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Research Article/ Araştırma Makalesi

RELATIONSHIP BETWEEN MUNICIPAL SERVICES AND HAPPINESS LEVEL: AN EMPIRICAL STUDY FROM TR90 REGION IN TURKEY*

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Abstract
This paper investigates the relationship between services offered by municipalities and individuals' self-reported levels of happiness using data from 2013 obtained in the Life Satisfaction Survey (LSS), which is Turkey's first nationally representative survey at the city-level. In this study, we focused only on cities located in the TR90 region. The findings highlight that satisfaction with municipal services varies from city to city. In particular, municipal services such as garbage/ environmental waste collection, air pollution quality, public safety, amount of green space, health/fitness center facilities, zoning/settlement/licensing, regulations for disabled people, lighting, fire, cemetery, street sign/exterior numbering and inspection of food processing facilities were found to affect the individuals' happiness.
Keywords: Happiness level, Municipal services, Life staisfaction, Ordered logit model, Turkey
JEL Codes: C21, I31

BELEDİYE HİZMETLERİ İLE MUTLULUK DÜZEYİ ARASINDAKİ İLİŞKİ: TR90 BÖLGESİ ÜZERİNE AMPİRİK BİR İNCELEME

Öz
Bu çalışmada belediyenin sunmuş olduğu hizmetlerle bireylerin mutluluk düzeyleri arasındaki ilişki 2013 yılında şehir düzeyinde yayınlanan yaşam memnuniyeti anketiyle incelenmiştir. Çalışma kapsamında TR90 bölgesinde yer alan şehirler ele alınmıştır. Elde edilen sonuçlara göre belediye hizmetlerinden duyulan memnuniyetin şehirden şehre değiştiği gözlemlenmiştir. Özellikle çöp/çevre atıklarının toplanması, hava kirliliği kalitesi, kamu güvenliği, yeşil alan miktarı, sağlık/fitness merkezi tesisleri, imar/yerleşim/ruhsatlandırma, engelliler için düzenlemeler, aydınlatma, yangın, mezarlık, sokak tabelası/dış numaralandırma ve gıda işletme tesislerinin kontrol edilmesi gibi belediye hizmetlerinin bireylerin mutluluğunu etkilediği sonucuna ulaşılmıştır.
Anahtar Kelimeler: Mutluluk düzeyi, Belediye hizmetleri, Yaşam memnuniyeti, Sıralı logit modeli, Türkiye
Jel Kodları: C21, I31

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Introduction

Municipal services involve the basic services, which city residents expect from the government in exchange for the taxes they pay. For example, such services may include ambulance, hospitals, food inspection, sanitation, transportation, fire department as well as schools, and even public libraries. Notably, the municipal services offered by the government may vary depending on the country meaning its tradition and history.

Local governments – especially municipalities – are one of the most important service organizations in terms of relations with citizens in the production and delivery of public services, which impact user satisfaction and costs. Unlike other public institutions, municipalities are local government units that are closest to the public and directly affect people's daily life with their policies (Göküş ve Alptürker, 2011: 123). However, these local government units meet the needs of the citizens living in the regions where they are responsible for with the powers they receive from the laws and use very serious resources.

Nowadays, individuals' service demands and expectations have increased and differentiated from the past. Municipalities are mainly responsible for meeting the various needs and expectations of individuals within local governments. In addition, municipalities have to produce services by using limited resources in the most effective and efficient way by determining the service priorities of the citizens (Gazan, 2010: 145). Therefore, municipalities should measure their expectations and satisfaction for the services provided to citizens in certain periods as well as determining the changing citizen demands and needs.

Happiness, at times considered as subjective well-being, has become one of the fundamental aspects of the democratic world. Thus, individuals push to live in the manner so that they feel satisfied depending on their criteria. Notably, their happiness can be evaluated based on either subjective or objective well-being (Kasmaoui and Othmane, 2017: 8). The relationship between municipal services and happiness, therefore, focuses on the subjective aspect in which the internal experiences individuals have are evaluated based on how they perceive their lives. Similarly, when the city government offers substandard or inadequate services, the level of happiness of the residents drops significantly. The main reason is that people are not satisfied with the services they received for the taxes paid. Thus, in order to boost the level of happiness among the people, the city government should provide services which surpass the expectations of the residents.

The remainder of this paper is organized as follows. After introduction section, the paper reviews and summarizes the relevant literature on municipal services and individual happiness. Section 2 describes the research methods and data sources in detail. Section 3 discusses the results, and Section 4 gives the conclusions.

1. Relevant Research in Turkey and Hypotheses

Local governments should make an effort to satisfy its citizens by carrying out public services according to the expectations and desires of citizens as a democratic government unit. In this regards, municipals are the service unit that are closest to the public. Acting responsibly to the needs and requirements of public and getting the constant support and appreciation of the public is an important case for municipal governments (Topal et al., 2019: 6). Recently it seems to be there is an increase in the studies about measuring the satisfaction of public about municipal services (Delice and Daştan, 2015: 94).

Recent studies have indicated a clear link between the success of a city and the level of happiness its residents depict. For instance, if a city is successful, most of the services, including sanitation and police among others, are provided adequately promoting satisfaction within the residents (Kasmaoui and Othmane, 2017:7-8). Besides, cities, which take proactive measures towards

attaining pleasure develop infrastructure and relevant services introduction for residents' leisure. Such infrastructures include parks and museums among others that influence individuals, families, and the society at large to improve their subjective well-being. Consequently, the better the municipal services, the higher the satisfaction level of the residents.

In the related literature, many studies examine how individual's happiness is affected by municipal services in Turkey. Table 1 summarizes the results of studies on the nexus between municipal services and levels of citizen happiness.

Table 1: *Summary of the literature on municipal services and happiness*

Author(s) / Date	Sample Size / Method / Municipality	Findings
Bozlağan (2004)	358 individuals Sarıyer, Istanbul	Results indicate that people are satisfied with fire department, social assistance services, water and sewerage, culture-sport, lighting, parks-green areas and cleaning. Dissatisfied services in local governments are; municipal police - surveillance, urbanization-zoning-permit, roads, pavements and transportation.
Filiz, Yılmaz and Yağızer (2010)	SERVQUAL Analysis, Likert Scale Eskişehir Odunpazarı, Eskişehir Tepebaşı, Eskişehir	Results show that highest level of citizen satisfaction for Metropolitan Municipality is culture services, for Odunpazarı Municipality it is cleaning services and for Tepebaşı Municipality it is cleaning services as well. When each three municipality taken into consideration, it is determined that parking service is the service where satisfaction level is the lowest.
Gazan (2010)	500 individuals Factor analysis, t-test, Regression Analysis, ANOVA Kütahya	First five services, which satisfaction level of citizens from the services of Kütahya Municipality are the highest determined as; street lighting, fire department and ambulance services, easier tax treatments, municipal employees' presence during normal work hours. The services, which satisfaction level is not at the desired level are; inadequacy and quality of the provided transportation services, inadequacy of available parking spaces, inadequacy and quality of highways.
Göküş and Alptürker (2011)	469 individuals Frequency analysis, t-test, ANOVA Silifke, Mersin	It is determined that locals are mainly satisfied with bus terminal services, covered market, bazaar, funeral and cemetery services and nursing home-elderly care center services. Public services, which citizens are dissatisfied with are pest control, parking services, road construction and maintenance, investments regarding economic growth of the city and willingness and competency of municipal employees on problem-solving.

Table 1: *Summary of the literature on municipal services and happiness (continued)*

Author(s) / Date	Sample Size / Method / Municipality	Findings
Aslan and Uluocak (2012)	388 individuals Frequency analysis, t-test, ANOVA Çanakkale	The services by Çanakkale municipality, which were deemed to be successful are determined as social and cultural activities, activities towards disabled people and studies about community center whereas unsuccessful activities are urban infrastructure and public transport services.
Negiz (2012)	356 individuals Wilcoxon Signed Rank Test Isparta	In the study, the services carried out by the municipality selected in 2004 and the municipality selected in 2009 were compared. When findings were analyzed, it is identified that both municipality have suffered mostly from the problems occurring in infrastructure, water and cleaning services. Also, it is determined that there is positive improvement in zoning and transportation in second term when compared to first term.
Göküş and Karayıldırım (2012)	323 individuals Factor analysis, ANOVA, t-test Karatay, Konya	From the services provided by the municipality, the services with the high satisfaction level can be ranked as such: (i) covered market services, (ii) park and garden services, (iii) cleaning services, (iv) road construction and maintenance services, (v) social assistance services and (vi) promotion services regarding the activities of municipality.
Yücel, Yücel and Atlı (2012)	572 individuals Frequency Distribution, t-test, ANOVA Elazığ	It is determined that citizens are satisfied with having information about the places where they can stay in case of an earthquake, emergencies and satisfied with services such as garbage collection services, adequate number of parks, green spaces, e-municipality, orientation of immigrants, adequate number of hygiene inspection on businesses, sufficient investments for road-maintenance-parking and intersection by the municipal and support services provided to athletes, however they are not satisfied with municipal services such as owners selling their products in front of the stores etc.
Menteşe (2013)	538 individuals Frequency analysis, t-test, ANOVA, Survey Model Tunceli	Municipal services, which participants are highly satisfied with are funeral/burial/cemetery services and park/garden/forestation services. It is determined that the services which citizens are dissatisfied with are tourism and promotion services.
Menteşe (2013)	538 individuals Frequency analysis, t-test, ANOVA, Survey Model Tunceli	Municipal services, which participants are highly satisfied with are funeral/burial/cemetery services and park/garden/forestation services. It is determined that the services which citizens are dissatisfied with are tourism and promotion services.

Table 1: *Summary of the literature on municipal services and happiness (continued)*

Author(s) / Date	Sample Size / Method / Municipality	Findings
Taşçı (2014)	300 individuals Frequency Distribution, t-test, ANOVA, Tukey Test Yalova	The services that got the most average in terms of satisfaction are; funeral and patient transport services, marriage services, burial and cemetery services and fire department services whereas the services that got the least average in terms of satisfaction are collection of stray dog and cats, youth and sport services, road construction and maintenance services, parking services and traffic services.
Albayrak, Savaş and Baltacı (2015)	2343 individuals MANOVA Rize	Results indicate that citizens are satisfied with (i) mass transportation services, (ii) water and sewerage services, (iii) cleaning and environmental services; however it is determined that they are dissatisfied with the shortage of parking spaces, location and services of bus station.
Delice and Daştan (2015)	417 individuals Pearson correlation, t-test, ANOVA İzmir	Ranking of satisfaction of citizens from municipal services are ranked as (i) park/garden and forestation services, (iii) avenue and main street cleaning, (iii) street lighting and illumination services. On the other hand, preservation and maintenance of historical buildings, services of preventing noise and visual services, zoning/location/permit services, road/pavement construction and maintenance services, infrastructure services and informing the public services have been found as the services where satisfaction level is the lowest.
Çetinkaya, Korlu and Eroğlu (2016)	680 individuals 5-Likert Scale Bursa	Citizens define burial and cemetery services and terminal services as the best quality services of municipality. In addition, inner-city mass transportation services and architectural view of the city services are seen as the lowest quality services by the citizens.
Sabuncu, Yıldız, Öztürk, Özkan, Atalay and Kara (2016)	402 individuals Frequency analysis, t-test, ANOVA Yalova	Results show that first three public services which public most satisfied with are; environmental services, social services and urban cleaning. On the other hand, public transport services, zoning services and inspection services are the first three public services which public least satisfied with.
Dibek (2018)	602 individuals Frequency analysis, t-test, ANOVA Niğde	Municipal services where the satisfaction means were the highest determined as; burial and cemetery services, covered market, neighborhood markets, fire department and ambulance services, whole sale markets for fruits and vegetables, solid waste and garbage collection services, hygiene inspection of foods and beverages that sold in common places such as diner - cafe - coffeehouse whereas municipal services that have the lowest satisfaction means were parking facilities, preparation of zoning plans and control of these.

Given the abundance of study on the relationship between happiness and municipal services in Turkey, this paper attempts to make following contributions to the existing literature. Firstly, to the

best of our knowledge, this study is the first study that uses a large cross-sectional micro-dataset to assess the link between level of happiness and municipal services. Secondly, this study allows us to compare the impact of multiple cities' municipal services on individuals' happiness level where located in TR90 Region.

Based on this discussion, we propose the following hypotheses:

H1: There is a statistically significant relationship between the municipalities' garbage and environmental waste collection services and individuals' happiness level.

H2: There is a statistically significant relationship between the municipalities' sewage collection services and individuals' happiness level.

H3: There is a statistically significant relationship between the municipalities' quality of water services and individuals' happiness level.

H4: There is a statistically significant relationship between the municipalities' public transportation services and individuals' happiness level.

H5: There is a statistically significant relationship between the municipalities' public safety services and individuals' happiness level.

H6: There is a statistically significant relationship between the municipalities' road/pavement construction services and individuals' happiness level.

H7: There is a statistically significant relationship between the municipalities' amount of green areas and individuals' happiness level.

H8: There is a statistically significant relationship between the municipalities' quality of air pollution services and individuals' happiness level.

H9: There is a statistically significant relationship between the municipalities' health/fitness center facilities and individuals' happiness level.

H10: There is a statistically significant relationship between the municipalities' zoning/inhabiting/licencing services and individuals' happiness level.

H11: There is a statistically significant relationship between the municipalities' arrangements for the disabled and individuals' happiness level.

H12: There is a statistically significant relationship between the municipalities' assistance services for patients and poor people and individuals' happiness level.

H13: There is a statistically significant relationship between the municipalities' exhibition, festival, and concert events and individuals' happiness level.

H14: There is a statistically significant relationship between the municipalities' vocational training/manual skill events and individuals' happiness level.

H15: There is a statistically significant relationship between the municipalities' lighting services and individuals' happiness level.

H16: There is a statistically significant relationship between the municipalities' cleaning services and individuals' happiness level.

H17: There is a statistically significant relationship between the municipalities' fire services and individuals' happiness level.

H18: There is a statistically significant relationship between the municipalities' cemetery services and individuals' happiness level.

H19: There is a statistically significant relationship between the municipalities' street signs and exterior numbering services and individuals' happiness level.

H20: There is a statistically significant relationship between the municipalities' inspection of food processing facilities and individuals' happiness level.

2. Material and Methods

2.1. Data Source

The paper uses a cross-sectional dataset collected in the study of "The Life Satisfaction Survey (LSS)", which is Turkey's first nationally representative at the city-level survey, has been conducted by Turkish Statistical Institute (TURKSTAT) in 2013 based on a sample of 196,203 individuals. The TLSS is repeated each year since 2004, but in 2013 TLSS was implemented at the city-level in Turkey. For the purpose of this study, the sample is restricted to six cities (Trabzon, Ordu, Giresun, Gümüşhane, Rize, Artvin) included in TR90 region.

2.2. Dependent Variable: Happiness with Life in a City

The dependent variable in this study is self-reported level of happiness, which is directly used as an indicator for quality of municipal service. To measure level of happiness, respondents are asked the following question "how happy are you with your life as a whole [city name]?" offered with a five category response scale, with 1 being "very happy (1)" and 5 being "not at all happy (5)". Everyone in the survey responds this question. Yet, due to the small number of respondents, we aggregate responses, such as, the responses of (3 and 4) were combined and labeled as (1=Not at all Happy) , the responses of (1 and 2) were combined and labeled as (3=Very Happy), and 3 (Moderately Happy) remained as a category on its on score. Table 2 describes the distribution of answers for each city. For instance, on average, Gümüşhane is the happiest city while is Trabzon the least happiest city among six cities.

Table 2: *Distribution of happiness levels individuals aged 18-65 (TR90)*

Happiness Level	**Trabzon** (n=1,210) **Obs. (%)**	**Ordu** (n=1,721) **Obs. (%)**	**Giresun** (n=903) **Obs. (%)**	**Gümüşhane** (n=356) **Obs. (%)**	**Rize** (n=788) **Obs. (%)**	**Artvin** (n=487) **Obs. (%)**
Not at all happy (=1)	111 (9.17)	125 (7.26)	67 (7.42)	23 (6.46)	59 (7.49)	44 (9.04)
Moderately happy (=2)	381 (31.49)	590 (34.28)	233 (25.80)	93 (26.12)	214 (27.15)	132 (27.10)
Very happy (=3)	718 (59.34)	1,006 (58.46)	603 (66.78)	240 (67.42)	515 (65.36)	311 (63.86)
Overall happiness	**2.50**	**2.51**	**2.59**	**2.60**	**2.57**	**2.54**

Our elaboration based on 2013 TLSS survey data

2.3. Individual level – Municipal Services

Many municipal services are used to evaluate individuals' opinions about a city. As stated above, municipal services are free basic services that provided by local governments in order to meet the needs of residents at no charge. In assessing urban services, the present study is concerned with the following municipal services: garbage collection, sewage collection, quality of water supplied to household, public transportation, public safety, road construction, amount of green areas, quality of air pollution, fitness center facilities, inhabiting and licensing, arrangements for the disabled lightning, assistance service for patients and poor people, exhibition, festival and concert events, manual skill events, cleaning, cemetery, fire, street signs, and inspections of processing facilities.

For each municipal services, the following question has been asked to each respondent: "how satisfied are you with municipal services like […][3]?" The responses on a 7-point Likert scale ranging from "(1) I am very satisfied" to "(7) no service", but consistent with happiness data, we dropped

[3] All municipal services are defined above.

the responses that with "(6) no idea" and "(7) no service" were excluded from the study. Similarly, we aggregate responses by creating new categories, for example, the responses of (3 and 4) were combined and labeled as (1=Not at all Satisfied), the responses of (1 and 2) were combined and labeled as (3=Very Satisfied), and 2 (Moderately Happy) remained as a category on its on score. Table 3 summarizes the evolution of municipal services used in the present study.

Table 3: *Descriptive statistics of the variables used in the evolution of municipal services*

Municipal Services	Trabzon	Ordu	Giresun	Gümüşhane	Rize	Artvin
	Average	Average	Average	Average	Average	Average
Garbage/environmental waste collection services	2.55	1.94	2.02	2.35	2.11	1.76
Sewage collection services	2.39	1.85	1.94	2.41	2.05	1.75
Quality of water services	2.47	1.95	1.99	2.30	2.10	1.70
Public transportation services	2.47	1.94	1.99	2.43	2.12	1.72
Public safety services	2.36	1.75	1.97	2.36	2.06	1.76
Road/pavement construction services	2.30	1.90	1.90	2.25	1.97	1.66
Amount of green areas (environment)	2.40	2.06	1.98	2.22	2.18	1.79
Quality of air pollution service	2.11	1.60	1.82	2.13	2.04	1.70
Health/fitness center facilities	2.08	1.65	1.72	1.97	1.84	1.55
Zoning/inhabiting/licensing services	1.90	1.51	1.66	1.98	1.75	1.53
Arrangements for the disabled	2.22	1.61	1.76	2.08	1.83	1.50
Assistance service for patients and poor people	2.25	1.79	1.88	2.25	1.95	1.58
Exhibition, festival, and concert events	2.05	1.79	1.84	2.20	1.88	1.70
Vocational training /manual skill events	2.23	1.67	1.87	2.25	1.97	1.64
Lighting services	2.59	2.25	2.12	2.68	2.26	1.85
Cleaning services	2.57	1.99	2.04	2.44	2.17	1.83
Fire services	2.48	2.03	2.05	2.51	2.18	1.78
Cemetery services	2.53	2.20	2.09	2.60	2.22	1.79
Street signs and exterior numbering service	2.58	2.18	2.11	2.58	2.26	1.81
Inspection of food processing facilities	1.93	1.47	1.69	2.02	1.74	1.51
Overall Score	**2.23**	**1.86**	**1.92**	**2.30**	**2.03**	**1.69**

Our elaboration based on 2013 TLSS survey data

2.4. Socio – Demographic Variables

Before starting the econometric estimation, we drop observations with missing data where individuals dwell in rural areas. Furthermore, we only consider those aged between 18 and 65 years of age. Guided by the existing literature, we used the following control variables to predict the happiness including age, income, marital status, education level and sex. We defined as dummy variables for age variable as follows: 18−25 (reference category), 26−35, 36−45, 46−55, 56−65 (all in years). Similarly, the income variable is also categorized into 5 classes: **(i)** less than 1080 TL (reference category), **(ii)** 1081 TL to 1550 TL, **(iii)** 1551 TL to 2170 TL, **(iv)** 2171 TL to 3180 TL, and **(v)** 3181 TL and more. The marital status of a respondent is separated into three categories such as "married", "single (reference category)" and "widow and divorced and separated". Educational level is grouped into six classes: **(i)** no education (reference category), **(ii)** primary school, **(iii)** secondary school, **(iv)** high or vocational school, **(v)** college or university. Lastly, female, which is coded 1 if the individual is female (reference category), and 0 otherwise. Table 4 provides summary statistics of socio-demographic variables used in our sample.

Table 4: *Respondents' profile*

Variables		Trabzon	Ordu	Giresun	Gümüşhane	Rize	Artvin
Gender	Male	% 35.8	% 41.9	% 34.4	% 33.4	% 31.7	% 31.8
	Female	% 64.2	% 58.1	% 65.6	% 66.5	% 68.3	% 68.2
Education Status	No education	% 10.6	% 16.6	% 16.3	% 11.2	% 16.2	% 10.3
	Primary school	% 35.4	% 40.6	% 43.1	% 34.0	% 41.8	% 46.4
	Secondary school	% 12.4	% 12.0	% 11.8	% 15.2	% 9.6	% 13.5
	High school	% 24.4	% 17.5	% 16.7	% 24.7	% 18.7	% 16.2
	College and above	% 17.2	% 13.3	% 12.1	% 14.9	% 13.7	% 13.6
Marital Status	Single	% 22.8	% 13.8	% 14.4	% 16.9	% 13.3	% 10.8
	Married	% 71.2	% 81.7	% 78.2	% 78.9	% 80.3	% 83.4
	Other	% 6.0	% 4.5	% 7.4	% 4.2	% 6.4	% 5.8
Age	18 – 25	% 14.6	% 11.5	% 11.2	% 16.6	% 9.8	% 7.2
	26 – 35	% 20.8	% 21.7	% 18.8	% 24.4	% 19.9	% 19.7
	36 – 45	% 23.9	% 23.2	% 20.9	% 21.9	% 26.3	% 26.1
	46 – 55	% 23.3	% 22.5	% 23.5	% 20.5	% 23.1	% 23.4
	56 +	% 17.4	% 21.1	% 25.6	% 16.6	% 20.9	% 23.6
Income Groups	0 – 1080 TL	% 32.6	% 52.8	% 49.6	% 36.0	% 35.3	% 44.8
	1081 – 1550 TL	% 23.6	% 14.4	% 16.5	% 20.5	% 23.5	% 15.8
	1551 – 2170 TL	% 18.6	% 12.3	% 13.8	% 16.3	% 16.6	% 14.4
	2171 – 3180 TL	% 15.4	% 11.1	% 11.1	% 18.5	% 15.7	% 15.2
	3181 TL +	% 9.8	% 9.4	% 9.0	% 8.7	% 8.9	% 9.8

Our elaboration based on 2013 TLSS survey data

According to Table 4, the female respondents constitute the majority of total respondents in all cities. As for educational attainment, the highest percentage in all cities is primary school graduates. Regarding marital status, in all cities, the highest percentages are married respondents. In all cases, the majority of participants earn monthly income between 0 TL – 1080 TL.

2.5. Empirical Specification

To investigate the relationship between city' services and the level of happiness, we used the ordered logit regression[4]. Thus, the formal econometric model to be estimated is:

$$\text{Happiness} = \alpha + \beta_1 X_{ij} + \beta_2 M_{ij} + \varepsilon_i \quad (1)$$

where *Happiness* is a measure of the respondent's happiness level for individual *i* living in city *j*, **X** is a vector of exogenous control variables (i.e., gender, age in years, marital status, income, education level) and **M** is a vector of municipal services variables, β_i's are the vector of coefficients, and ε_i is an i.i.d. error term

Ordered logit model is an extension version of the logistic regression model, in which the response variable, Y_i, is a continuous latent variable and has more than two ordered categories. In our study, the dependent variable consists of five options, which represents an individual's level of happiness. As in the logistic regression (logit or probit model), interpreting directly the coefficients of the ordered logit model are not meaningful, thus we estimate the odds ratio (OR) that give more details on how the independent variables change the probability of frequency of the level of happiness.

3. Estimation Results

Table 5 displays the results estimated from the ordered-logistic regression for each city. As in the case of each city, the log likelihood ratio Chi-Square tests with 55 degree of freedom indicate that

[4] Since we apply the ordinal logit regression, "**the assumption of parallel line**" is checked by using the Brent (Omnibus) Test whether the regression coefficients are the same for all categories or not.

the ordered logit regression coefficient of the predictors are statistically different from 0, thus the full model with fifty-five predictor provides a better fit than the null model with no independent variables in predicting cumulative probability for level of happiness.

The interpretation for the coefficients is as follows. In case of Trabzon, as regards citizens' socio-demographic characteristics, being female, being married, age group, educational attainment and higher income levels were found significant in association with the level of happiness and all raise happiness. Specifically, compared to the reference category (male), the OR for being female is 1.52, indicating that females were 1.52 times more likely to be happier than males. Regarding educational attainment (reference category is uneducated participants), in all four groups, ORs were found for primary school is 1.85 (p=.001), for secondary school is 1.94 (p=.08), for high school is 2.07 (p=.001), and for college and above is 2.37 (p=.001). These results suggest that the level of happiness increases with higher level of education. In terms of income groups, the level of happiness was highest in the upper-middle and high income groups, with an ORs of 1.47 (p=.001) and 1.61 (p=.06). These results suggest that a citizen in the upper-middle and high income groups are about 1.47 and 1.61 times as likely to be happy compared to those in the lowest-income group. Lastly, the 35 – 44 (OR=0.47, p=.001), 45–54 (OR=0.42, p=.001), and 55 and above (OR=0.52, p=0.04) years age groups were more likely to report being very happy compared to the reference category within the group. Considering the citizens' opinion about municipal services, the indicator variables such as public safety, amount of green areas, health/fitness center facilities, fire service and cemetery service were found statistically significant, that verifiying the hypotheses H5, H7, H9, and H18. These results suggest that compared with those participants who were not at all satisfied with municipal services, participants who were satisfied with services offered by the city including public safety (OR=1.77, p=0.001), amount of green areas (OR=1.85, p=0.05), health and fitness center facilities (OR=1.65, p=0.05), and cemetery service (OR=1.44, p=0.05) were more likely to being happy.

Similarly, in Ordu, the variables gender, marital status, age group, and income groups were significantly associated with happiness. Females are 0.49 times less likely to be happy compared to males (OR=0.49). Compared to single participants, the level of happiness was found to be 57% lower in married respondents (OR=0.57). As age group increases, the probability of being happy increases. If the income category is considered, a very significant relationship is observed with monthly income groups. For example, participants earned a monthly income between 1081 TL – 1550 TL were less likely to be happy compared to the reference category. Additionally, no significant relationship was found between educational attainment and happiness level. With respect to municipal services, of the variables assessing respondents' opinions about the services, the following municipal services were found as significant: garbage and environment waste collection, public safety, health and fitness center facilities, and fire service, which verifies the following hypotheses: H1, H5, H9, and H17. More specifically, those who reported being very satisfied with municipal services, such as garbage and environment waste collection (OR=0.49, p=.001), public safety (OR=0.53, p=.001), health and fitness center facilities (OR=0.27, p=0.10), and fire service (OR=0.34, p=0.10) were less likely to report being happy compared with those were not at all satisfied.

Table 5: *Odds ratios for happines obtained from the logistic regressions for each city analyzed*

	Trabzon	Ordu	Giresun	Gümüşhane	Rize	Artvin
Municipal service variables: Opinions about a city						
Garbage/environmental waste collection service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.89	0.04	0.69	0.95	0.46	0.53
Very Satisfied	1.17	0.49***	0.07	0.98	0.21	0.31
Sewage collection service (**ref**=Not at all satisfied)						
Moderately Satisfied	1.28	0.03	0.11	2.76	0.25	1.27
Very Satisfied	1.04	0.13	0.22	1.43	0.90	0.02
Quality of water service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.87	0.10	0.44	1.07	0.27	0.27
Very Satisfied	1.24	0.18	0.05	1.003	0.43	0.34
Public transportation service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.88	0.09	0.75	2.84	0.06	0.20
Very Satisfied	0.80	0.03	0.08	1.60	0.20	0.21
Public safety service (**ref**=Not at all satisfied)						
Moderately Satisfied	1.30	0.17	0.29	0.61	0.27	0.20
Very Satisfied	1.77***	0.53***	0.08	0.94	1.04***	0.40
Road/pavement construction service (**ref**=Not at all satisfied)						
Moderately Satisfied	1.29	0.06	0.24	1.13	0.33	0.41
Very Satisfied	1.10	0.06	0.07	0.93	0.004	0.68
Amount of green areas (**ref**=Not at all satisfied)						
Moderately Satisfied	1.85**	0.27	0.11	2.09	0.63	0.89
Very Satisfied	1.09	0.06	0.78***	0.69	0.58*	0.02
Quality of air pollution service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.92	0.10	0.52	0.58	0.56	1.97*
Very Satisfied	0.99	0.09	0.75***	1.85*	0.12	0.26
Health/fitness center facilities (**ref**=Not at all satisfied)						
Moderately Satisfied	1.65**	0.54	0.42	0.75	0.21	1.15
Very Satisfied	1.04	0.27*	0.31	1.07	0.45	0.85**
Zoning/inhabiting/licensing service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.73	0.10	0.04	0.36*	0.53	0.15
Very Satisfied	0.99	0.06	0.05	0.79	0.09	0.85
Arrangements for the disabled (**ref**=Not at all satisfied)						
Moderately Satisfied	0.93	0.11	0.33	0.41	1.22**	0.16
Very Satisfied	1.07	0.02	0.42	1.69	0.88***	0.06
Assistance service for patient/poor people (**ref**=Not at all satisfied)						
Moderately Satisfied	1.10	0.28	0.19	1.23	0.32	0.98
Very Satisfied	1.29	0.02	0.23	1.04	0.12	0.41
Exhibition, festival/concert service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.79	0.14	0.30	0.29*	0.32	0.18
Very Satisfied	1.13	0.07	0.12	0.84	0.12	0.32
Vocational training/manual skill events (**ref**=Not at all satisfied)						
Moderately Satisfied	1.26	0.28	0.73	2.91	0.39	1.01
Very Satisfied	1.10	0.30	0.41	1.20	0.42	0.42
Lighting service (**ref**=Not at all satisfied)						
Moderately Satisfied	1.21	0.28	0.39	5.99*	0.11	1.87**
Very Satisfied	0.84	0.19	0.26	0.50	0.17	0.66
Cleaning service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.84	0.11	0.06	1.02	0.73	0.06
Very Satisfied	1.03	0.06	0.42	1.60	0.15	0.02
Fire service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.56	0.68	0.49	1.008	1.42	0.40
Very Satisfied	0.42***	0.34**	0.49	1.05	0.10	0.01
Cemetery service (**ref**=Not at all satisfied)						
Moderately Satisfied	0.68	1.33	0.20	0.82	1.79*	0.32
Very Satisfied	1.44**	0.33	0.04	0.57	0.28	0.75
Street sign/exterior numbering service (**ref**=Not at all satisfied)						
Moderately Satisfied	1.07	0.15	0.03	1.64	0.23	1.96*
Very Satisfied	0.95	0.12	0.29	1.30	0.28	0.16
Inspection of food processing facilities (**ref**=Not at all satisfied)						
Moderately Satisfied	0.91	0.07	0.29	3.49*	1.13	0.54
Very Satisfied	1.16	0.23	0.58***	1.25	0.14	0.12

*p<0.05, **p<0.01, ***p<0.001

Table 5: *(continued)*

	Trabzon	Ordu	Giresun	Gümüşhane	Rize	Artvin
Citizen level variables: Socio−Demeographic variables						
Gender (**ref=**Male)						
Female	1.52***	0.49***	0.22	1.11	0.53***	0.52**
Marital Status (**ref=**not married)						
Married	2.57***	0.57***	0.99***	2.86*	0.72***	0.36
Widowed/Seperated	0.81	0.33	0.21	0.62	0.37	1.34***
Age group (**ref=**18−24)						
25 – 34	0.79	0.57***	0.36	0.47	0.46	0.12
35 – 44	0.47***	0.61***	0.70*	0.23**	0.61	0.41
45 – 54	0.42***	0.66***	0.82***	0.32*	1.10	0.56
55 +	0.52**	0.76***	0.23	0.38	0.46	0.05
Educational attainment **(ref** = no education)						
Primary school	1.87***	0.05	0.01	1.61	0.81	0.13
Secondary school	1.74*	0.33	0.44	0.96	0.28	0.39
High school	2.07***	0.16	0.08	1.33	0.19	0.45
College and above	2.37***	0.03	0.49	4.86**	0.38	0.08
Income groups **(ref=**0 TL – 1080 TL**)**						
1081 TL – 1550 TL	0.97	0.39***	0.005	1.61	0.16	0.11
1551 TL – 2170 TL	1.28	0.41***	0.10	1.59	0.07	0.01
2171TL – 3180 TL	1.47**	0.64***	0.06	1.64	0.12	0.66
3181 TL +	1.61*	0.75**	1.003	4.13**	0.61	0.41
LR chi2	163.35	174.52	109.68	79.24	142.07	79.25
Pseudo R^2	0.075	0.058	0.074	0.140	0.1091	0.0949
Number of observation	1,210	1,721	903	356	788	487

**p<0.05, **p<0.01, ***p<0.001*

In Giresun, of the socio-demographic characteristics examined in the analysis, only one variable, marital status, was significantly associated with the level of happiness. Compared to unmarried respondents, married respondents had lower odds ratio for happiness level (OR=0.99). Results of municipal services reveal that only three variables – amount of green areas (OR=0.78, p=.001), quality of air pollution service (OR=0.75, p=.001), and inspection of food processing facilities (OR=0.58, p=.001) – that affect citizens' satisfaction were observed statistically significant, which verifies hypotheses including H7, H8, and, H20. From this, subjects who were satisfied with qaulity of air pollution service were 0.75 times less likely to be happy than those who were not at all satisfied.

In case of Gümüşhane, marital status, age group, and educational attainment were significantly associated with happiness. Married respondents tended to be happier than unmarried respondents. Participants aged 35 to 44 years old were less likely than those aged 18 to 24 years old (OR=0.23). Similarly, participants aged 45 to 54 years old were less likely than those aged 18 to 24 years old (OR=0.32). According to income group, compared to those with monthly incomes over 3181 TL won, the level of happiness was 4.13 times more likely to be happy than in those with monthly incomes less than 1081 TL won (OR=4.13). Compared to uneducated participants, subjects with college degree or higher degree were more likely to be happy (OR=4.86). Of the municipal service aspects, facilities and features offered by municipal including quality of air pollution (OR=1.85, p=.10), zoning, inhabiting and licensing (OR=0.36, p=.10), exhibition, festival and concert (OR=0.29, p=.10), lighting (OR=5.99, p=.10), and inspection of food processing facilities (OR=3.49, p=.10) were found significant variables that impact happiness, which verifies hypotheses such as H8, H10, H13, H15, and H20.

In Rize, of the socio – demographic variables examined in the analysis, the variables being female (OR=0.53, p=.001) and married (OR=0.72, p=.001) has been found to be statistically significant. If the marital status category is considered, married respondents were less likely to be happy compared to not married respondents. Among the municipal services, public safety, amount of green areas, arrangements for the disabled, and cemetery service are statistically significant. Based on the above analysis, hypothesis 5, hypothesis 7, hypothesis 11, and hypothesis 18 are verified. Specificially, for those who were moderately satisfied with arrangements for the disabled more likely to be happy

(OR=1.22, p=.05), whereas for those were very satisfied less likely to be happy (OR=0.88, p=.001) compared to the reference category.

Lastly, in Artvin, considering the socio – demographic variables, gender, marital status and income group were significantly associated with the level of happiness. According to ORs, females (OR=0.52, p=.05) and those with monthly incomes between 2171 TL – 3180 TL (OR=0.66, p=.10) were less likely to be happy compared to the reference categories. Interestingly, widowed/seperated participants were 1.34 times more likely to be happier than those unmarried participants. With respect to city's facilities and features, the following services were found statistically significant: quality of air pollution (OR=1.97, p=.10), health and fitness center facilities (OR=0.85, p=.05), lighting (OR=1.87, p=.05), and street sign and exterior numbering (OR=1.96, p=.10), that proving hypothesis H8, hypothesis H9, hypothesis H15, and hypothesis H19. As the results in the table indicate, those participants who were moderately satisfied with quality of air pollution service, lighting service, and street sign and exterior numbering service were more happy than those who were not at all satisfied with these services. Conversely, compared with participants who were not at all satisfied with health and fitness center facilities, those who reported being very satisfied health and fitness center facilities were less likely to report being happy.

4. Concluding Remarks and Recommendations

The high quality of municipal services offered to the city residents support a higher level of happiness among its citizens. Similarly, if the city governments provided satisfactory municipal services, the perspectives held by people on such matters as trust, safety, and development would be changed. Thus, it is important to measure the level of happiness of the citizens who demand and use the service for these services in order to increase the satisfaction levels of the citizens and to provide a quality service (Çetinkaya et al., 2016: 1252).

The results of this study indicate that socio – demographic characteristics including gender, marital status, age group, educational level, and income group were significantly associated with happiness level for different cities. With respect to municipal services, happiness can be changed through garbage/environmental waste collection, air pollution quality, public safety, amount of green space, health/fitness center facilities, zoning/settlement/licensing, regulations for disabled people, lighting, fire, cemetery, street sign /exterior numbering and examination of food processing facilities. In this sense, these findings are consistent with the previous studies, such as Bozlağan (2004); Filiz, Yılmaz and Yağızer (2010); Göküş and Alptürker (2011); Aslan and Uluocak (2012); Menteşe (2013); Delice and Daştan (2015), and Dibek (2018).

The study findings suggest some important policies for the municipalities to improve their quality of services. First, since the happiness level of the residents are closely related to their living environment, the municipalities may design new technological platforms (i.e. new an app or a dashboard) that the residents can easily and instantly report the problems they face around the city. Second, the municipal officials may meet with the dwellers of the cities periodically to assess their attitudes and feelings about the services provided by the municipality.

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