| Uşak'ta Ailelerin Bulaşık Makinesi Talebini Etkileyen Faktörlerin İkili Tercih Modeli İle Analizi | Analysis With Binary Models Of Factors That Affect Household Demand For Dishwashers In Usak |

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ÖZET

Son iki yüzyıldır sağlık koşullarındaki iyileşme ve gelişen ekonomik koşullar sonucu hızla artan dünya nüfusu, su başta olmak üzere doğal kaynaklara olan talebin önemli ölçüde artmasına yol açmıştır. Artan dünya nüfusu ile birlikte, son dönemde etkileri daha da belirginleşen küresel ısınma sonucu meydana gelen iklim değişiklikleri, su kaynakları üzerindeki baskının daha da artmasına neden olmuştur. Tüm dünyada olduğu gibi ülkemizde de büyük kentler başta olmak üzere, evsel kullanım için su talebinin karşılanması çözülmesi gereken öncelikli sorun haline gelmiştir.

Su kıtlığı probleminin çözülmesinde yapılacak yeni yatırımlar yanında, ailelerin su tasarrufuna özen göstermeleri, sorunun aşılmasında özellikle uzun vadede büyük önem taşımaktadır. Bu açıdan değerlendirildiğinde, evlerde bulaşık makinesi kullanımının yaygınlaştırılması su tasarrufu konusunda önemli katkılar sağlayacaktır. Özellikle; yeni nesil bulaşık makinelerinin daha az enerji ve su harcamaları sorunun çözümü açısından önemli avantajlar sağlamaktadır.

Bu çalışmada, Uşak İli Kentsel alanında uygulanan anket verileri kullanılarak, ailelerin bulaşık makinesi sahipliğini etkileyen faktörler araştırılmıştır. Araştırmada iki durumlu yapay bağımlı değişkenli modellerden Doğrusal Olasılık ve Logit modelleri kullanılarak ekonometrik tahminler yapılmıştır. Gerek Logit, gerekse Doğrusal Olasılık modeli kullanılarak yapılan tahminlere göre; bir ailede ev hanımının ücretli bir işte çalışmasının bulaşık makinesi sahipliğini önemli derecede etkileyen bir faktör olmadığı sonucuna ulaşılmıştır. Ailenin yakın çevresindeki ailelerin büyük çoğunluğunda bulaşık makinesi bulunması ile eğitim ve gelir seviyesinin yükselmesi bulaşık makinesi sahipliğini etkileyen önemli faktörler olarak belirlenmiştir. Ailenin yakın çevresindeki ailelerin büyük çoğunluğunda bulaşık makinesi bulunmasının, bulaşık makinesi sahibi olma olasılığını etkileyen önemli bir faktör olarak belirlenmesi; tüketim kalıplarının hanehalkının içinde bulunduğu sosyal çevreden etkilendiğini varsayan Nisbi Gelir Hipotezi'nin Uşak İli kentsel alanında geçerli olduğunu göstermiştir.

Anahtar Kelimeler: Bulaşık Makinesi Talebi, Uşak, Doğrusal Olasılık Modeli, Logit Modeli.

Çalışmanın Türü: Araştırma

ABSTRACT

Fast increase in world population partly due to improvements in health and economic conditions has brought about the rising demand for natural resources. This is especially true for water resources, which bear critical importance for life. In addition to population increase, climatic changes with more manifest impacts recently due to global warming caused an increase in the pressure on water resources. In our country, meeting water demand for domestic use, particular in populated cities, has been a primary problem for both central and local administrators.

Paying attention to saving water shall both help in more efficient use of water resources and decrease the need for new investments for water supply. When considered form this point of view, becoming widespread of dishwasher usage in houses shall make important contributions to water saving. In particular new generation dishwashers which spend less energy and water present important advantages for solving the problem of expenses on water. A household with 4 members spends 84-126 liters of water if it washes its dishes in the sink; the same household uses some 12 liters of water if it uses a dish washer. This means some 26-40 tons of saved water for this household in one year. Therefore, usage of dishwashers, beside other water saving devices, has to become more widespread in our country. Increasing this ratio shall make important contributions to solving water problem.

The purpose of this paper is to analyze the ownership of dishwashers, which is among the durable household appliances of which usage is encouraged as water resources become less able to meet the human needs. This paper is the first study which deals with the demand for dish washers in economic terms and with econometric estimation method.

As a result of the research, observation and evaluations on dishwasher ownership, it has been concluded that the dishwasher demand of a household can be a function of household income, level of education, dishwasher ownership ratio in the households in close environment, and employment status of the housewife. In the research, the education level of the breadwinner was taken as an indicator of the education level of the household.

In this paper, the factors which affect dishwasher ownership of households have been examined by using the survey data applied to urban areas of Uşak province. In the research, the Linear Probability Model and the Logit Model, which are among the binary dummy dependent variable models, are used to make econometric estimations. Dependent variable of the model is binary qualitative variable. If the dependent variable is a qualitative variable which can take two values, which means that if one feature exists or does not exist, the estimation is based on binary choice models. In this study, analysis was based on Linear Probability

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model, which is a binary choice model, and Logit model. Linear Probability method, which is widely employed in this type of studies, suffers from important criticism despite its ease of use. One of the alternative models widely used in this type of studies which eliminates these problems is Logit model. Therefore, the function of dishwasher demand in this study is estimated using the Logit model which was developed in order to eliminate the problems of Linear Probability model.

According to the estimations made using Logit and Linear Probability models, it has been determined that employment of the lady of the household is not a factor which affects dishwasher ownership significantly. Dishwasher ownership in the close families and increase in the level of education and income are determined as the significant factors that affect dishwasher ownership. The fact that dishwasher ownership in the close families is a factor which increases the possibility of dishwasher ownership is an indicator that Relative Income Hypothesis which assumes that consumption patterns are affected by the surrounding social environment is applicable in the urban area of Uşak province. According to relative income hypothesis, it is accepted that consumption decisions of consumers are not independent from each other; on the contrary, consumption decisions are affected by the social environment in which consumers interact.

Assuming that education level of the household is among the important factors which affect dishwasher ownership probability, three dummy variables were inserted in the model that represents education level. Elementary school graduates were accepted as basic class, and secondary school, high school or vocational high school and higher education levels were represented by dummy variables. Other factors constant, education level of a household increases dishwasher ownership probability. The fact that all regression parameters related to education are statistically significant indicates that an increase in the level of education is an important factor which increases dishwasher ownership probability. According to estimation findings, an increase in the level of education is an important factor which increases dishwasher ownership probability. Employment of housewife in a household which is at any income level increases the dishwasher ownership probability. However, as the coefficient for dummy variable at two models which shows the status of employment at a paid job for the housewife is statistically insignificant at the level of 5%, it has been concluded that employment of housewife at a paid job does not have a considerable impact on dishwasher ownership probability.

Keywords: Demand for Dishwashers, Uşak, The Linear Probability Model, The Logit Model.
The Type of Research: Research

INTRODUCTION

For the last two centuries, fast increase in world population partly due to improvements in health and economic conditions has brought about the rising demand for natural resources. This is especially true for water resources, which bear critical importance for life. In addition to population increase, climatic changes with more manifest impacts recently due to global warming caused an increase in the pressure on water resources. In our country, meeting water demand for domestic use, particular in populated cities, has been a primary problem for both central and local administrators.

In addition to new investments made in order to solve water problem, paying attention for water saving on the side of households bears considerable importance in the long run. Paying attention to saving water shall both help in more efficient use of water resources and decrease the need for new investments for water supply. When considered form this point of view, becoming widespread of dish washer usage in houses shall make important contributions to water saving. In particular new generation dish washers which spend less energy and water present important advantages for solving the problem of expenses on water. A household with 4 members spends 84-126 liters of water if it washes its dishes in the sink; the same household uses some 12 liters of water if it uses a dish washer. This means some 26-40 tons of saved water for this household in one year (kureselfelaket.com, 2008; iski.gov.tr, 2008). Therefore, usage of dishwashers, beside other water saving devices, has to become more widespread in our country. Almost half of households have dish washers in our country (agarastirma.com.tr, 2008). Increasing this ratio shall make important contributions to solving water problem. In Turkey, 950 thousand dish washers were sold in 2007 (radikal.com.tr, 2008).

The purpose of this paper is to analyze the ownership of dish washers, which is among the durable household appliances of which usage is encouraged as water resources become less able to meet the human needs. This paper is the first study which deals with the demand for dish washers in economic terms and with econometric estimation method.

I. RESEARCH METHOD AND DATA

As a result of the research, observation and evaluations on dishwasher ownership, it has been concluded that the dish washer demand of a household can be a function of household income, level of education, dishwasher ownership ratio in the households in close environment, and employment status of

the housewife. In the research, the education level of the breadwinner was taken as an indicator of the education level of the household.

Under the light of such information, the function for dishwasher ownership is generated as follows: $Y_1 = f(D_1, D_2, D_3, D_4, D_5, X)$. This model can be expressed in open functional relations as follows: $Y_1 = b_0 + b_1 D_1 + b_2 D_2 + b_3 D_3 + b_4 D_4 + b_5 D_5 + b_6 X + u$.

In this equation;

$$Y_1 = \begin{cases} 1 \text{ Household owns a dishwasher.} \\ 0 \text{ Household does not own a dishwasher.} \end{cases}$$

$$D_1 = \begin{cases} 1 \text{ The housewife is employed in a paid work.} \\ 0 \text{ The housewife is not employed in a paid work.} \end{cases}$$

$$D_2 = \begin{cases} 1 \text{ Majority of the households in close environment own dishwashers.} \\ 0 \text{ Majority of the households in close environment does not own dishwashers.} \end{cases}$$

$$D_3 = \begin{cases} 1 \text{ Education level of the household is secondary school.} \\ 0 \text{ Others.} \end{cases}$$

$$D_4 = \begin{cases} 1 \text{ Education level of the family is high school or vocational high school.} \\ 0 \text{ Others.} \end{cases}$$

$$D_5 = \begin{cases} 1 \text{ Education level of the family is university level.} \\ 0 \text{ Others.} \end{cases}$$

X = Monthly income of the household and

u = Error term.

Dependent variable of the model is binary qualitative variable. If the dependent variable is a qualitative variable which can take two values, which means that if one feature exists or does not exist, the estimation is based on binary choice models. In this study, analysis was based on Linear Probability model, which is a binary choice model, and Logit model (Logistic model).

A-) THE LINEAR PROBABILITY MODEL

Linear Probability model can be simply defined as follows with two independent variables, one of which is dummy variable:

$Y_i = b_0 + b_1 D_i + b_2 X_i + u$

$$Y_i = \begin{cases} 1 \text{ Household owns a dishwasher.} \\ 0 \text{ Household does not own a dishwasher.} \end{cases}$$

$$D_i = \begin{cases} 1 \text{ The housewife is employed in a paid work.} \\ 0 \text{ The housewife is not employed in a paid work.} \end{cases}$$

X_i = Monthly income of the household and

u = Error term.

where the conditional value of Y expected for X is equal to the conditional probability of Y for X, hence the name Linear Probability given to the model. This case is expressed as

$E(Y_i/X_i, D_i=0) = P_i = (Y_i = 1/X_i, D_i=0) = b_0 + b_1 X_i$. In this relation, the statement $E(Y_i/X_i, D_i=0) = b_0 + b_1 X_i$ shows the dishwasher ownership probability for a family with an income in basic class. If the housewife is employed at a paid work, the probability value increases by the coefficient b_1.

Linear Probability method, which is widely employed in this type of studies, suffers from important criticism despite its ease of use. The objections raised to Linear Probability model can be listed as follows (Gujarati, 2004: 584-586; Tarı, 2000: 71);

- Error term does not have normal distribution,
- Error term has heteroscedasticity,
- The precondition $0 \leq E(Y_i/X_i, D_i) \leq 1$ is not met,

- The value of certainty coefficient (R^2) usually turns out low, and is not reliable,
- The assumption that $P_İ = E(Y_İ=1/X_İ, D_İ)$ value increases linearly with $X_İ$.

All objections to Linear Probability model can be somehow averted. However, it is not possible to solve the problems of the assumption that $P_İ = E(Y_İ=1/X_İ, D_İ)$ value increases linearly with $X_İ$ and probability value is not between 0 and 1. Averting these problems of Linear Probability model can be possible by using other models which eliminate the two drawbacks given below:

- As income ($X_İ$) increases, $P_İ = E(Y_İ = 1/X_İ, D_İ)$ increases as well; however, it must remain within 0-1 interval. As the probability for any event would be between 0 and 1, the expected value of $0 \leq E(Y_İ /X_İ, D_İ) \leq 1$ Y has to be between 0 and 1. However, in this model, the dishwasher ownership probability Y of a household with e certain income can be 105%. This problem cannot be solved in this model.

- The relation between $P_İ$ and $X_İ$ is not linear. Assuming that $P_İ = E(Y=1/X_İ, D_İ)$ value increases linearly with $X_İ$ is the second disadvantage of using this model, according to which as income increases, dishwasher ownership probability increases linearly. However, this is not the case in real life. The dishwasher ownership probability of people in low income groups and high income groups does not increase with the same ratio. For example, as the income of a low-income family increases, the dishwasher ownership probability is lower, whereas when the income of a high-income household increases, dishwasher ownership probability is higher.

One of the alternative models widely used in this type of studies which eliminates these problems is Logit model. Therefore, the function of dishwasher demand in this study is estimated using the Logit model which was developed in order to eliminate the problems of Linear Probability model.

B-) THE LOGIT MODEL

According to Logit model, the relation between dishwasher ownership probability of a household and its income can be formulized as:

$$P_İ = E (Y_İ=1 \mid X_İ) = \frac{1}{1 + e^{-(b_0 + b_1 X_i)}} \text{ (Gosh, 1991:239)}.$$

For convenience the function can be written as

$$P_İ = \frac{1}{1 + e^{-Z_İ}}.$$

$Z_İ = b_0 + b_1 X_İ$ and $e = 2.71828$. This equation is called "logistic distribution function". As $Z_İ$ variable takes a value between $-\infty$ and $+\infty$, $P_İ$ shall take a value between 0 and 1 (Ertek, 2000: 299).

If dishwasher ownership probability of a household is as given in equation $P_İ$, then the probability for the same household for not owning a dishwasher $(1 - P_İ)$ becomes as follows (Gujarati, 2004: 596):

$$(1 - P_İ) = \frac{1}{1 + e^{Z_İ}}$$

When dishwasher ownership probability of a household is proportioned to the probability for the same household for not owning a dishwasher,

$$\frac{P_İ}{1 - P_İ} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i}$$

the odds ratio for dishwasher ownership is obtained. For example, if $Pi = 0,75$, the probability of dishwasher ownership of a household is 3 times higher than the probability for not owning a dishwasher.

If e-base logarithm is taken for the equation which shows the proportion of dishwasher ownership probability of a household to the probability for not owning a dishwasher, the following equation is obtained:

$$L_İ = \ln \left(\frac{P_İ}{1 - P_İ} \right) = \ln e^{Z_i} = Z_İ = b_0 + b_1 X_İ$$

This equation is a semi-logarithmic function which can function as a linear relation for estimating parameters. According to this function, the logarithm of odds ratio, L, is linear not only to X but also the

universe coefficients. L Is called Logit, for which reason this type of equations are named as Logit models (Gujarati, 2004: 596; Ertek, 2000: 300).

When the possibilities for owning and not owning a dishwasher are inserted in the Logit model, the statements

$L_i = \ln \left(\dfrac{1}{0} \right)$ (when the household has a dishwasher),

$L_i = \ln \left(\dfrac{0}{1} \right)$ (when the household does not have a dishwasher)

are obtained, which are undefined, for which reason parameters cannot be estimated with the least squares method. Maximum Likelihood model is used in order to estimate the parameters (Gosh, 1991: 240; Gujarati, 2004: 568).

The data used in this study are cross-sectional data obtained with survey method in urban Uşak area in November, 2007. In the sample group which was determined taking into consideration the socio-economic attributes of Uşak population, 1000 surveys were distributed. However, some of these forms were not returned and some forms did not include exact information; as a result, the data analysis was based on 670 returned and complete survey forms.

II. EMPIRICAL FINDINGS
A-) RESULTS OF THE LINEAR PROBABILITY MODEL

The estimation results for the Linear Probability model stated as
$Y_1 = b_0 + b_1 D_1 + b_2 D_2 + b_3 D_3 + b_4 D_4 + b_5 D_5 + b_6 X + u$, which is related to the probability of owning a dishwasher, is as follows:

Explanatory variable	Coefficient	t statistics
Constant term	-0,0506	-1,187
D_1	0,0124	0,362
D_1	0,3988	12,287
D_3	0,1305	2,824
D_4	0,2737	6,880
D_5	0,2825	6,000
X	0,0135	5,632

$R^2 = 0,42$ $\overline{R}^2 = 0,41$ s=0,413   DW= 1,72   F=79   Prob(F)=0,000

Determination coefficient of the regression is rather high for a linear model estimation based on cross-sectional data, which is partly due to the size of sample group. Constant term of the regression shows the dishwasher ownership probability of a household with zero income, elementary school education level, and majority of households in close environment not having a dishwasher. The value of the constant term of the estimated regression (-0,0506) is negative. As probability cannot be negative, a negative coefficient means that a household which is in the basic class does not have any probability of having a dishwasher (zero probability). Its coefficient for income variable, on the other hand, shows that when there is no change in other dependent variables, an increase of one unit in income (100 TLs in this case) would increase the probability of dishwasher ownership by 0,0135 (appx. 1,4 %).

According to the estimation results, the dishwasher ownership probability of a household with 500 TL monthly income, elementary level of education, with housewife not employed in a paid job, and with majority of households in the close environment not having a dishwasher, is
$Y_1 = -0,0506 + 0,0135*5 = 0,0169 = \%1,7$'dir.

Dishwasher ownership probability of a household in basic class whose income increases to 1000 TLs is
$Y_1 = -0,0506 + 0,0135*10 = 0,084 = 8,4\%$. If the housewife works in a paid job, the dishwasher ownership probability of a household with 1000 TLs monthly income and elementary level of education is
$Y_1 = -0,0506 + 0,0135*10 + 0,0124*1 = 0,097 = 9,7\%$. In other words, employment of housewife in a household which is at any income level increases the dishwasher ownership probability by 1,2%. However, as the coefficient for dummy variable which shows the status of employment at a paid job for

the housewife is statistically insignificant at the level of 5%, it has been concluded that employment of housewife at a paid job does not have a considerable impact on dishwasher ownership probability.

The dishwasher ownership probability of a household with 1000 TLs income, elementary school education level, and majority of households in close environment having a dishwasher, is $Y_1 = -0,0506 + 0,0135*10 + 0,3988 = 48,32$. The fact that majority of households in the close environment of this household have dishwashers increases the dishwasher ownership probability by some 40%. According to this finding, the fact that majority of households in the close environment of this household have dishwashers is an important factor which affects dishwasher ownership. Thus, the assumption that the fact that majority of households in the close environment of this household have dishwashers increases the dishwasher ownership probability which was developed when the model is being established is verified. This result also verifies the assumption of Duesenberry's Relative Income Hypothesis that consumption spendings are affected by the social environment in which the household lives (Duesenberry,1949: 45). This finding means that neighborhood and other relations in the close environment in urban Uşak area are effective in consumption patterns.

According to relative income hypothesis, it is accepted that consumption decisions of consumers are not independent from each other; on the contrary, consumption decisions are affected by the social environment in which consumers interact. In this context, consumption decisions are – in addition to other factors – affected by the consumption decisions of the close associates like relatives, neighbors and people in the same profession (Wannacott, 1984: 230).

Assuming that education level of the household is among the important factors which affect dishwasher ownership probability, three dummy variables were inserted in the model that represent education level. Elementary school graduates were accepted as basic class, and secondary school, high school or vocational high school and higher education levels were represented by dummy variables.

Other factors constant, secondary school education level of a household increases dishwasher ownership probability by 13%, high school level or vocational high school level increases by 27%, and higher education level increases by 28%. The fact that all regression parameters related to education are statistically significant indicates that an increase in the level of education is an important factor which increases dishwasher ownership probability.

B-) RESULTS OF THE LOGIT MODEL

Estimation results of the Logit model stated as

$L_1 = b_0 + b_1D_1 + b_2D_2 + b_3D_3 + b_4D_4 + b_5D_5 + b_6X + u$, which was estimated in order to remove the disadvantages of Linear Probability model, are given in the following table.

Explanatory variable	Coefficient	t statistics
Constant term	-3,5029	-9,350
D_1	0,1672	0,677
D_2	2,0920	9,982
D_3	0,7611	2,527
D_4	1,4888	5,618
D_5	1,5951	5,009
X	0,1143	5,162

According to the estimation results, the dishwasher ownership probability of a household with 500 TL monthly income, elementary level of education, with housewife not employed in a paid job, and with majority of households in the close environment not having a dishwasher, is

$$P_{\dot{I}} = \frac{1}{1 + e^{-(-3,502 + 0,1143*5)}} = \frac{1}{1 + e^{-(-3,5029 + 0,5715)}} = \frac{1}{1 + e^{2,9314}} = \frac{1}{1 + 18,75} = \frac{1}{19,75} = 0,05$$

$= \%5$.

Dishwasher ownership probability of a household in basic class whose income increases to 1000 TLs is

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*10)}} = \frac{1}{1+e^{-(-3,5029 + 1,143)}} = \frac{1}{1+e^{2,3599}} = \frac{1}{1+10,59} = \frac{1}{11,59} =$$

$0,086 = \%8,6$.

Dishwasher ownership probability of a household in basic class whose income increases to 1500 TLs is

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*15)}} = \frac{1}{1+e^{-(-3,5029 + 1,7145)}} = \frac{1}{6,98} = \%14.$$

Dishwasher ownership probability of a household with 1500 TLs monthly income and elementary school level where housewife is employed in a paid job is

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*15+0,1672*1)}} = \frac{1}{1+e^{1,6212}} = \frac{1}{6,06} = 0,165 = 16,5\%.$$ Employment of housewife in a household which is at any income level increases the dishwasher ownership probability by 2,5%. However, as the coefficient for dummy variable which shows the status of employment at a paid job for the housewife is statistically insignificant at the level of 5%, it has been concluded that employment of housewife at a paid job does not have a considerable impact on dishwasher ownership probability.

Dishwasher ownership probability of a household with majority of households in close environment having a dishwasher is

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*15+2,0920*1)}} = \frac{1}{1+e^{-0,3036}} = \frac{1}{1,74} = 0,58 = 58\%.$$ Dishwasher ownership in majority of the households with which a particular household is in relation increases dishwasher ownership probability by some 44%.

Other factors constant, all dummy variables inserted in the model in order to identify the impact of an increase in education level on dishwasher ownership bear expected signs and are statistically significant. According to estimation findings, an increase in the level of education is an important factor which increases dishwasher ownership probability.

The dishwasher ownership probability of a household with 1500 TL monthly income, secondary level of education, with housewife not employed in a paid job, and with majority of households in the close environment having a dishwasher, is

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*15+2,0920*1+0,7611*1)}} = \frac{1}{1+e^{-1,0647}} = \frac{1}{1,35} = 74\%.$$ In other words, when education level increases to secondary level, the dishwasher ownership probability improves by some 16% compared to elementary school graduates.

If the education level of the sample household was high school or vocational high school, dishwasher ownership probability would be

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*15+2,0920*1+1,4888*1)}} = \frac{1}{1+e^{-1,7927}} = \frac{1}{1,17} = 85,5\%.$$ In other words, when education level increases to high school or vocational high school, the dishwasher ownership probability improves by 27,5% compared to elementary school graduates.

If the education level of the sample household was higher education, dishwasher ownership probability would be

$$P_{\dot{I}} = \frac{1}{1+e^{-(-3,5029 + 0,1143*15+2,0920*1+1,5951*1)}} = \frac{1}{1+e^{-1,8987}} = \frac{1}{1,15} = 87\%,$$ according to which, when education level increases to higher education, the dishwasher ownership probability improves by 29% compared to elementary school graduates.

CONCLUSION

In this study, factors that affect dishwasher ownership among households in Uşak province have been examined. As explained variables of econometric models used in the study were binary, estimations were based on Linear Probability and Logit models, which are binary dummy variable models.

Estimations based on both Logit model and Linear Probability model have concluded that employment of the housewife at a paid job is not a factor which has significant impact on dishwasher ownership. However, dishwasher ownership in the households in close environment with which a particular household is in relation, increase in education level of the household and income of the household have been identified as factors which significantly affect dishwasher ownership probability. Estimations have found out that when majority of the households with which a particular household is in close relation have dishwashers, the dishwasher ownership probability of that particular household increases, which indicates that Relative Income Hypothesis that assumes that consumption patterns are affected by the surrounding social environment is applicable in the urban area of Uşak province.

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