© by PSP Volume 27 – No. 4/2018 pages 2536-2543 Fresenius Environmental Bulletin

PET BOTTLED WATER MARKET: CONSUMER RESPONSE FROM TURKEY

M Goksel Akpinar[1,*], Mevlut Gul[2], R Figen Ceylan[1]

[1]Department of Agricultural Economics, Faculty of Agriculture, Akdeniz University, 07070, Antalya, Turkey
[2]Suleyman Demirel University, Faculty of Agriculture, Department of Agricultural Economics, Isparta, Turkey

ABSTRACT

The purpose of the research study was to state varying preferences of PET bottled water consumption and to find the most appropriate product mix in Turkey referring to a field research conducted in the Mediterranean Region of Turkey. The data retrieved from 965 PET bottled water consumers via face to face survey was analysed by utilisation of conjoint analysis, which is based on the theory of total utility and described as a function of price and quality benefits (Ness 2002). The correspondents had valued lowest price, existence of food safety (HACCP) certification and production modes being natural spring water, having soft taste and existence of process quality (ISO) certification in a consecutive order. Even though there seems to exist a negative perception on plastic package with rising environmental consciousness, consumers find bottled water more trustworthy than tap water in terms of quality and accept the high cost. The acceptance ratio differs among countries due to income level and access to water. It was considered as essential to watch over the market challenges departing from these findings and whether the market referred to the preferences of consumers efficiently. Yet, the challenges occurred within 2010s were compared with the findings of this research in order to set forward a sound marketing strategy for rapidly developing PET bottled water market. It was understood that price and income sensitivity of consumers for bottled water market maintain their validity.

KEYWORDS:
Consumer preferences, Conjoint analysis, PET bottled water demand, Turkey.

INTRODUCTION

The rising demand of water consumption and changing preferences of consumers created the packed water market in addition to tap water use in Turkey as well as in the world. Water being one of the most important natural resources for life, must be consumed daily because approximately 75 % of the human body constitutes of water. It is known that an adult's water demand is minimum 1.5-2 litres per day [1]. This natural source cannot be substituted and it is also difficult to consider an improvement in consumer consciousness. It is unfortunately expected that water will become increasingly exhausted due to rising population and environmental factors. Therefore, it is not a surprising prediction that it will be hard to achieve safe potable water in the close future. It is estimated that the humanity will face a severe universal water crisis by the year 2030 [2, 3]. Furthermore, climatic change, urbanization and the negative reliability of tap water are the factors that affect consumer preferences and direct consumers towards packaged water consumption [4].

Turkish market encountered with the packaged water in the 1980s and it has become prevalent especially in the metropolitan cities. This resulted in a rapid development in the sector as large population groups started to get used to consumption of packed water [5]. The volume of the packed water market had reached nearly 9.3 billion litres in Turkey in 2010 and rose to 11 billion litres in 2015. 4.75 billion litres of this amount referred to PET bottled water sales. There appeared a total growth rate of 126 % from 2007 to 2015, with an average annual growth rate of 11 % [6]. Turkey's average annual per capita consumption of packaged water was 81 litres in 2003 which rose to 128 litres in 2010 and to 139 litres in 2015 [6]. By 2011, consumption amount of some countries can be noted as 243 litres in Mexico, 187 litres in Italy, 107 litres in the United States and 91 litres in Austria [7]. These figures appeared as 173 litres for Germany and 115 litres for Spain for 2014 [6]. On the other hand, the world's largest packaged water markets are in Asia (China and Japan), Europe and North America. Southern European, Spanish and Turkish markets were estimated to grow above the world average in the forthcoming years [8]. However, the average consumption in Turkey had passed some of the European countries considering the figures above.

Turkey's packaged water market potential requires development of new marketing and promotion strategies. The consumption preferences of individuals differ among and between societies. Therefore, purchasing behaviours of individuals are under the influence of social, psychological and personal factors as well as economic factors. Moreover, households do not perceive water just as a basic consumer

good in developed countries. There are relations between water consumption attitudes and life perceptions of households accordingly [9]. Even brands and package designs affect consumers towards various purchasing behaviours. For example, with the uprising health consciousness, German consumers chose out of 500 water brands that have different taste and origin properties, watching up their own utility [8].

Recently, new product development has been receiving attention by the producers in order to meet diverse consumer needs and receive larger shares in the packed water market. Within this new conceptual framework, existing products are being replaced by new ones or needs for introducing new brands/products are expressed [10, 11]. Consumer ideas and attitudes towards new products and information on consumption preferences can be obtained through marketing studies and optimum product properties can be determined accordingly. In this study, it was aimed to determine the consumers' preferences on PET bottled water consumption in order to determine the optimum product design for the market with reference to the Mediterranean Region of Turkey. Also, it was aimed to contribute in the marketing and new product development studies in the field of agri-food marketing through comparison of outputs of the field survey conducted in 2009 with recent findings in the literature.

MARKETING OF PACKED WATER

The potable water studies so forth had mostly focused on chemical features, healthcare consciousness or industrial analyses. However, research with more economic and social emphasis on water consumption has been increasing due to afore mentioned changing situations of water supplies in the world. In a study conducted in Turkey, PET bottled water share in packaged water industry and the total share of some global and local brands in Turkey was portrayed and water economics was identified specifically referring development of private packed water market [12]. The information regarding the production and certification systems and pros and cons of the sector was detailed in this study. Another study had provided information on the effective use of water and water-saving attitudes. In addition to determination of the consumer requirements, the need for an effective water resource management was emphasized in the mentioned study [13]. The amount of water used in urban and rural areas was investigated and it was found out that approximately 2 billion people living in 80 countries all over the world are unable to reach 2-3 litres of daily water supply in rainless seasons [14].

In a study, the PET bottled market trends, new packaging and products were assessed and it was emphasized that the Western Europe was the leader of PET bottled water consumption with 85 litres annual per capita consumption and with 46 % share worldwide [15]. Another study mentioned the packaged water sector and per capita water consumption for the leading countries in the age of branding [16]. Consumers prefer packed water both in developed and developing countries even though tap water appears at lower-costs due to this study. This was attributed to declining trust on tap water with respect to health standards.

Consumer research on determination of new product ideas is considered to be essential [17]. On the other hand, the importance of an effective organisation was emphasized with regards to new product development [18]. In addition, measurement of consumer reactions was expressed as a factor of success in the early stages of new product development or market penetration phase [19]. Accordingly, there is a need to determine consumer needs to understand the importance of product specific characteristics and economic factors in developing and executing marketing strategies. This is the reason why the previous region specific study was conducted taking reference of consumers in the Mediterranean Region of Turkey and why the findings of this field survey are important to assess the contemporary development in the Turkish PET bottled water market, which is on the edge of saturation.

MATERIALS AND METHODS

Material. The consumer data was retrieved from a face to face survey conducted in Antalya, Adana and Hatay provinces of the Mediterranean Region of Turkey in 2009 with a sample constructed out of population data retrieved from Turkish Statistical Institute. In marketing research studies, different sampling methods can be used by assuming specific confidence intervals and population variances for different population sizes. When the population is divided into groups (like in this study: packaged water consumers and non-consumers), the alternative sample sizes were described as 321 for locations with more than 100.000 inhabitants and as 322 for locations with more than 500.000 inhabitants respecting 95 % confidence interval and 0.21 (0.3 x 0.7) variance [20]. The sample size for the study was 965 (322 for Antalya, 322 for Adana and 321 for Hatay) by assuming the packaged water consumption rate of the households as 70 %.

The Methodology. Conjoint analysis, which is suitable for determination of consumer preferences respecting to guide market strategies, was used for the current study. The name of this methodology was derived from a combination of the words "considered" and "jointly" which means "taken together" [21, 22]. So, this analysis includes the data which is measurable jointly rather than individually and it is commonly used for measuring consumer perceptions

and suggesting the optimum product design accordingly.

Conjoint analysis differs from other multivariate statistical analyses. While, all of the choices are combined in discriminant analysis and regression analysis, the consumer preferences can be divided into components here. Besides, separate estimation procedures are implemented in conjoint analysis in order to measure the effect of different independent variables [22, 23].

When we consider conjoint analyses implemented specifically on the water market, we face a number of studies. As an instance, 1.800 households were interviewed in Sri Lanka to understand the piped water service quality differences due to socio-economic situations of the households [24]. The service standards were evaluated by different groups of consumers. The results indicated that health perceptions, water quality and institutional acts affect poor and non-poor consumers and therefore income constraints affect the assessment on services. Another study was on the environmental modelling of water supply options among 294 Australian consumers [25]. The environmental cost of water consumption was estimated dependent on the consumer perceptions in the study. Additionally, with a survey on fresh fruit and vegetables consumption with 600 Scottish consumers, the concepts such as price, quality and accessibility were classified. The ideal vegetable and fruit set was determined as low-priced, loose and unpacked, which is provided in the supermarket [26].

Conjoint analysis relies on three basic processes in determination of the optimum product set that provides maximum benefit or satisfaction to the consumer. Determination of the relationship between the product combinations and satisfaction on the choices is the first phase of the analysis. This is followed by profitability and segmentation analyses. This analysis is based on the theory of total utility and described as a function of price and quality benefits [26].

Total utility= f (price benefit + quality benefit)

In the model, the part-worths are independent and aggregation of the property levels constitutes the total utility. The contributions of each property are determined by part-worths. The theoretical description of this additive part-worth model is as follows [27];

$Pref_{ijk1} = a_i + b_j + c_k + d_1$

$Pref_{ijk1}$ = Consumer preference or total utility

a_i = the part-worth of product A in i level

b_j = the part-worth of product B in j level

c_k = the part-worth of product C in k level

d_1 = the part-worth of product D in l level

Two different calculation methods are used to determine the levels of importance for product properties. The first one is the determination of the difference between part-worth values of each property. The second is the calculation of relative importance levels of the combinations. The change between the part-worth values of the properties states the difference between two properties that have the lowest and highest part-worth levels. Also this value shows the importance of each combination levels [27, 28, 29, 30].

In the measurement of relative importance of combinations, part-worths for each combination is summarised within total part-worth.

$Change_i$ = *(highest part-worth – lowest part-worth)*

$$\text{Relative importance} = \frac{Change_i \times 100}{\sum Change_i}$$

In this study, the basic property set (*origin of water, production mode, taste, price, ISO quality management certification, HACCP food safety management certification*) was established. The conjoint plan cards were created by using SPSS 13.0 software.

In addition to demonstration of the survey to guide development of marketing strategies for PET bottled water market, the market is re-examined considering the recent challenges in the final section of this study. The objective was to assess whether the market had watched the consumer preferences on the appropriate product mix composition or whether there exists a better development path for the sector.

RESULTS OF THE ANALYSIS

The Socio-Demographic Profile of the Consumers. The socio-demographic characteristics are important for examination of consumer preferences and purchasing behaviours. It was understood that 53.3 % of the respondents were female and 46.7 % were male representing the society. The age distribution was novel considering the average features of consumers. More than 75 % of the participants were either graduated from secondary or tertiary schools. Almost 70 % was married and household population was found out as 3 or more among more than 75 % of the participants. The share of families with non-working mothers was around 70 %. In terms of economic status, it was observed that 21.4 % of the respondents were from low income group (≤ € 323), while 11.4 % were from high income group (+ € 1.292) considering average monthly income in Turkey.

Determination of the Optimum Product Components for PET Bottled Water by Conjoint Analysis. In the study, the optimum PET bottled water product pattern, which provides maximum benefits to consumers, was determined by conjoint analysis. The factor levels were demonstrated in Table 1. The main factors effective on consumers' PET bottled water preferences were determined as origin (national or regional brand sensitivity), production

mode, taste, price, ISO (Quality Management System) certification and HACCP (Food Safety Management System) certification.

The factor levels for these factors were created as one national two regional brands for origin, natural spring water, natural mineral water and processed water for product mode, soft and hard for taste, low-moderate-high levels for price, existence and lack of ISO and also of HACCP certificates as demonstrated in Table 1.

TABLE 1
Created Product Property Set for PET Bottled Water

Factor	Factor Levels
1. Origin	1. National brand; 2. Regional brand-1; 3. Regional brand-2
2. Product Type	1.Natural spring water; 2.Natural mineral water; 3.Processed water
3. Taste	1.Soft water; 2.Hard water
4. Price	1. 0.17 € * (low); 2. 0.30 € * (moderate); 3. 0.43 € * (high)

The conjoint plan cards (orthogonal design) were created by considering the factor and factor levels in SPSS 13.0. Sixteen plan cards listed combinations of product specifications enlisted in Table 1. The respondent reflections were scaled from 1 to 10 and the highest score was given to the most preferable option.

Based on our analysis, the model's conformity rates for consumer preferences were determined as 0.890 for Pearson R statistic and 0.718 for Kendall's Tau statistic. These values represent the effect of observed results with the help of the established model. According to the conjoint analysis results, the most important factor was found as acceptance of the price with 40.01 %. This referred to the situation that consumers preferred the PET water brand with minimum price. The second important factor was found out as the existence of HACCP certification with 15.25 % reflecting safety expectations. Origin was the third important factor (12.42 %) followed by production mode (11.70 %), taste (10.42 %) and finally ISO certification (10.20 %).

The factor level which has the highest part-worth rate described the most preferred option by consumers and represents the effect of each factor level on consumer preferences. This most preferable option set is demonstrated in Table 2 with the statistically inferred figures mentioned above.

As seen in the Table 2, the factor level with the highest part-worth rate was found as per unit price of € 0.17 (the lowest level) with the value of 1.742. In other words, consumers used to prefer the most affordable (economic) price. Another factor was found as HACCP certification with the 0.944 part-worth. On the other hand, nationally branded water source's part-worth was the highest (0.592) and regional brand-1 had the lowest score (-0.496). In terms of product type, the highest part-worth was determined as natural spring water with 0.117. Also the part-worths of natural mineral water and processed water were valued as -0.058. Consumer's taste preferences were towards soft taste and the ISO certified products/brands were preferable for the consumers.

TABLE 2
Conjoint Analysis Results for New PET Bottled Water

Factor/Factor Level	*Utility Estimate (Part worth value)*	*Importance Value (%)*
ORIGIN		
National brand	***0.592***	
Regional brand-1	-0.496	12.42
Regional brand-2	-0.096	
PRODUCT TYPE		
Natural Spring Water	***0.117***	
Natural Mineral Water	-0.058	11.70
Processed Water	-0.058	
TASTE		
Soft	***0.669***	10.42
Hard	-0.669	
PRICE		
0.17 € * (low)	***1.742***	
0.30 € * (moderate)	1.117	40.01
0.43 € * (high)	-2.858	
ISO CERTIFICATION		
Yes	***0.369***	10.20
No	-0.369	
HACCP CERTIFICATION		
Yes	*0.944*	15.25
No	-0.944	
Constant/Total	***4.000***	***100.00***
Pearson's R= 0.890	Significance = 0.0000	
Kendall's tau= 0.718	Significance= 0.0000	

The total benefit value of the plan cards is the sum of the factor level scores. This combination is the product properties that would provide the optimum benefit to customers. According to the results, this was determined as the 4th card with the total benefit value of 4.433. Therefore, consumers demonstrated a choice towards national brand of natural spring water providing soft taste, with minimum price and having HACCP and ISO certificates.

DISCUSSION

It is intended to cross compare the recent research and findings of our survey in order to check whether cost and quality sensitivity of consumers continue to be effective in packed water market. Most water consumption and product differentiating studies are focused on the use of tap water and plastic bottled water purchases. The significance of affordability in accordance with environmental and health consciousness has been increasing all over the world

in terms of bottled water consumption. There appears little variance between high and low income level countries on price sensitivity among the consumers.

From the view point of Italian consumers, there appeared two significant market share improvement strategies for bottled water suppliers. The mostly emphasized one was cost reduction as the consumers watch out prices prior to any factors due to the data retrieved from sales stores in 2015. The reason was the high variation in prices between 0.08 and 3.52 Euros per litre. The second suggestion for the market was appeared to be product differentiation regarding shifting to natural spring water, which was also not surprising due to the consumer trends [31].

A combined quantitative and qualitative research setting applied to 192 Australian and New Zealander consumers in 2013 indicated significant inferences for packed water market [32]. 77 % of the target group seemed to take health and quality considerations into account in tap water consumption. 64 % indicated they are used to consume bottled water, even while 72 % of the consumers indicated they had no fair of drinking tap water. This reliability on tap water leaded consumers to perceive bottled water as an unnecessary product. So, high level of packed water consumption can be attributed both to lifestyle or the pace of daily of life because bottled water was considered as convenient and granted quality via certification for the target audience.

The price-sensitivity was confirmed with studies conducted in developing countries as well. As an instance, a household survey of 500 people from rural Guatemala conducted in 2012 revealed that only 27 % of the target group were used to purchase packed water compatible with the level of trust on tap water quality, which is 29 %. Probit estimation was conducted to portray the factors affecting consumption of bottled water. The results indicated that health risk perceptions, household income, access to markets, education and household size are important determinants of bottled water consumption. Yet income elasticity of consumption and price sensitivity of people living under poverty conditions were confirmed as well in contrast to studies conducted in urban areas [33, 34].

Haiti appeared to be another example of limited packed water consumption with 4.4 % accompanied with limited reach to safe water supplies with 27 %. The Haitian indicated that they prefer to collect water and they can afford neither the cost of privately operated supplies nor the price of bottled water and they have very limited health considerations regarding this limited access [35].

On the other hand, level of income becomes prominent when consumption preferences of consumers in the United Arab Emirates were considered departing from the public survey of 891 households [36]. The findings of the survey, which was conducted between 2011 and 2014, indicated that 78 % prefers bottled water even if they consider tap water as a reliable source with 68 %. The level of price was negligible for these consumers, as they were used to prefer convenient consumption.

Besides, the environmental consciousness has been improving in countries with rising plastic dispensers for water consumption. Accordingly, publicly operated water stations had become prevalent in the last few years. Thus besides having certificated, people started to prefer meeting their water demand from water stations rather than using plastic bottles with rising education and awareness level [37]. However, results of a public ethics study conducted in the United States indicated that even though the consumers are aware of environmental cost of plastic bottled water consumption, they perceive tap water and water pipe systems as unhealthy and accept the price and environmental cost accordingly [38]. Following attributes after price efficiency and quality standards are indicated as 'health and environmental consciousness', taste and package styling appeared as effective factors [39, 40].

CONCLUSION

PET bottled water is a preferential product in terms of ease of use and accessibility among the packaged water products of ready water market. It began to replace the tap water with rising health consciousness since 1980s. This demand change concerns both producers and retailers in determination of their product mix and promotional strategies.

According to the survey results, the interviewed consumers from the target cities of Western Mediterranean of Turkey were careful about the price firstly and they generally preferred low-priced products. Also, it was observed that the income level is not significant in PET water consumption perceptions. The high income level group members were also price-sensitive. However, it seems that having the HACCP certification was important and consumers gradually began to be more conscious and attribute importance to food safety. According to the study, having a national brand is a priority when compared with regional brands. These indicated that consumers were more familiar with the national brands and prefer national resources rather than local resources. Additionally, natural spring water was more preferable than natural mineral water or processed water as expected from rising awareness level and average education level of the correspondents. Moreover, consumers seemed to prefer soft tasted water. The separation between soft water and hard water comes from the level of calcium and magnesium content per the unit amount of water. Although it does not make an important impact to human health, soft water was preferred more among the participants and this perception can easily be generalised to the society. As an impact of the communication era, the opportunity

to reach more information used to direct consumers towards consumption of ISO certificated PET bottled water. This is also related with the rising health consciousness and can be evaluated as a positive improvement for PET bottled water consumption.

New product development is also on the agenda of PET bottled water suppliers in order to receive a significant share in the competitive water market**.** However, there are so many new products without any success in the industry as the market penetration strategies do not comply with expectations of the consumers. Considering the outputs retrieved from contemporary research, price sensitivity of consumers can be identified as the most effective factor regardless of income level. In addition, product and process qualities of brands are watched up as people prefer packed water in exchange of less-trusted tap water. Therefore, the results obtained from this field research with a sample of around 1.000 people, representing diversities of the society, are considered to be a guiding document for stakeholders and to shape marketing strategies and new product development process and the consumer preferences of the survey maintain its validity for contemporary marketing of packed water.

ACKNOWLEDGEMENTS

We would like to thank to TUBITAK (The Scientific and Technological Research Council of Turkey) (for the project no: 108K606) for their financial support. This study was presented in the International Congress Water, Waste and Energy Management, 18 – 20 July 2016 Rome-ITALY and firstly published within the scope of this organization.

REFERENCES

[1] Anonymous (2008a) Ministry of Health Data. Training Guide for Educators, Health and Health Protection Modules. Ministry of Health Publication no: 722, ISBN: 978-975-590-238-8. Ministry Turkish Republic Health Education General Directorate, Ankara, Turkey. 136p

[2] Akin, M. and Akin, G. (2007) Importance of Water, Water Potential in Turkey, Water Basins and Water Pollution. Ankara University, Journal of Language, History and Geography Faculty. 47(2), 105-111.

[3] Ozguler, H. (1997) Water, water resources and environmental issues. Meteorology, TMMOB Chamber of Meteorological Engineers Publication. 2, 57-63.

[4] Tumer, E.İ., Birinci, A. and Yildirim, C. (2011) Factors Affecting the Determination of Packaged Water Consumption: The Case of Ankara Province Kecioren. Alinteri. 21(B), 11-19.

[5] Anonymous (2008b) Healthy Water Sector and SUDER, (http://www.gidasanayii.com/modules.php?name=News&file=article&sid=72).

[6] Anonymous (2017) SUDER Records (http://www.suder.org.tr/sektor_sorular.html) retrieved on 15.10.2017.

[7] Gleick, P.H., Allen, L., Cohen, M.J., Cooley, H., Smith, J.C., Heberger, M., Morrison, J., Palaniappan M. and Schulte, P. (2014) The Biennial Report on Freshwater Resources. The Worlds Water 7 (2011) in Y. Mortarjemi and H. Lelieveld, Food Safety Management: A Practical Guide for the Food Industry (e- book - ISBN: 9780123815057), (2014), retrieved on 15.11.2016.

[8] Wild, D., Francke, C.J., Menzli, P. and Schon, U. (2007) Water: A Market of the Future. SAM (Sustainable Asset Management) Publication, Switzerland.

[9] Sipos, L. and Tóth, A. (2007) Rational Approach in Hungarian Mineral Water Market. Hungarian Electronic Journal of Sciences, HU ISSN 1418-7108, HEJ Manuscript no: ECO-070330-A, 1-9.

[10] Kotler, P. and Amstrong, G. (2001) Principles of Marketing. 9th Ed. Prentice Hall, New Jersey, the USA. 744p.

[11] Uzunoglu, E. (2007) Value Creation According to Customer Focused Marketing: Value as a Model Transmission System. Eskisehir Osmangazi University, Journal of Economics and Administrative Science. 2(1), 11-29.

[12] Ilhan, A. (2011) Towards a New Water Policy, Water Management in Turkey, Alternatives and Recommendations. Association for Social Change in December 2011. Istanbul. 214p.

[13] Ceylan, A. (2002) The Effect of Climate and Water Resources Efficient Utilization Methods. State Meteorological Service, The General Directorate (www.dunyasugunu.org).

[14] Cepel, N. and Ergun, C. (2003) The Importance of Water and Ecological Problems. Web page: (http://docplayer.biz.tr/393666-Suyun-onemi-ve-ekolojik-sorunlari-prof-dr-necmettin-cepel-ve-celal-ergun.html.

[15] Ferrier, C. (2001) Bottled Water: Understanding a Social Phenomenon. A Journal of the Human Environment. 30(2), 118-119.

[16] Wilk, R. (2006) Bottled Water: The Pure Commodity in the Age of Branding. Journal of Consumer Culture. 6(3), 303-325.

[17] Shocker, A.D. and Srinivasan, V. (1974) A Consumer-Based Methodology for the Identification of New Product Ideas. Management Science. 20(6), 921-937.

[18] Olson, E.M., Walker, O.C.Jr., Ruekerf, R.W. and Bonnerd, J.M. (2001) Patterns of Cooperation during New Product Development among Marketing, Operations and R&D: Implications for Project Performance. Journal of Product Innovation Management. 18(4), 258-271.
[19] Kleef, E.V., Trjip, H.C.M. and Luning, P. (2005) Consumer Research in the Early Stages of New Product Development: A Critical Review of Methods and Techniques. Food quality and preference. 16(3), 181-201.
[20] Kurtulus, K. (1998) Marketing Research. Avciol Printing and Publishing. Expanded Sixth Edition, Istanbul. 900p.
[21] Sonmez, H. (2001) Usage Possibilities of Conjoint Analysis Techniques in Marketing Research and an Application. Unpublished PhD Thesis. Anadolu University, Institute of Science. Eskisehir, p.5
[22] Soykan, Y. (2009) Conjoint Analysis in Industrial Purchase Decisions and an Application. Akademik Bakiş. 16 2009), 1-19.
[23] Hair, J.F., Anderson, R.E., Tatham, R.L. and Block, W.C. (1995) Multivariate Data Analysis with Readings. McMillan Book Company. London. 757p.
[24] Pattanayak, S.K., Van Den Berg, C., Yang, J.C. and Van Houtven, G. (2006) The Use of Willingness to Pay Experiments: Estimating Demand for Piped Water Connections in Sri Lanka. World Bank Policy Research Working Paper No. 3818. Available at SSRN: http://ssrn.com/abstract=875864.
[25] Blamey, R., Gordon, I. and Chapman, R. (1999) Choice Modelling: Assessing the Environmental Values of Water Supply Options. Australian Journal of Agricultural and Resource Economics. 43(3), 337–357.
[26] Van Der Pol, M. and Ryan, M. (1996) Using Conjoint Analysis to Establish Consumer Preferences for Fruit and Vegetables. British Food Journal. 98(8), 5-12.
[27] Ness, M. (2002) Multivariate Techniques in Market Research. Course of Agro-Food Marketing, 2001-2002, Zaragoza, Spain.
[28] Green, P.E., Carrol, J.D. and Goldberg, S.M. (1981) A General Approach to Product Design Optimization Via Conjoint Analysis. Journal of Marketing. 45(3), 17-37.
[29] Green, P.E. and Srinivasan, V. (1990) Conjoint Analysis in Marketing: New Developments with Implications for Research and Practice. Journal of Marketing Research, 54 (October), 3-19.
[30] Wittink, D. R. and Cattin, P. (1989) Commercial Use of Conjoint Analysis: An Update Journal of Marketing. 53(3), 91-96.
[31] Carlucci, D., de Genarro, B. and Rosell, L. (2016) What is the value of bottled water? Empirical evidence from the Italian retail market. Water Resources and Economics. 15, 57–66.
[32] Ragusa, A.T. and Crampton, A. (2016) To Buy or not to Buy? Perceptions of Bottled Drinking Water in Australia and New Zealand. Hum Ecol. 44(5), 565–576.
[33] Jakus, P., Shaw, W.D., Nguyen, T. and Walker, M. (2009) Risk perceptions of arsenic in tap water and consumption of bottled water. Water Resources Research. 45, W05405.
[34] Francisco, J. (2014) Why households buy bottled water: a survey of household perceptions in the Philippines. International Journal of Consumer Studies. 38, 98–103.
[35] Varma, M.K., Satterthwaite, M.L., Klasing, A.M., Shoranick, T., Jean, J., Barry, D., Smith Fawzi, M.C., Mc Keever, J. and Lyon, E. (2008) Wòch nan Soley: The Denial of the Right to Water in Haiti. Health and Human Rights. 10(2), 67-89.
[36] Maraqa, M.A. and Ghoudi, K. (2015) Survey of Public Attitude towards Bottled and Tap Water Quality In The UAE. Global NEST Journal. 17(3), 607-617.
[37] Makov, T, Meylan, G., Powell, J.T. and Shepon, A. (2016) Better than bottled water?—Energy and climate change impacts of on-the-go drinking water stations. Resources, Conservation and Recycling. (In press).
[38] Holt, D.B. (2012) Constructing Sustainable Consumption: From Ethical Values to the Cultural Transformation of Unsustainable Markets. The Annals of the American Academy of Political and Social Science, Vol. 644, Communication, Consumers, and Citizens: Revisiting the Politics of Consumption. 236-255.
[39] Lanz, B. and Provins, A. (2016) The Demand for Tap Water Quality: Survey Evidence on Water Hardness and Aesthetic Quality. Water Resources and Economics. 16, 52–63.
[40] Krishna, A. and Morrin, M. (2008) Does Touch Affect Taste? The Perceptual Transfer of Product Container Haptic Cues. Journal of Consumer Research. 34(6), 807-818.

Received: **07.12.2017**
Accepted: **30.12.2017**

CORRESPONDING AUTHOR

Metin Goksel Akpinar
Akdeniz University Faculty of Agriculture,
Department of Agricultural Economics
Konyaalti Antalya-Turkey

e-mail: mgoksel@akdeniz.edu.tr