerns related to its
552 safety (Watson and Meah, 2012). Literature describes food waste not as a planned behavior,
553 but as an unintended consequence of actions related to different phases of food management,
554 such as acquiring, storing, assessing, valuing, eating, and disposal. (Ganglbauer et al., 2013;
555 Hebrok and Heidenstrøm, 2019; Mavrakis, 2014; van Geffen et al., 2017). So, policy
556 interventions promoting a general change in social norms related to food waste can act as a
557 lever to influence change in behaviors related to all the phases of food management,
558 encouraging consumers to adopt more efficient behaviors in all the stage of food consumption.

559

560 **6 CONCLUSIONS**

561 Starting from the results of a survey conducted among 710 households living in the
562 Turkish cities of Ankara, Izmir, and Adana, this research explores 5 research hypotheses on the
563 behavioral drivers of food waste reduction through a Structural Equations Model approach. The
564 research hypotheses were explored through two competing models describing the impact of

565 cultural factors and consumer consciousness on the intention of Turkish consumers to reduce
566 food waste generated within their households.

567 The first model identified that personal motivation directly impacts the intention to
568 reduce household food waste and it is influenced by cultural factors. Religiosity and media
569 effect have a positive impact in increasing the personal motivation for food waste reduction,
570 while the good provider identity has a negative impact on motivation. So, cultural factors impact
571 personal intentions to reduce household food waste, even if in an indirect way, shaping the
572 motivation of consumers to decrease the quantity of food they discard. Motivation has then a
573 mediating role between cultural factors and the intention to reduce food waste.

574 The second model explored the impact of consumer consciousness, considering its
575 environmental ethical, and economic dimensions, on the intention to reduce household food
576 waste. Findings suggest that the three dimension of consumer consciousness have both direct
577 and indirect effects on the intention to reduce food waste, since they influence individual
578 motivation, that has been proven to have effects on the intention to reduce food waste. Results
579 from this model indicate that motivation has a partial mediating role between consumer
580 consciousness and individual intention of Turkish consumers to reduce household food waste.

581 Results of the two competing models highlight the prevalent role of socially determined
582 factors related to culture in influencing personal motivation to reduce household food waste.
583 Nevertheless, personally determined factors related to consumer consciousness play a relevant
584 role in shaping consumers motivation for food waste reduction. Among those, economic
585 consciousness registered the most relevant impact.

586 So, cultural factors related to a more efficient management of food and consciousness
587 about ethical and environmental effects of food waste can act as effective levers to promote
588 behaviors leading to a reduction of household food waste.

589 Starting from the results of the two competing models, this work investigates
590 implications for policies aiming to reduce household food waste in Turkey. Policy interventions
591 should aim to promote consumers consciousness on negative effects of food waste on society
592 and on single households, taking advantage on the potential of cultural aspects for changing the
593 perception of what is considered food waste. Also, policies should take advantage of the role
594 of motivation, cultural factors, and consumer consciousness on the intention to reduce food
595 waste to promote efficient food management behaviors that could lead to lower levels of food
596 waste. These changes in consumer behavior could then have impacts on the whole food supply
597 chain, by encouraging all the actors to adopt procedures that minimize the amount of food waste
598 to meet the demand of consumers for more sustainable food products and services.

599 Some limitations of this research should also be considered. First, the data related to
600 intention and other factors were collected through the self-declaration of respondents on self-
601 perception of individuals. Since all variables are related to moral values, the data may present
602 biases related to the social desirability of the household food waste topic and to incorrect
603 estimation of purchased and discarded food. Also, even if the questionnaire was validated by
604 experts and tested through pilot submissions, differences between English and Turkish
605 languages may lead to slight misinterpretation of the meaning of questions and answers.

606 Some points could be highlighted for future research. First, this study is focused on
607 consumers as a whole group. Future studies may investigate each demographic group (age,
608 gender, income groups or family) or consumption type (restaurants, hotels, or school canteens,)
609 more in detail. Second, the study included only consumers living in three metropolitan cities of
610 Turkey. Future research could focus on consumers living in rural areas of Turkey or from
611 countries with commonalities in terms of culture, religiosity, and demographics. Third, few
612 studies explored the relationship between religiosity and intention to reduce food waste, and
613 the results on its effects are still controversial. This relation should be investigated more in-

614 depth in future research. Finally, this work investigated the mediation role of motivation
615 between cultural factors and the consumer consciousness on the intention to reduce household
616 food waste. These drivers are likely to be mediated through other behavioral factors such as
617 attitudes, social norms, or personal values. So, the finding of this research suggests investigating
618 more in-depth the different factors affecting motivation and intention to reduce food waste
619 mediated by motivation in further research.

620

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