

# **MEHMET KORKUT 2078194**

# FACTORS THAT AFFECT PRO-ENVIRONMENTAL BEHAVIOR OF GREEK CYPRIOTS

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#### **Abstract**

The main objective of this paper is to find the factors that affect the pro-environmental behavior of Greek Cypriots by using the Eurobarometer Survey 88.1. Logit regressions are used to test 6 hypotheses created based on previous studies. Results indicate that education level and age increases the probability of behaving pro-environmentally. Also, residents of small towns and cities are likely to behave more pro-environmentally than rural residents. Higher income classes also have a likelihood to behave more for some pro-environmentall behavior compared to lower middle income classes. For cities, respondents in Larnaca, Paphos and Famagusta show high probability on different types of pro-environmental behavior than respondents in Nicosia. On the other hand, respondents who are married or living with a partner behave more pro-environmentally than single respondents. Lastly, respondents who are not very satisfied with their lives and never using internet in a day tend to show different types of pro-environmental behavior.

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#### 1.Introduction

Over the last few decades, the exploitation of planet Earth and the degradation of the environment on the planet have gone up at an alarming rate and therefore the number of environmental problems has gone up as well. The solution to the environmental problems is based on individuals' attitudes and behaviors. An attitude is "a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols " (Hogg & Vaughan 2005, p. 150). Therefore, analyzing the effect of socially significant objects, groups etc. on persons' environmental beliefs, feelings or behavior is important in order to find a solution for the environmental problems. In other words, the change of people's actions towards the environment is not possible without the change of stereotype in their minds.

Cyprus is the third biggest island in the Mediterranean Sea and located between Turkey and Egypt. It has mediteranean climate which consists of dry-hot summers and warm-slightly rainy winters. However, the climate change is started to felt on the island. According to the report of The Cyprus Institute, an increase in extremely hot summer days and 10-15% reduction in rainfalls are expected between 2020 and 2050. Cypriots have to behave pro-environmentally otherwise Cyprus is going to be uninhabitable because of the extreme climatic conditions. The aim of this paper is to analyze the pro-environmental decision making of Cypriots or, to measure the effect of personal and social factors on pro-environmental decision making. There are several papers which studied this topic with different perspectives. However, there is no study done on Cyprus so that this research is going to be an addition to the literature.

Eurobarometer 88.1 (2017) by the European Comission is going to be used as a data source. The findings of the model indicates that increasing education level has a strong positive effect whereas age has a weak positive effect on the likelihood of different kinds of pro-environmental behavior. Also, an increase in income class increases the probability of behavior of different types of environmental behavior. Respondents who are married or living with a partner are likely to have a probability of behaving more pro-environmentally compared to single respondents. For residents, there is a strong probability that small town and urban citizens behave more pro-environmentally compared to rural citizens. In addition, citizens in touristical places such as Famagusta, Paphos and Larnaca are likely to show more pro-environmental behavior than citizens in Nicosia. In addition, there is a low probability that respondents who are not very satisfied with their lives and never using internet in a day tend to show different types of pro-environmental behavior compared to respondents who are satisfied with their lives and using internet eveyday.

The rest of the paper is structured as follows; the results of the previous studies on proenvironmental behavior and the hypotheses are presented in section 2. Then, the explanation of the data and variables is included in section 3. Descriptive statistics of the variables are also presented in this section. In section 4, the model used in the analysis and solutions to possible problems are explained followed by the presentation of results of the model and their interpretation. Lastly, section 5 presents a general overview of the study and policy recommendations.

#### 2.Literature Review

Pro-environmental purchasing behavior has been a popular topic in the last decade and many studies have been conducted by scholars. The studies on this topic have a wide range of approaches because there are many personal and social factors which affect people's behavior. Consequently, individual-level data that was collected by the Eurobarometer or other surveys from different years are used on the studies in order to analyze tpeople's attitudes and behaviors regarding the environment. In this section of the paper, different studies about proenvironmental behavior and attitude are presented. Firstly, papers studying the effect of education on pro-environmental behavior (PER) are presented. Secondly, papers analyzing the effect of gender on pro-environmental behavior are mentioned, followed by, studies related to the effect of age. Fourthly, studies regarding how living in urban or rural areas affects PER are mentioned. In the final part of the section, papers examining the relationship between marital status, the presence of children in the household and PER are mentioned.

#### **Education and PER**

Many papers found that education is positively correlated with PER. Meyer (2015) examined the effect of the twentieth century's educational reforms in Europe on environmental friendly behavior by using pooled data which consists of a two-wave Eurobarometer survey conducted in 2007 and 2011. Pro-environmental behaviors such as recycling waste, cutting down energy and water consumption, buying environmentally friendly products or environmental friendly traveling are used as the dependent variable. Two-stage least squares (2SLS) regression results showed that education has a large direct impact on PER: one additional year of education increases the number of pro-environmental behaviors by 8.3%. People who are more educated are more aware and more concerned about environmental problems. Similarly, Gifford &

Nilsson (2014) indicated that "making informed pro-environmental choices is difficult if one has incorrect or no knowledge" suggesting that the education type is also important, i.e, environmental attitudes also depend on which programs people are studying or have studied. For example, business and technology students are less concerned about the environment than students in other diciplines. In addition, Chankrajang & Muttarrak (2016) tried to answer the question, "Does schooling contribute to Pro-Environmental behaviors in Thailand?" According to their results, an increase in 1 year of schooling increases the probability of use of cloth bags by 5%, energy-saving light bulbs by 2.1% and energy efficient appliances by 7.7% in Thailand. Also, it decreases the probability of never using cloth bags by 6.7%, light-bulbs by 1.6% and energy-efficient appliances by 6.3%. Another study by Varoglu et al. (2017) investigated the environmental knowledge of 145 eighth grade students in North Cyprus and tries to find a correlation between environmental knowledge, attitudes, and behavior. Statistics showed that there is a significantly positive correlation between them but the correlation coefficient is not high. It can be said that environmental attitude has a stronger relationship with environmental knowledge than with environmental behavior. Therefore, Varoglu et al. (2017) claimed that improving the curriculum at secondary education will lead to higher environmental behavior and attitudes among students. On the other hand, Grenstdad & Wollebaek in 1998, found that education did not lead to PER behavior in Norway. This result can be supported by Rhead's (2015) research. Higher educated people with higher incomes cannot assimilate environmental information. Since the majority of the studies find a positive effect, I also expected to find a positive effect in Cyprus.

The first hypothesis is as follows:

H1: Education has a positive effect on pro-environmental behavior.

#### **Gender and PER**

Even though some studies found that there are no clear gender differences in environmental attitudes and behaviors, in their review paper, Gifford & Nilsson (2014) stated from recently emerged researches that women have stronger environmental attitudes, behavior and concern than men. It can be explained by personality effect on genders' behaviors. For instance, being agreeable, which is more conspicuous of women's personal traits, affects pro-environmental behavior in a positive way. Many patterns of personality were used to explain the gender differences in this issue. Moreover, Paço & Rodrigues (2016)'s findings supported this idea. Regression results showed that women exhibit a significantly higher environmental responsibility than men among Portugueses who are 18 years old or older in 2014. Similarly, findings of Casalo & Escario (2017) showed that Spanish women behave more proenvironmentally than Spanish men. On the other hand, Marie-Line & Maja (2008) conducted two survey studies in France and Great Britain in order to analyze the adherence and knowledge of pro-ecological norms. In the first study, gender differences in France cannot be observed. In contrast, in the other one, they found that although both of the genders are aware of the social desirability, women have a stronger normative adherence than men to pro-environmental ideas. Therefore, it should be noted from this study that gender differences are not always found in studies. Because most of the studies found a positive relationship between education and PER, it is also expected to find a positive relationship in Cyprus.

The second hypothesis is as follows:

H2: Women behave more pro-environmentally than men.

#### Age and PER

It is difficult to draw a general conclusion about the effect of age on pro-environmental behavior from the past studies because some papers found that old people care about the environment wheras other papers suggest the opposite. Gifford & Nilsson (2014) review different studies on the relationship between age and pro-environmental behavior. One study suggested that older people show more pro-environmental behavior than younger people. This is explained by the effect of historical events or "cohort effect" in the article. The Great Depression in the 1930s and Second World War in 1940s had a great impact on older people. Limited resources and the attitude of protection on those times have increased people's concerns about the environment. In addition, according to a study by Casaló & Escario (2017), there exists a positive relationship between age and pro-environmental behavior. This results can be explained by trust on technology: Young people may think that technological developments will take care of environmental problems so that there is no need to be concerned about it. However, most studies found that younger people are more environmentally concerned than older people. The findings can be explained by the "true age effect" and the "era effect". True age effect is the possibility that people become less concerned about the environment when they get older. The reason for that can be the change in attitudes when people are getting close to death. Mostly religious old people think that if they harm the environment, god will punish them after death. On the other hand, era effect arises from the change in social-political climate over the years. Changing situations may make people less concerned about the environment. Thus, they may behave less pro-environmentally. For example, people behave less pro-environmentally in economic recession or war times. Since there was a war in 1974, it is expected older Cypriots to behave more pro-environmentally than younger ones because of the cohort effect.

The fourth hypothesis is as follows:

*H3* : *Older people behave more pro-environmentally than young people.* 

#### Region (Urban-rural) and PER

Despite the fact that some people think that people who live in rural areas behave more proenvironmentally than people live in urban cities, Chen et al. (2011) indicated that urbanized
people are more likely to engage in pro-environmental behaviors in China, especially highly
educated young people. Similarly, Gifford & Nilson (2014) mentioned a study that reported
the urbanized German people's committement to the environmental issues. They are more
committed to the environmental issues than people who live in rural areas of Germany. Another
study stated that although Norwegian farmers want to protect the environment, they put their
interests ahead of nature's interest. On the other hand, Hinds & Sparks (2008) mentioned that
British people with rural backgrounds show a more positive attitude towards the environment
than people with urban backgrounds. As the Republic of Cyprus mostly consists of rural areas,
most people have a direct relationships with nature. Therefore, it is expected that rural residents
behave more pro-environmentally than urban residents.

The fourth hypothesis is as follows:

H4: Rural residents behave more pro-environmentally than urban residents.

#### Marital Status, presence of children in the household and PER

Chen et al. (2011) found that single respondents behave more pro-environmentally than married respondents in China. When it can be considered that single respondents are generally younger than married ones, the authors noted that the effect of marital status over age may be because of time constraints on pro-environmental behavior which is forced by family responsibilities. Furthermore, Garcia-Valinas et al. (2011) 's results showed that the "never married" status has

significantly positive effect on environmental engagement in both Western and Eastern Europe.

On the other hand, Ergun & Rivas (2019) mentioned in Turkey that people with a child worry

more about climate change. Beckmann (1993) 's findings supported this idea. Parents with

larger families are likely to have children in school where environmental issues are discussed

so that they feel pressure to meet their children's socially conscious behavior. Therefore, they

behave more pro-environmentally. Besides, married females who are home-makers show more

concern about climate change. However, despite the two opposite results mentioned above,

Diamontopoulos et al. (2003) found no difference between married and single people in terms

of environmental knowledge. Since most of the studies found that single people and people

with children behave more pro-environmentally, I also expected to find the same results for the

Cyprus case.

The sixth and seventh hypothesises are as follows:

*H5*: Single people behave more pro-environmentally than married people.

*H6*: *People with children behave more pro-environmentally than others.* 

#### 3. Data and Variables

3.1 Data

The dataset used in this paper is the EUROBAROMETER 88.1 which was retrieved from

GESIS Data Catalogue. It was collected through face-to-face or face-to-face computer-assisted

personal interview by CYMAR at the request of the Directorate-General for Communication

"Media monitoring and analysis" Unit between 23 September and 2 October 2017. It covers

28 countries and includes categories which are international institutions, relations and

conditions, political issues, political attitudes and behavior, society and culture, natural

environment and nature. The minimum age of the respondents is 15 years old. The number of

12

interviews is around 1000 for the most of the countries. However, it is 501 for the Republic Of Cyprus.

### 3.2 Dependent Variable

The dependent variable differs for each logit model. It is an index which is created by adding the respondents' multiple answers to the question: "Have you done any of the followings in the past six months?". The answers takes value 1 if respondent did the action, and 0 otherwise it is 0. The selectional answers are: 1) "chosen a more environmentally-friendly way of travelling (walk, bicycle, public transport, electric car)", 2) " avoided buying over-packaged products", 3) " avoided single-use plastic goods other than plastic bags (e.g. plastic cutlery, cups, plates, etc.) or bought resuable plastic goods, 4) " seperated most of your waste for recyling", 5) "cut down your water consumption", 6) " cut down your energy consumption (e.g. by turning down air conditioning or heating, not leaving appliances on stand-by, buying energy efficient appliances), 7) " bought products marked with environmental label", 8) " bought local products", 9) " used your car less by avoiding unnecessary trips, working from home (teleworking), etc. ". In addition to the nine selectional answers above, "none" and "don't know" are also selectional. Respondents who chose "none" are included as zero in the index. One respondent who chose "don't know" was eliminated from the dataset.

Firstly, an index which consists of the addition of all answers is used as a dependent variable in ordered logit model. Secondly, an index named **eco\_travel** which contains answers of question 1 and 9 is used for logit model 1. Thirdly, an index named **eco\_purchase products** which includes answers of question 2, 3, 7 and 8 is used for logit model 2. Fourthly, an index

named **recycling** contains the answer of question 4 is used for logit model 3. Finally, an index named **w\_e\_consumption** includes answers of question 5 and 6 is used for logit model 4.

The distribution of the dependent variable is shown in **Table-1**.

Table 1 : Distribution of the dependent variable

Index	Frequency	Percentage
0	67	13.4
1	94	18.9
2	107	21.4
3	106	21.2
4	66	13.1
5	34	6.9
6	14	2.9
7	5	1.1
8	5	0.9
9	1	0.2
Total	500	100.00

### 3.2 Explanatory Variables

Sociodemographic variables such as age, education level, marital status, having children, income class, gender, district, type of community and other variables such as internet use and

life satisfaction are used as explanatory variables. All independent variables are qualitative variables except age which is a quantitative variable. Dummy variables are created for qualitative variables. In addition, respondents who chose "do not know" or " refusal" in the questions were eliminated from the dataset.

Firstly, education is measured by the age which respondents stopped full-time education in the main dataset. Therefore, "Age of stopping full-time education – 6" is used in order to calculate the education years of respondents. Four dummy variables are created for the education. Respondents' whose educational years are between 0 and 9 are counted as primary/secondary school. In addition, respondents whose educational years are between 9 and 13 are counted as high-school. Then, respondents whose educational years are above 13 are counted as university/master/phd.

Secondly, lower-middle, middle and upper-middle income classes are created in order to observe the environmental behavior of different income classes. While doing this, working class and lower-middle class are combined due to their low frequencies. Also, upper-middle class and high class are combined due to the same reason.

Thirdly, marital status and having children or not are included to the data by asking the current situation of respondents. The possible answers to the question consist of 4 categories which are married, single but living with a partner, single and widow/divorced. Therefore, married and single but living with a partner are combined and three dummy variables are created for the marital status. Also, there are answers including having children or not in these categories. Combaining the answers, I noted a dummy variable that shows if the respondent has a child or not.

Fourthly, the district where the respondent lives is included. The districts are Nicosia, Larnaka, Famagusta, Limassol and Paphos.

Fifthly, urban, rural and small town dummy variables are created to see if rural residents behave more pro-environmentally than urban residents. Sixthly, gender variable men is created in order to find which of the genders are behaving pro-environmentally. Seventhly, the age varibale is used to check the relationship between the age of the respondents and his/her pro-environmental behavior. Apart from socio-demographic variables, life satisfaction and internet usage are used even though any paper regarding the relationship between PER and them was not found. Life satisfaction of respondents is measured as; satisfied, not very satisfied, and not at all satisfied. Lastly, internet use of the respondents is measured as; using everyday, using often and using never. The description of the explanatory variables is shown in **Table-2a**.

Table 2a: Descriptions of explanatory variables

Age	Age of the respondents
Men	Takes value 1 if the respondent is coded as 1
Lowermiddle income class	Takes value 1 if the respondent answered as working class or lower-middle
	class of the society when asked: "do you see yourself and your household
	belonging to?"
Middle income class	Takes value 1 if the respondent answered as middle-class of the society
	when asked: "do you see yourself and your household belonging to?"
Uppermiddle income class	Takes value 1 if the respondent answered as upper-middle or high class of
	the society when asked: "do you see yourself and your household
	belonging to?"
Primary_secondary school	Takes value 1 if the respondent studied less than 9 years
High school	Takes value 1 if the respondent studied between 9 and 13 years

University_master_phd	Takes value 1 if the respondent studied more than 13 years
Household_with_child	Takes value 1 if the respondent answered as single or multiple household
	with children
Household_without_child	Takes value 1 if the respondent answered as single or multiple household
	without children
Single	Takes value 1 if the respondent is single
Married_partner	Takes value 1 if the respondent is married or is single but living with a
	partner
Divorced	Takes value 1 if the respondent is divorced or widow
Nicosia	Takes value 1 if the district is coded as 1
Limassol	Takes value 1 if the district is coded as 2
Larnaca	Takes value 1 if the district is coded as 3
Paphos	Takes value 1 if the district is coded as 4
Famagusta	Takes value 1 if the district is coded as 5
Rural	Takes value 1 if the type of community is coded as 1
Small_town	Takes value 1 if the type of community is coded as 2
Urban	Takes value 1 if the type of community is coded as 3
Internet_usage_everyday	Take value 1 if the respondent is using internet everyday
Internet_usage_often	Takes value 1 if the respondent is using internet often
Int_usage_never	Takes value 1 if the respondent is not using internet
Life_very_satisfied	Takes value 1 if the respondent is very satisfied with his/her life
Life_not_very_satisfied	Takes value 1 if the respondent is not very satisfied with his/her life
Life_not_all_satisfied	Takes value 1 if the respondent is not all satisfied with his/her life

Table 2b : Descriptive statistics of variables

	N	Minimum	Maximum	Mean	Std. Deviation
index_dependent	500	0	9	2,46	1,744
age	500	15	90	45,01	18,762
men	500	0	1	,48	,500
women	500	0	1	,52	,500
Lowermiddle income class	488	0	1	,42	,494
Middle income class	488	0	1	,54	,499
Uppermiddle income class	488	0	1	,04	,200
primary_secondary school	449	0	1	,20	,397
High school	449	0	1	,45	,498
university_master_phd	449	0	1	,31	,465
Household_with_child	500	0	1	,35	,478
Household_without_child	500	0	1	,54	,499
Nicosia	500	0	1	,39	,489
Limassol	500	0	1	,32	,466
Larnaca	500	0	1	,13	,336
Paphos	500	0	1	,12	,319
Famagusta	500	0	1	,04	,206
single	500	0	1	,14	,345
married_partner	500	0	1	,75	,434
divorced	500	0	1	,11	,318
rural	500	0	1	,37	,484
small_town	500	0	1	,30	,457
urban	500	0	1	,33	,471
Internet_usage_everyday	500	0	1	,67	,472
Internet_usage_often	500	0	1	,10	,295
Internet_usage_never	500	0	1	,15	,362

life_very_satisfied	500	0	1	,90	,305
life_not_very_satisfed	500	0	1	,09	,279
life_not_all_satisfied	500	0	1	,02	,123
Valid N (listwise)	441				

#### 4. Results

1 ordered and 4 different logit models are used for the estimation. All variables used in the regression are adjusted by using the weight from Eurobarometer 88.1 to correct the sample.

Results of 4 different logit models are presented in **Table-3**. Robust logit regression is used in order to deal with heteroskedasticity. Also, there is no multicollinearity between the explanatory variables because none of the VIF values is above 5 (see appendix 1b).

Reference categories are: women, lowermiddle-income class, primary\_secondary school, household\_with\_child, Nicosia, single, rural, internet\_usage everyday and life\_very\_satisfied

Before the interpretation of 4 logit models, extreme results of the ordered logit model will be interpreted. Based on results of ordered logit model ( **Appendix 1a**), it can be said that age decreases the probability of behaving pro-environmentally by 0.01 % for the respondents who do not behave pro-environmentally in general ( index number 0 and 1 ). On the other hand, age increases the probability of behaving pro-environmentally for the higher groups ( index number 4 and 5) by 0.05-0.07 %. Therefore, it has a ineffectual effect. In addition, the highest probability that upper-middle and high income classes behave more pro-environmentally than lower-middle income class is 0.048. In a same way, the probability that upper-middle and high

income classes behave less pro-environmentally than lower-middle income class is 0.074. For education, the probability of pro-environmental behavior of university-master-phd graduates more than primary-secondary school graduates is 0.084 at most. Inversly, the probability of the opposite situation can be at most 0.013. Furthermore, highest probabilities that respondents are Larnaca, Paphos and Famagusta behave more pro-environmentally than respondents in Nicosia are 0.069, 0.047 and 0.0117. Inversly, probabilities that respondents in Larnaca, Paphos and Famagusta behave less pro-environmentally than respondents in Nicosia are increased by 10.6%, 7.2% and 2.4%. On the other hand, the likelihood of respondents who are married or living with a partner behaving more pro-environmentally than single respondents is increased by 5 % at most. Also, the likelihood of opposite situation can be increased by 7.8% at most. Meanwhile, the probability of the environmental behavior of small town and uran residents more than rural residents can be increased by 6.11 % at most. However, the probability of the environmental behavior of small town and uran residents less than rural residents can be increased by 9.4% at most. Lastly, the probability that respondents who are not very satisfied with their lives behave more pro-environmentlly than respondents who are very satisfied with their lives is 0.038.

**Table 3: Regression results of logit models** 

Dependent variable	Model eco_travel	1	Model eco_purchase	2 products	Model recycling	3	Model w_e_consumption	4
•					• 0			
Independent variable	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect	p-value	Marginal Effect
age	0.006	0.003	0.557	-0.0009	0.088	0.002	0.327	0.001
men	0.530	-0.209	0.567	0.025	0.115	-0.065	0.694	-0.018
middle	0.008	-0.100	0.410	0.041	0.689	0.018	0.944	-0.003
uppermiddle	0.298	-0.068	0.050	0.259	0.396	0.106	0.951	0.07
high	0.000	0.174	0.033	0.121	0.005	0.149	0.599	0.032
uni_master_phd	0.000	0.302	0.005	0.200	0.000	0.288	0.660	0.033
hh_child	0.33	-0.351	0.740	-0.017	0.631	-0.0241	0.679	0.022
Limassol	0.838	0.008	0.397	-0.043	0.032	0.112	0.479	-0.04
Larnaca	0.018	0.124	0.001	0.233	0.123	0.102	0.402	0.062
Paphos	0.036	0.143	0.001	0.332	0.787	0.0211	0.153	-0.127
Famagusta	0.112	0.143	0.003	0.357	0.001	0.341	0.001	0.512
married_partner	0.068	0.188	0.037	0.205	0.683	0.043	0.253	0.126
divorced	0.195	0.150	0.095	0.182	0.946	-0.008	0.829	0.027
small_town	0.026	0.099	0.755	0.018	0.000	0.293	0.021	0.138
urban	0.000	0.175	0.993	0.0005	0.000	0.192	0.066	0.112
Int_often	0.804	0.013	0.305	0.079	0.573	-0.03	0.641	-0.036
Int_never	0.241	0.049	0.058	0.102	0.677	-0.02	0.753	-0.018
L_not_very_satisfied	0.688	0.023	0.048	0.142	0.755	-0.02	0.746	-0.025
L_not_all_satisfied	0.350	0.121	0.770	0.061	0.710	-0.07	0.974	-0.005

Firstly, based on the results of **Model 1** (environmentally way of travelling), age increases the probability of using environmentally way of travelling by 0.3%, holding else constant. Being a middle-income class decreased the probability of using environmentally way of travelling by 10% compared to being lower middle income class. Moreover, being a high school and

university-master-phd graduate increased the probability of environmentally travelling by 17.4 and 30.2 %, compared to being primary-secondary school graduate. In addition, living in Larnaca and Paphos increases the probability of choosing environmentally way of travelling by 12.4% and 14.3% respectively, compared to living in Nicosia. For marital status, being married or living with a partner increases the likelihood of choosing environmentally way of travelling by 18.8%. Also, living in a small town and urban increases the probability of choosing environmentally way of travelling by 9.9% and 17.5% respectively, compared to living in rural areas.

Secondly,based on the results of **Model 2** (showing environmental purchasing behavior), being an upper-middle income class increases the probability of showing environmental purchasing behavior by 25.9%, compared to being a lower-middle income class. For education, , being a high school and university-master-phd graduate increased the probability of showing environmental purchasing behavior by 12.1% and 20% respectively, compared to being primary-secondary school graduate. In addition to that, living in Larnaca, Paphos and Famagusta increases the likelihood of showing environmental purchasing behavior by 23.3%, 33.2% and 35.7%, compared to living in Nicosia. On the other hand, being a married or living with a partner and divorced increases the probability of showing environmental purchasing behavior by 20.5% and 18.2%, compared to being single. For internet usage, never using internet increases the probability of showing environmental purchasing behavior by 10.2%, compared to using internet everyday. Being not very satisfied with life also increases the likelihood of showing environmental purchasing behavior by 14.2% compared to being fully satisfied with life.

Thirdly, based on the results of **Model 3** (recycling), age increases the probability of recycling by 0.2% at the 8.8% significance level, holding else constant. On the other hand, being a high school and university-master-phd graduate increases the likelihood of recycling by 14.9% and

28.8% respectively compared to being a primary-secondary school graduate. If we look at the districts of Cyprus, it can be seen that living in Limassol and Famagusta increases the probability of recycling by 11.2% and 34.1% severally compared to living in Nicosia. Also, being a resident in small towns and urban cities increases the likeliness of recycling by 29.3% and 19.2% compared to being a resident in rural areas.

Lastly, based on the results of **Model 4** (cutting down water and energy consumption), living in Famagusta increases the likelihood of cutting down water and energy consumption by 51.2% compared to living in Nicosia. In addition to that, being a resident in small towns increases the probability of cutting down water and energy consumption by 13.8% whereas being a resident in urban cities increases the likelihood by 11.2%, compared to being a resident in rural areas. It is clearly seen that when education level increases the probability of behaving proenvironmentally in terms of travelling, purchasing and recycling increases. Thus, Hypothesis 1 is supported due to evidence from Model 1,2 and 3. However, an evidence cannot be found to support or reject *Hypothesis 2* due to statistical insignificance of the coefficients in all models. In addition, *Hypothesis 3* is supported by the findings of **Model 1** and **3**. Therefoe, age has a small effect on the likelihood of behaving pro-environmentally on travelling and recycling. Hypothesis 4 is rejected due to findings of **Model 1,3** and **4**. It can be said that urban residents behave more pro-environmentally in terms of travelling, recycling and water-energy consumption than rural residents. Hypothesis 5 is also rejected by the findings of Model 1 and 2. The probability that married people behave more pro-environmentally than single people in terms of pro-environmentally travelling and purchasing behavior is almost 10%. Lastly, there is no statistically significant evidence found to neither support nor reject the *Hypothesis* 6.

#### 5. Conclusion

This study measures the pro-environmental behavior of the Greek Cypriots by using the Eurobarometer 88.1 which is collected in 2017. Logit regressions are used to measure the level of pro-environmental behavior of respondents.

Evidence from different logit models is found to support *Hypothesis 1* (Education has a positive effect on pro-environmental behavior). It was expected to find such a connection between education and pro-environmental behavior and the result is in line with Meyer(2015), Chankrajang & Mutarrak (2016) and Varoglu et al. (2017). On the other hand, no statistical evidence is found to neither support *Hypothesis* 2 (Women behave more pro-environmentally than men ) nor reject it. Hypothesis 3 (Older people behave more pro-environmentally than young people ) is supported due to findings of Model 1 and 3 which includes age variable at 8.8 percent significance level. The result is in line with the cohort effect in the paper of Gifford & Nilson (2014). In addition, the evidence is against *Hypothesis 4* (Rural residents behave more pro-environmentally than urban residents ). This result is in line with Chen et al. (2011) and Gifford & Nilson (2014). Moreover, Hypothesis 5 (Single people behave more proenvironmentally than married people ) is not supported since the results show the opposite, i.e that Cypriots who are married or living with a partner behave more pro-environmentally than single ones. Thus, it can be said that this result clashes with most of the findings of the literature. Unfortunately, Hypothesis 6 (People with children behave more pro-environmentally than others ) is also not rejected or supported due to statistical insignificance of coefficients. In addition, other results of the models indicate that there is a high probability that respondents in Larnaca, Paphos and Famagusta behave more pro-environmentally than respondents in Nicosia. Also, there is a low probability on the facts that internet usage and life satisfaction level decreases the pro-environmental purchasing behavior.

Since the effects of environmental problems have been increasing in a strong way, there should be some policies done by the government to reduce the effect of these problems. Based on my findings, as a policy recommendation, the concept of "environmental issues" should occupy a more important place in the education system and people should be encouraged to complete at least high school. Also, I think there should be more environmental indicators and supervision around the Nicosia area because touristic cities like Larnaca are better at pro-environmental behavior. On the other hand, I think there should be more supervision in farming sector around the villages because the results of the model indicate that rural residents behave less proenvironmentally than other residents. This might be because of the harmful substances used by farmers which damage the ecolocigal balance of the environment.

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#### **APPENDIX**

#### Appendix 1a-Results of the Ordered logit and 4 logit models (Stata Output)

```
log pseudolikelihood = -914.97874
Iteration 0:
Iteration 1:
                             log pseudolikelihood = -866.70229
Iteration 2:
                              log pseudolikelihood = -865.93877
Iteration 3:
                             log pseudolikelihood = -865.93787
Iteration 4: \log pseudolikelihood = -865.93787
                                                                                               Number of obs = Wald chi2(19) = Prob > chi2 =
Ordered logistic regression
                                                                                                                                             121.05
                                                                                               Prob > chi2
                                                                                                                                               0.0000
Log pseudolikelihood = -865.93787
                                                                                               Pseudo R2
                                                                                                                                               0.0536
                                                                         Robust.
                                                      Coef. Std. Err.
                                                                                                    z P>|z|
                                                                                                                                   [95% Conf. Interval]
         index dependent |
_____
                               age | .0105 .0062581 1.68 0.093 -.0017656

men | -.1327885 .1771923 -0.75 0.454 -.480079

iddle | .021467 .2108367 0.10 0.919 -.3917654

iddle | .7065665 .4090412 1.73 0.084 -.0951396
                                                                                                                                                           .214502
                 middle | .021467 .2108367 0.10 0.919

uppermiddle | .7065665 .4090412 1.73 0.084

high | .7064694 .2312101 3.06 0.002

i_master_phd | 1.242945 .2790307 4.45 0.000

hh_child | -.1090427 .2262382 -0.48 0.630
                                                                                                                                                            .4346994
                                                                                                                                                            1.508273
                                                                                                                                 .2533059
                                                                                                                                                           1.159633
                                                                                                                                  .6960549
            uni master phd |
                                                                                                                                 -.5524613
                                                                                                                                                            .334376
                       Limassol | .0315058 .208626 0.15 0.880 -.3773935

Larnaca | 1.017662 .2918216 3.49 0.000 .4457021

Paphos | .691063 .3852851 1.79 0.073 -.0640819
                                                                                                                                                            .4404052
                                                                                                                                                            1.589622
                                                                                                                                                            1.446208
                                                                     .3254409
                                                                                              7.04 0.000 1.652472
2.29 0.022 .106388
                                                 2.290325
                      Famagusta |
                                                                                                                                                            2.928177
                    Famagusta | 2.250220 | 2.29 0.022 | 100500 | 2.29 divorced | 3669752 3757602 0.98 0.329 -3695011 | 2.285266 4.15 0.000 .5014603 | 2.285266 4.15 0.000 .4558042 | 2.252314 3.98 0.000 .4558042 | 2.252314 2.252318 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.26238 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.262338 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 2.26238 | 
                                                                                                                                                            1.380537
          married partner |
                                                                                                                                                        1.103452
                                                                                                                                                            1.397268
                                                                                                                                                           1.338695
                     int_often | .1306036 .2821182
int_never | -.0290556 .229802
                                                                                              0.46 0.643
-0.13 0.899
                                                                                                                                                           .6835452
                                                                                                                                 -.4794591
                                                                                                                                                              .421348
1_not_very_satisfied | .5682681 .2937644 1.93 0.053
                                                                                                                                                           1.144036
                                                                                                                                 -.0074995
 l_not_all_satisfied | .1741234 .4655303
                                                                                               0.37 0.708
                                                                                                                                 -.7382991
                                                                                                                                                           1.086546
                              /cut1 | .667653 .4310921
                                                                                                                                    -.177272 1.512578
                                                                       .4298578
                              /cut2 |
                                                 1.832655
                                                                                                                                    .9901492
                                                                                                                                                            2.675161
                              /cut3 | 2.830661
                                                                     .4420562
                                                                                                                                    1.964247
                                                                                                                                                          3.697075
                              /cut4 |
                                                3.906889
                                                                         .460514
                                                                                                                                    3.004298
                                                                                                                                                             4.80948
                                                                     .4683775
                                                                                                                                    3.967785
                                                 4.885788
                                                                                                                                                            5.803791
                              /cut5 L
                                                                     .4924765
                              /cut6 |
                                               5.793967
                                                                                                                                    4.828731
                                                                                                                                                            6.759203
                              /cut7 |
                                                  6.538269
                                                                                                                                   5.545414
                                                                                                                                                            7.531125
                              /cut8 |
                                                7.330048 .5791641
                                                                                                                                    6.194907
                                                                                                                                                            8.465188
                              /cut9 | 8.607098 .7860059
                                                                                                                                   7.066555
                                                                                                                                                          10.14764
______
. *marginal effects.
 . margins, dydx(*) predict(outcome(0))
Average marginal effects
                                                                                                                                                     471
                                                                                                Number of obs
Model VCE
                         : Robust
                         : Pr(index dependent==0), predict(outcome(0))
Expression
dy/dx w.r.t. : age men middle uppermiddle high uni_master_phd hh_child Limassol
Larnaca Paphos
                              Famagusta married_partner divorced small_town urban int_often int_never
                              l not very satisfied l not all satisfied
```

Delta-method dy/dx Std. Err. z P>|z| [95% Conf. Interval] ·-----uni\_master\_phd | -.1306643 .0311349 hh child | .0114631 .0237355 Limassol | -.003312 .02197 -4.20 0.000 0.48 0.629 -.069641 .0579838 -.1916875 -.0350576 -0.15 0.880 -.0463725 .0397484 .0313022 Larnaca | -.1069814 Paphos | -.0726478 -3.42 0.001 -1.78 0.075 -.1683326 -.0456303 -.1525917 .0072961 Famagusta | -.2407698 .0417818 married\_partner | -.0781563 .0337434 divorced | -.0385782 .0392015 -5.76 0.000 -.3226606 -.1588789 -.144292 -2.32 0.021 -.0120205 -0.98 0.325 -.1154118 .0382554 .0262842 small\_town | -.0998017 urban | -.0943231 -3.80 0.000 -3.82 0.000 -.1513177 -.0482856 -.1427486 -.0458977 .0442813 -0.46 0.643 int often | -.0137297 .029598 -.0717406 int\_never | .0030545 .0241275 l\_not\_very\_satisfied | -.059739 .0311043 0.13 0.899 -1.92 0.055 -.0442345 .0503435 -.1207024 .0012243 l\_not\_all\_satisfied | -.0183047 .0489954 -0.37 0.709 -.1143339 .0777245

. margins, dydx(\*) predict(outcome(1))

Average marginal effects Number of obs = 471

Model VCE : Robust

Expression : Pr(index\_dependent==1), predict(outcome(1))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

Famagusta married\_partner divorced small\_town urban int\_often int\_never  ${\tt l\_not\_very\_satisfied~l\_not\_all\_satisfied}$ 

	1		Delta-method				
	Ĺ	dy/dx	Std. Err.	Z	P> z	[95% Conf.	Interval]
	+-						
age		0008547	.0005181	-1.65	0.099	0018702	.0001609
men		.010809	.0144316	0.75	0.454	0174764	.0390944
middle		0017474	.0171614	-0.10	0.919	0353831	.0318883
uppermiddle		0575145	.033733	-1.70	0.088	1236299	.008601
high		0575066	.0186699	-3.08	0.002	094099	0209142
uni master phd		1011756	.0227587	-4.45	0.000	1457819	0565694
hh_child		.0088761	.0184036	0.48	0.630	0271943	.0449464
Limassol		0025646	.0169809	-0.15	0.880	0358465	.0307174
Larnaca		0828376	.025038	-3.31	0.001	1319113	033764
Paphos		0562525	.0313554	-1.79	0.073	1177079	.005203
Famagusta		1864323	.0301515	-6.18	0.000	2455281	1273365
married_partner		0605178	.0270789	-2.23	0.025	1135914	0074441
divorced		0298718	.0308254	-0.97	0.333	0902883	.0305448
small_town		0772782	.0191503	-4.04	0.000	1148121	0397443
urban		0730361	.0185565	-3.94	0.000	1094061	0366661
int_often		0106311	.0230453	-0.46	0.645	0557991	.0345369
int_never		.0023651	.0187366	0.13	0.900	0343579	.0390881
l_not_very_satisfied		046257	.024166	-1.91	0.056	0936215	.0011075
l_not_all_satisfied		0141736	.037879	-0.37	0.708	0884151	.0600678

. margins, dydx(\*) predict(outcome(2))

Number of obs = 471 Average marginal effects

Model VCE : Robust

Expression : Pr(index dependent==2), predict(outcome(2))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

 ${\tt Famagusta\ married\_partner\ divorced\ small\_town\ urban\ int\_often\ int\_never}$ l not very satisfied l not all satisfied

	'	Delta-method Std. Err.	P> z	[95% Conf.	Interval]
=					.0000973

middle uppermiddle high uni master phd hh_child Limassol Larnaca Paphos Famagusta married partner divorced small_town urban int often		0006624 0218013 0217983 0383514 .0033645 0009721 0314002 0213229 0706686 0229397 0113231 0292929 0276849 0040298	.0064971 .0124409 .0092023 .0125911 .007076 .0064097 .0118424 .0130095 .0174009 .012093 .0123132 .0092091 .0097908	-0.10 -1.75 -2.37 -3.05 0.48 -0.15 -2.65 -1.64 -4.06 -1.90 -0.92 -3.18 -2.83	0.919 0.080 0.018 0.002 0.634 0.879 0.008 0.101 0.000 0.058 0.358 0.001 0.005	0133964 0461851 0398344 0630296 0105041 013535 0546109 0468211 1047738 0466416 0354565 0473425 0468744 0212369	.0120717 .0025825 0037622 0136732 .0172332 .0115907 0081896 .0041752 0365635 .0007621 .0128103 0112434 0084954
_	İ						
int_never l not very satisfied l_not_all_satisfied		.0008965 0175341 0053726	.0071054 .0095347 .0143297	0.13 -1.84 -0.37	0.900 0.066 0.708	0130298 0362218 0334584	.0148229 .0011536 .0227131

. margins, dydx(\*) predict(outcome(3))

Average marginal effects Number of obs = 471 Model VCE : Robust

Expression : Pr(index\_dependent==3), predict(outcome(3))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

Famagusta married\_partner divorced small\_town urban int\_often int\_never l\_not\_very\_satisfied l\_not\_all\_satisfied

	I		Delta-method				
	i	dy/dx	Std. Err.	Z	P> z	[95% Conf.	Intervall
	+-						
age		.0004381	.0002725	1.61	0.108	000096	.0009722
men		0055405	.0073599	-0.75	0.452	0199657	.0088846
middle		.0008957	.0088032	0.10	0.919	0163583	.0181497
uppermiddle		.0294812	.0186398	1.58	0.114	0070522	.0660146
high	1	.0294772	.0098516	2.99	0.003	.0101683	.048786
uni master phd	1	.0518614	.0134168	3.87	0.000	.0255649	.0781579
hh child	1	0045498	.0093763	-0.49	0.628	022927	.0138275
Limassol		.0013146	.0087628	0.15	0.881	0158602	.0184893
Larnaca		.0424615	.0145516	2.92	0.004	.013941	.0709821
Paphos		.0288343	.0166132	1.74	0.083	0037269	.0613956
Famagusta	1	.0955629	.0221814	4.31	0.000	.0520882	.1390376
married partner		.0310207	.0136951	2.27	0.024	.0041787	.0578627
divorced		.0153119	.0156312	0.98	0.327	0153246	.0459484
small town		.0396118	.0111126	3.56	0.000	.0178316	.0613921
urban		.0374374	.0098407	3.80	0.000	.0181501	.0567247
int often		.0054494	.0118613	0.46	0.646	0177983	.0286971
int never		0012123	.0096076	-0.13	0.900	0200429	.0176182
l not very satisfied		.0237108	.0128601	1.84	0.065	0014945	.048916
l not all satisfied		.0072652	.0194336	0.37	0.709	0308238	.0453543

. margins, dydx(\*) predict(outcome(4))

Average marginal effects Number of obs = 471

: Robust Model VCE

Expression : Pr(index\_dependent==4), predict(outcome(4))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

 $\label{lem:condition} Famagusta\ married\_partner\ divorced\ small\_town\ urban\ int\_often\ int\_never\ l\_not\_very\_satisfied\ l\_not\_all\_satisfied$ 

	    -	dy/dx	Delta-method Std. Err.	Z	P> z	[95% Conf.	Interval]
age men middle	     	.0007159 0090537	.0122105	1.67 -0.74 0.10	0.095 0.458 0.919	0001243 0329858 0267247	.0015561 .0148785 .029652
uppermiddle high	İ	.0481745	.0283152	1.70	0.089	0073223 .0169253	.1036712
uni_master_phd hh_child	  -	.0847453 0074346	.0192438 .0153649	4.40 -0.48	0.000 0.628	.0470281 0375494	.1224625 .0226801

Limassol	1	.0021481	.01423	0.15	0.880	0257422	.0300384
Larnaca		.0693853	.0212356	3.27	0.001	.0277642	.1110063
Paphos		.0471174	.0266957	1.76	0.078	0052053	.0994401
Famagusta		.1561568	.026806	5.83	0.000	.1036179	.2086956
married_partner		.0506901	.0222845	2.27	0.023	.0070131	.094367
divorced		.0250208	.025684	0.97	0.330	0253189	.0753604
small_town		.0647287	.0169111	3.83	0.000	.0315836	.0978738
urban		.0611754	.0165004	3.71	0.000	.0288352	.0935157
int_often		.0089047	.0193102	0.46	0.645	0289427	.0467521
int never		001981	.0156695	-0.13	0.899	0326926	.0287305
<pre>l_not_very_satisfied</pre>		.0387451	.0199649	1.94	0.052	0003854	.0778757
l_not_all_satisfied		.0118719	.0317484	0.37	0.708	0503537	.0740976

. margins, dydx(\*) predict(outcome(5))

Average marginal effects Number of obs = 471

Model VCE : Robust

Expression : Pr(index\_dependent==5), predict(outcome(5))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

Famagusta married partner divorced small town urban int often int never

l not very satisfied l not all satisfied

	ı		Delta-method				
	i	dy/dx	Std. Err.	Z	P> z	[95% Conf.	Interval]
	+-						
age		.0005374	.0003273	1.64	0.101	0001042	.001179
men		0067965	.0091214	-0.75	0.456	0246742	.0110811
middle		.0010988	.010771	0.10	0.919	020012	.0222095
uppermiddle		.0361644	.0212915	1.70	0.089	0055662	.077895
high		.0361594	.0130523	2.77	0.006	.0105773	.0617415
uni master phd		.063618	.0176329	3.61	0.000	.0290581	.0981778
hh child		0055812	.0116427	-0.48	0.632	0284004	.0172381
Limassol		.0016126	.0106817	0.15	0.880	0193232	.0225484
Larnaca		.0520873	.016587	3.14	0.002	.0195774	.0845971
Paphos		.0353709	.0210558	1.68	0.093	0058977	.0766394
Famagusta		.1172263	.0230743	5.08	0.000	.0720015	.1624511
married partner		.0380528	.0178875	2.13	0.033	.0029939	.0731118
divorced		.018783	.0195788	0.96	0.337	0195907	.0571566
small town		.0485916	.0137568	3.53	0.000	.0216288	.0755543
urban		.0459242	.013445	3.42	0.001	.0195725	.0722758
int often		.0066847	.0145279	0.46	0.645	0217894	.0351588
int never		0014872	.0117377	-0.13	0.899	0244926	.0215182
l not very satisfied		.0290858	.0152429	1.91	0.056	0007898	.0589614
l_not_all_satisfied		.0089122	.0237922	0.37	0.708	0377197	.0555441

. margins, dydx(\*) predict(outcome(6))

Number of obs = Average marginal effects 471

Model VCE : Robust

Expression : Pr(index\_dependent==6), predict(outcome(6))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

 ${\tt Famagusta\ married\_partner\ divorced\ small\_town\ urban\ int\_often\ int\_never}$ l\_not\_very\_satisfied l\_not\_all\_satisfied

\_\_\_\_\_\_ Delta-method dy/dx Std. Err. z P>|z| [95% Conf. Interval] \_\_\_\_\_\_ age | .0002747 .0001736 1.58 0.114 -.0000656 .000615 men | -.0034738 .0047626 -0.73 0.466 -.0128084 .0058608 iddle | .0005616 .0055088 0.10 0.919 -.0102355 .0113587 men | -.0034738 middle | .0005616 uppermiddle | .0184842 high | .0184817 uni\_master\_phd | .0325162 .0111611 1.66 0.098 2.44 0.015 -.0033912 .0403596 .0036488 .0333146 .0107646 .011418 .0536145 3.02 0.003 .0059923 hh child | -.0028526 -0.48 0.634 -.0145973 .0088921 0.15 0.879 .0008242 -.0098283 .0114768 Limassol | .0266227 .0098317 2.71 0.007 1.69 0.091 3.83 0.000 .0073529 .0458925 Larnaca | Paphos | .0180786 -.0028932 .0390505 .0292413 .0905914 .0599164 .0156508 Famagusta | married partner | .0194494 .0101688 1.91 0.056 .0393798

divorced	1	.0096003	.0102321	0.94	0.348	0104543	.0296549
small_town		.024836	.0085606	2.90	0.004	.0080575	.0416145
urban		.0234726	.0084166	2.79	0.005	.0069764	.0399689
int often		.0034167	.0073887	0.46	0.644	0110649	.0178983
int_never		0007601	.0060271	-0.13	0.900	012573	.0110527
l_not_very_satisfied		.0148663	.0081542	1.82	0.068	0011157	.0308482
l_not_all_satisfied		.0045552	.0122222	0.37	0.709	0193999	.0285103

. margins, dydx(\*) predict(outcome(7))

Average marginal effects Number of obs = 471

Model VCE : Robust

Expression : Pr(index\_dependent==7), predict(outcome(7))
dy/dx w.r.t. : age men middle uppermiddle high uni master phd hh child Limassol

Larnaca Paphos

Famagusta married\_partner divorced small\_town urban int\_often int\_never l not very satisfied l not all satisfied

			Delta-method				
		dy/dx	Std. Err.	Z	P> z	[95% Conf.	Interval]
age	+- 	.0001629	.0001149	1.42	0.156	0000622	.0003881
men	i	0020607	.0027916	-0.74	0.460	0075322	.0034107
middle	i	.0003331	.0032824	0.10	0.919	0061002	.0067665
uppermiddle	İ	.0109651	.0069748	1.57	0.116	0027052	.0246354
high	İ	.0109636	.0056543	1.94	0.053	0001187	.0220459
uni master phd	İ	.0192891	.0080683	2.39	0.017	.0034754	.0351027
hh child		0016922	.0035935	-0.47	0.638	0087354	.0053509
 Limassol		.0004889	.0032162	0.15	0.879	0058147	.0067926
Larnaca		.0157929	.0066776	2.37	0.018	.0027051	.0288808
Paphos		.0107245	.0065899	1.63	0.104	0021915	.0236405
Famagusta		.0355432	.0127321	2.79	0.005	.0105888	.0604976
married_partner		.0115377	.0065369	1.77	0.078	0012745	.0243498
divorced		.005695	.006226	0.91	0.360	0065077	.0178978
small_town		.014733	.0063564	2.32	0.020	.0022748	.0271913
urban		.0139243	.0061273	2.27	0.023	.0019149	.0259336
int often		.0020268	.0043798	0.46	0.644	0065574	.0106111
int_never		0004509	.0035556	-0.13	0.899	0074197	.0065179
l_not_very_satisfied		.0088189	.0057896	1.52	0.128	0025285	.0201663
l_not_all_satisfied		.0027022	.0073164	0.37	0.712	0116377	.017042

. margins, dydx(\*) predict(outcome(8))

Average marginal effects Number of obs = 471

Model VCE : Robust

Expression : Pr(index\_dependent==8), predict(outcome(8))
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

Famagusta married partner divorced small town urban int often int never l not very satisfied l not all satisfied

	ļ	, /,	Delta-method		D. 1		T . 3.1
	!	dy/dx	Std. Err.	Z	P> z	[95% Conf.	Interval
	+-	0001007	0000704	1 20	0 166	000045	000000
age	1	.0001087		1.39	0.166	000045	.0002623
men		0013745	.0019412	-0.71	0.479	0051792	.0024302
middle		.0002222	.0021865	0.10	0.919	0040632	.0045076
uppermiddle		.0073138	.0053987	1.35	0.175	0032674	.017895
high		.0073128	.0040379	1.81	0.070	0006014	.0152269
uni master phd		.0128659	.0063498	2.03	0.043	.0004206	.0253113
hh child		0011287	.0024276	-0.46	0.642	0058867	.0036293
 Limassol		.0003261	.0021502	0.15	0.879	0038882	.0045404
Larnaca		.010534	.0055834	1.89	0.059	0004093	.0214773
Paphos		.0071533	.0049518	1.44	0.149	002552	.0168586
Famagusta		.0237075	.0106816	2.22	0.026	.002772	.0446431
married partner		.0076957	.0049306	1.56	0.119	001968	.0173594
divorced		.0037986	.0043661	0.87	0.384	0047588	.0123561
small town		.009827	.0047607	2.06	0.039	.0004962	.0191579
urban		.0092876	.0047739	1.95	0.052	0000691	.0186443
int often		.0013519	.0029337	0.46	0.645	0043981	.0071019
int_never		0003008	.0023943	-0.13	0.900	0049935	.004392

```
.0138865
.0113705
. margins, dydx(*) predict(outcome(9))
Average marginal effects
                                                   Number of obs
Model VCE
             : Robust
Expression : Pr(index dependent==9), predict(outcome(9))
dy/dx w.r.t. : age men middle uppermiddle high uni master phd hh child Limassol
Larnaca Paphos
               Famagusta married partner divorced small town urban int often int never
                l not very satisfied l not all satisfied
                                  Delta-method
                     dy/dx Std. Err.
                                                     z P>|z| [95% Conf. Interval]
_____
                                                                  -.0000432
                         .0000447 .0000449
-.0005657 .0008523
                                                  1.00 0.319
-0.66 0.507
                 age |
                 men | -.0005657
                                                                    -.0022363
                                                                                  .0011048
                                    .0009052 0.10 0.920
.0027005 1.11 0.265
.0024098 1.25 0.212
.0039931 1.33 0.185
              middle | .0000915 .0009052
rmiddle | .0030102 .0027005
high | .0030098 .0024098
                                                                                  .0018656
                                                                  -.0016826
                                                                    -.0022826
                                                                                  .0083031
         uppermiddle |
                                                                    -.0017133
                                    .0039931
      uni master_phd |
            aster_phd | .0052954
hh_child | -.0004646
                                                  1.33 0.185
-0.46 0.645
                                                                    -.0025309
                                                                                   .0131217
                                                                    -.0024386
                                                                                   .0015095
            Limassol | .0001342 .0009018 0.15 0.882

Larnaca | .0043356 .0032885 1.32 0.187

Paphos | .0029442 .0026336 1.12 0.264

Famagusta | .0097576 .0073251 1.33 0.183

d_partner | .0031674 .0025767 1.23 0.219
                                                                                   .0019018
                                                                    -.0016334
           Larnaca | .0043356 .0032885

Paphos | .0029442 .0026336

Famagusta | .0097576 .0073251

ed_partner | .0031674 .0025767
                                                                    -.0021097
                                                                                  .0107809
                                                                                   .008106
                                                                    -.0022176
                                                                                   .0241147
                                                                    -.0045994
     married partner |
                                                                    -.0018829
                                                                                   .0082177
                                                  0.83 0.407
           divorced | .0015635 .0018848
                                                                    -.0021306
                                                                                  .0052575
-.0016867
                                                                                   .009776
                                                                    -.0017373
                                                                                  .0093826
                                                                    -.0018783
                                                                                  .0029911
                                                                                  .0018189
                                                                    -.0020665
                                                                    -.0016973
                                                                    -.0032701
                                                                                  .0047538
. * logits.
. logit eco travel age men middle uppermiddle high uni master phd hh child Limassol ///
> Larnaca Paphos Famagusta married_partner divorced small_town urban int_often
int_never l_not_very_sati
> sfied ///
> 1 not all satisfied, robust
               log pseudolikelihood = -203.12672
Tteration 0:
Iteration 1:
               log pseudolikelihood = -176.9439
               log pseudolikelihood = -173.49427
Iteration 2:
Iteration 3:
               log pseudolikelihood = -173.43625
               log pseudolikelihood = -173.43598
Iteration 4:
               log pseudolikelihood = -173.43598
Iteration 5:
                                                   Wald chi2(19) = Prob > chi2 -
Logistic regression
                                                                           56.13
                                                                            0.0000
Log pseudolikelihood = -173.43598
                                                   Pseudo R2
                                                                            0.1462
                                      Robust
          eco travel |
                            Coef. Std. Err.
                                                    z P>|z|
                                                                     [95% Conf. Interval]
                 age | .0306179 .0112164 2.73 0.006 .0086341 .0526016
                                     .2944053
                                                                                  .3922799
                 men | -.1847439
                                                  -0.63 0.530
-2.57 0.010
                                                                    -.7617677
                                                                    -1.560818
                         -.8850398
                                                                                 -.2092615
              middle |
                                    .5812996 -1.04 0.299 -1.743078
.4557254 3.39 0.001 .6507746
.5289239 5.05 0.000 1.633047
         uppermiddle | -.6037522
                                                                                  .5355741
      high | 1.54398 .4557254
uni_master_phd | 2.669719 .5289239
                                                                                 2.437185
            3.70639
                                                                                  .3181278
```

.7912717 2.014548 2.465683

```
Famagusta | 1.267147 .7974186 1.59 0.112 -.2957643 2.830059
married_partner | 1.664449 .9059219 1.84 0.066 -.1111254 3.440023
divorced | 1.327636 1.015487 1.31 0.191 -.6626825 3.317955

      small town | .8812206
      .3936503
      2.24
      0.025

      urban | 1.549275
      .3862423
      4.01
      0.000

      int_often | .1180858
      .4756577
      0.25
      0.804

      int_never | .4377568
      .3777432
      1.16
      0.247

      y_satisfied | .2075111
      .516378
      0.40
      0.688

                                                                     .1096801
                                                                                   1.652761
                                                                                    2.306296
                                                                     -.8141861
                                                                                  1.050358
                                                                     -.3026064
l_not_very_satisfied |
                                                                     -.8045712
                                                                                   1.219593
 0.93 0.351
-6.86 0.000
                                                                                  3.336334
                                                                     -1.184718
                                                                     -9.465674
                                                                                  -5.256765
. margins, dydx(*)
Average marginal effects
                                                   Number of obs =
                                                                               471
Model VCE
             : Robust
Expression : Pr(eco_travel), predict()
dy/dx w.r.t. : age men middle uppermiddle high uni_master_phd hh_child Limassol
Larnaca Paphos
                Famagusta married_partner divorced small_town urban int_often int_never
                l not very satisfied l not all satisfied
                                   Delta-method
                             dy/dx Std. Err.
                                                     z P>|z|
                                                                      [95% Conf. Interval]
                 age | .0034694 .0012523 2.77 0.006 .0010149
              men | -.0209341 .0333189 -0.63 0.530
middle | -.1002875 .0380308 -2.64 0.008
                                                                                    .0443697
                                                                     -.0862379
         -.0257486
                                                                                  .0604898
                                                                                   .2725833
                                                                                   .4106081
      uni master phd |
            .0356959
                                                                                    .0896949
                                                                                    .2785291
    .3207397
                                                                                    .3912116
                                                                                    .3778302
                                                                                    .1876958
                                                                                    .2601123
                                                                                    .1188518
-.0333698
                                                                                   .1325778
                                                                                    .138461
                                                                     -.0914332
                                                                      -.133925
                                                                                    .3777334
 . logit eco purchase products age men middle uppermiddle high uni master phd
hh child Limassol ///
> Larnaca Paphos Famagusta married partner divorced small town urban int often
int_never l_not_very_sati
> s\overline{f}ied ///
> 1 not all satisfied, robust
                log pseudolikelihood = -315.11859
Tteration 0:
Iteration 1:
                log pseudolikelihood = -279.22906
                log pseudolikelihood = -278.64374
Iteration 2:
Iteration 3:
                log pseudolikelihood = -278.64137
               log pseudolikelihood = -278.64137
Iteration 4:
                                                   Number of obs = 471
Wald chi2(19) = 64.02
Prob > chi2 = 0.0000
Logistic regression
                                                   Prob > chi2
Log pseudolikelihood = -278.64137
                                                   Pseudo R2
                                                                             0.1158
                                        Robust
                             Coef. Std. Err.
                                                      z P>|z|
                                                                      [95% Conf. Interval]
eco_purchase_products |
______
               age | -.0046671 .0079517 -0.59 0.557 -.0202521 .010918 men | .1249416 .218708 0.57 0.568 -.3037183 .5536014 middle | .2035038 .2476728 0.82 0.411 -.2819261 .6889336
```

```
uppermiddle | 1.275695 .656276 1.94 0.052 -.0105822 2.561973
high | .5941043 .2841293 2.09 0.037 .0372211 1.150987
_master_phd | .9856155 .3614588 2.73 0.006 .2771693 1.694062
uni master phd |
. margins, dydx(*)
```

Average marginal effects Number of obs = 471 Model VCE : Robust

Expression : Pr(eco purchase products), predict()

Log pseudolikelihood = -263.54097

dy/dx w.r.t. : age men middle uppermiddle high uni master phd hh child Limassol

Larnaca Paphos

Famagusta married partner divorced small town urban int often int never l not very satisfied l not all satisfied

	 	dy/dx	lta-method Std. Err.	i	z 	P> z	[95% Conf.	Interval]
200	Τ-	0009506	 .0016203		 .59	0.557	 0041263	.0022251
age	!							
men		.025449	.0444563		.57	0.567	0616837	.1125816
middle		.0414511	.0503565	0	.82	0.410	0572459	.1401481
uppermiddle		.2598425	.1325003	1	.96	0.050	.0001467	.5195383
high		.1210113	.0567867	2	.13	0.033	.0097114	.2323113
uni master phd		.200757	.070889	2	.83	0.005	.0618172	.3396969
hh child		0172811	.0520716	-0	.33	0.740	1193397	.0847774
Limassol		0439625	.0519586	-0	.85	0.397	1457995	.0578745
Larnaca		.2335796	.069207	3	.38	0.001	.0979364	.3692227
Paphos		.3325619	.1037243	3	.21	0.001	.129266	.5358578
Famagusta		.3579566	.1207533	2	.96	0.003	.1212845	.5946287
married_partner		.2058709	.0984935	2	.09	0.037	.0128271	.3989147
divorced		.1822509	.1091659	1	.67	0.095	0317103	.396212
small_town		.0183072	.0587501	0	.31	0.755	096841	.1334553
urban		.0005052	.0580879	0	.01	0.993	1133451	.1143554
int often		.0793172	.0773612	1	.03	0.305	0723079	.2309423
int_never		.1026789	.054189	1	.89	0.058	0035297	.2088874
l not very satisfied		.1424566	.0720803	1	.98	0.048	.0011818	.2837315
l_not_all_satisfied		.0614486	.2104356	0	.29	0.770	3509976	.4738948

```
. logit recycling age men middle uppermiddle high uni master phd hh child Limassol ///
> Larnaca Paphos Famagusta married_partner divorced small_town urban int_often
int_never l_not_very_sati
> sfied ///
> 1 not all satisfied, robust
              log pseudolikelihood = -305.04012
Iteration 0:
Iteration 1:
              log pseudolikelihood = -264.4327
              log pseudolikelihood = -263.54383
Iteration 2:
              log pseudolikelihood = -263.54097
Iteration 3:
Iteration 4:
             log pseudolikelihood = -263.54097
                                               Number of obs
                                                                          471
Logistic regression
                                                                      63.33
                                               Wald chi2(19)
                                                                = 63.33
= 0.0000
                                               Prob > chi2
```

Pseudo R2

0.1360

recycling	    -	Coef.	Robust Std. Err.	z	P> z	[95% Conf.	Interval]
age	1	.0143775	.0084385	1.70	0.088	0021616	.0309166
men	i	3479791	.2234951	-1.56	0.119	7860214	.0900632
middle	i.	.0974283	.2441104	0.40	0.690	3810192	.5758758
uppermiddle	i.	.563921	.6645398	0.85	0.396	7385531	1.866395
high	i.	.7916439	.2890519	2.74	0.006	.2251125	1.358175
uni master phd	i	1.527047	.3942535	3.87	0.000	.7543247	2.29977
hh child	i	1278533	.2669439	-0.48	0.632	6510537	.3953471
 Limassol	i	.5939566	.2834372	2.10	0.036	.0384299	1.149483
Larnaca	İ	.5422526	.3547205	1.53	0.126	1529869	1.237492
Paphos	İ	.111525	.4114866	0.27	0.786	6949738	.9180239
Famagusta		1.805687	.5464732	3.30	0.001	.7346192	2.876755
married partner	1	.2308583	.5663253	0.41	0.684	8791189	1.340835
divorced	1	0429313	.6331496	-0.07	0.946	-1.283882	1.198019
small town		1.553308	.3066974	5.06	0.000	.9521925	2.154424
urban		1.015352	.2838677	3.58	0.000	.458982	1.571723
int often		2018627	.3593222	-0.56	0.574	9061212	.5023959
int never		1181549	.2830728	-0.42	0.676	6729675	.4366577
l not very satisfied		1247779	.4004238	-0.31	0.755	9095942	.6600383
l not all satisfied		4180049	1.12462	-0.37	0.710	-2.62222	1.78621
cons		-1.919471	.7090317	-2.71	0.007	-3.309148	5297943

. margins, dydx(\*)

Average marginal effects Model VCE : Robust Number of obs = 471

Expression : Pr(recycling), predict()
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

Famagusta married partner divorced small town urban int often int never 1 not very satisfied 1 not all satisfied

	   dv/dx	Delta-method Std. Err.	d z	DNIGI	[95% Conf.	Tn+0~~~11
	ay/ax +	sta. Eff.	Z	F/ Z	[936 CONI.	Interval]
age	.0027202	.0015945	1.71	0.088	000405	.0058454
men	0658369	.0418186	-1.57	0.115	1477999	.0161261
middle	.0184332	.046046	0.40	0.689	0718152	.1086816
uppermiddle	.1066927	.1255865	0.85	0.396	1394524	.3528377
high	.1497773	.053104	2.82	0.005	.0456953	.2538593
uni_master_phd	.2889141	.0705276	4.10	0.000	.1506827	.4271456
hh_child	0241896	.0504103	-0.48	0.631	122992	.0746129
Limassol	.1123753	.0522929	2.15	0.032	.009883	.2148676
Larnaca	.102593	.0664974	1.54	0.123	0277395	.2329256
Paphos	.0211003	.0779245	0.27	0.787	131629	.1738296
Famagusta	.3416321	.0987643	3.46	0.001	.1480578	.5352065
married_partner	.0436779	.1069342	0.41	0.683	1659093	.253265
divorced	0081225	.1198129	-0.07	0.946	2429515	.2267065
small_town	.2938827	.0521229	5.64	0.000	.1917237	.3960416
urban	.1921025	.0509772	3.77	0.000	.0921891	.2920159
int_often	038192	.0678366	-0.56	0.573	1711493	.0947653
int_never	0223546	.0536492	-0.42	0.677	1275052	.0827959
l_not_very_satisfied	0236077	.0757303	-0.31	0.755	1720365	.124821
l_not_all_satisfied	0790856	.2127513	-0.37	0.710	4960706	.3378993

```
. logit w_e_consumption age men middle uppermiddle high uni_master_phd hh_child Limassol \overline{///}
> Larnaca Paphos Famagusta married_partner divorced small_town urban int_often int_never l_not_very_sati
> s\overline{f}ied ///
> 1 not all satisfied, robust
                 log pseudolikelihood = -324.1234
log pseudolikelihood = -308.34665
Iteration 0:
Iteration 1:
Iteration 2: log pseudolikelihood = -308.13649
```

Iteration 3: log pseudolikelihood = -308.13516

Iteration 4: log pseudolikelihood = -308.13516

Logistic regression	Number of obs	=	471
	Wald chi2(19)	=	25.92
	Prob > chi2	=	0.1325
Log pseudolikelihood = -308.13516	Pseudo R2	=	0.0493

		Robust				
w e consumption	Coef.	Std. Err.	Z	P> z	[95% Conf.	<pre>Interval]</pre>
age	.007198	.0073667	0.98	0.329	0072404	.0216363
men	0808434	.2054057	-0.39	0.694	4834312	.3217445
middle	01674	.2364893	-0.07	0.944	4802506	.4467706
uppermiddle	.0315949	.5113566	0.06	0.951	9706456	1.033835
high	.1397937	.2660133	0.53	0.599	3815828	.6611702
uni master phd	.144581	.3287007	0.44	0.660	4996606	.7888225
hh child	.0976943	.2358671	0.41	0.679	3645968	.5599854
Limassol	1767186	.2500213	-0.71	0.480	6667513	.3133142
Larnaca	.2679823	.3209737	0.83	0.404	3611146	.8970792
Paphos	5496687	.3871435	-1.42	0.156	-1.308456	.2091186
Famagusta	2.209557	.6770342	3.26	0.001	.8825941	3.536519
married partner	.5470514	.4814037	1.14	0.256	3964824	1.490585
divorced	.1166212	.5392069	0.22	0.829	9402048	1.173447
small town	.5966879	.2633994	2.27	0.023	.0804345	1.112941
urban	.485546	.267016	1.82	0.069	0377958	1.008888
int often	158726	.3404564	-0.47	0.641	8260083	.5085563
int never	0815584	.2598482	-0.31	0.754	5908515	.4277348
l not very satisfied	1120532	.3461151	-0.32	0.746	7904263	.56632
l not all satisfied	0245832	.7446665	-0.03	0.974	-1.484103	1.434936
cons	-1.04968	.598472	-1.75	0.079	-2.222664	.1233031

. margins, dydx(\*)

Average marginal effects Number of obs = 471 Model VCE : Robust

Expression : Pr(w\_e\_consumption), predict()
dy/dx w.r.t. : age men middle uppermiddle high uni\_master\_phd hh\_child Limassol

Larnaca Paphos

Famagusta married\_partner divorced small\_town urban int\_often int\_never l\_not\_very\_satisfied l\_not\_all\_satisfied

	1	Delta-metho	od			
	dv/d	x Std. Err.	z	P> z	[95% Conf.	Intervall
	+					
age	.001668	3 .0017005	0.98	0.327	0016646	.0050011
men	01873	7 .0475581	-0.39	0.694	1119491	.0744752
middle	003879	8 .0548156	-0.07	0.944	1113163	.1035567
uppermiddle	.007322	7 .1185021	0.06	0.951	2249371	.2395825
high	.032399	3 .0615671	0.53	0.599	0882696	.1530692
uni master phd	.033509	4 .0760826	0.44	0.660	1156097	.1826285
hh child	.022642	5 .0546448	0.41	0.679	0844594	.1297444
 Limassol	040957	9 .0578194	-0.71	0.479	1542819	.0723662
Larnaca	.062109	9 .0741356	0.84	0.402	0831931	.207413
Paphos	127396	1 .0890441	-1.43	0.153	3019192	.0471271
Famagusta	.512106	4 .1504229	3.40	0.001	.2172829	.8069299
married partner	.126789	5 .1109356	1.14	0.253	0906403	.3442192
 divorced	.027029	2 .1249404	0.22	0.829	2178494	.2719078
small town	.138293	7 .0598093	2.31	0.021	.0210696	.2555177
— urban	.112534	4 .0611048	1.84	0.066	0072288	.2322977
int often	036787		-0.47	0.641	1913332	.1177578
int never	018902		-0.31	0.753	1368708	.0990655
l_not_very_satisfied	025970		-0.32	0.746	1831016	.1311607
1 not all satisfied	005697		-0.03	0.974	3439585	.3325633

# $\label{eq:Appendix 1b-VIF values of the variables} Appendix 1b-VIF values of the variables$

Variable	VIF	1/VIF
divorced	4.37	0.229021
married pa~r	4.37	0.229044
uni master~d	2.47	0.404200
_ high	1.92	0.521557
age	1.85	0.540992
urban	1.83	0.547861
Larnaca	1.53	0.652881
middle	1.51	0.661129
hh child	1.48	0.674205
– Paphos	1.44	0.693234
Limassol	1.44	0.694224
small town	1.40	0.711787
int never	1.34	0.746050
Famagusta	1.27	0.786013
uppermiddle	1.24	0.803880
men	1.12	0.889279
l_not_very~d	1.11	0.902132
int_often	1.09	0.917932
l_not_all_~d	1.09	0.918114
Mean VIF	1.78	