HORIZONTAL MOBILITY OF HOUSEHOLD ELECTRICITY CONSUMERS AND THEIR WILLINGNESS TO PAY FOR ADDITIONAL SERVICES: A PLATFORM FOR NEW MARKETING STRATEGIES OF ELECTRICITY DISTRIBUTION COMPANIES IN SLOVENIA

Petra Došenović Bonča, PhD
University of Ljubljana,
Faculty of Economics
Slovenia
petra.d.bonca@ef.uni-lj.si

Anja Milenković Kramer, MSc
University of Ljubljana, Faculty of
Medicine, Institute of Pathology
Slovenia
anja.milenkovic-kramer@mf.uni-lj.si

Maks Tajnikar, PhD
University of Ljubljana,
Faculty of Economics
Slovenia
maks.tajnikar@ef.uni-lj.si

Nina Ponikvar, PhD
University of Ljubljana,
Faculty of Economics
Slovenia
nina.ponikvar@ef.uni-lj.si

Abstract: This paper analyses the issues related to demand and electricity consumers' preferences and choices in order to develop a platform for designing new marketing strategies of the Slovenian electricity distribution companies. The analysis is limited to household customers. The aim of this paper is threefold. First, it investigates the horizontal mobility of households and the factors that influence consumers' decision-making process whether to switch their electricity supplier. Results show that household electricity consumers are price sensitive, however electricity suppliers have an option to lessen the customers' price sensitivity by increasing reliability of electricity supply, by influencing the complexity of administrative procedures related to switching the current electricity supplier, or by offering additional products and services to electricity consumers. Second, we study consumer expectations of additional products and services. We identify several additional products and services that the household consumers perceive as adequate complements to the electricity supply. Third, this paper investigates consumers' willingness to pay for such additional services and products. The evaluation of willingness to pay accompanied by expected pressures on electricity prices show that future profits of electricity suppliers will strongly depend on the offer of additional products and services. At the end, we suggest that electricity distribution companies in Slovenia will have to rethink and redesign their mission, vision and goals as well as their marketing strategies if they are to benefit from lessons of this research.

Izvirni znanstveni članek

HORIZONTALNA MOBILNOST GOSPODINJSKIH ODJEMALCEV ELEKTRIČNE ENERGIJE IN NJIHOVA PRIPRAVLJENOST PLAČATI DODATNE STORITVE: PLATFORMA ZA PRIPRAVO NOVIH MARKETINŠKIH STRATEGIJ SLOVENSKIH DISTRIBUTERJEV ELEKTRIČNE ENERGIJE

Povzetek: Naša raziskava je analiza vprašanj, povezanih s povpraševanjem, željami in odločitvami odjemalcev električne energije, da bi lahko pripravili temelje za pripravo novih marketinških strategij slovenskih distributerjev električne energije. Analiza se nanaša le na gospodinjske odjemalce. Imeli smo tri cilje. Prvič, raziskati horizontalno mobilnost gospodinjstev in dejavnike, ki vplivajo na potrošnikov proces odločanja o tem, ali naj zamenja svojega dobavitelja električne energije. Rezultati kažejo, da so gospodinjski odjemalci električne energije občutljivi na ceno, vendar imajo distributerji električne energije možnost zmanjšati to občutljivost, tako da izboljšajo zanesljivost oskrbe z električno energijo, da spremenijo administrativne postopke zamenjave dobavitelja električne energije in da ponudijo svojim odjemalcem dodatne storitve. Drugič, preučili smo pričakovanja potrošnikov glede dodatne ponudbe izdelkov in storitev. Identificirali smo več dodatnih izdelkov in storitev, ki jih gospodinjski odjemalci električne energije dojemajo kot ustrezno dopolnitev dobavi električne energije. Tretjič, preverili smo njihovo pripravljenost plačati za te dodatne storitve in izdelke. Rezultati kažejo, da bodo dobički distributerjev električne energije močno odvisni od dodatne ponudbe. Na podlagi raziskave na koncu predlagamo, naj slovenski distributerji električne energije na novo premislijo in preoblikujejo svoje poslanstvo, vizijo in cilje ter njihove marketinške strategije.

1. INTRODUCTION

This paper is a case study of Slovenian electricity distribution companies, which are facing a challenge to establish a more contemporary electricity system, where the market, competition and private ownership play an important role. On the supply side the Slovenian retail electricity market consists of five predominantly state-owned electricity distribution companies, which are regionally distributed and are the owners of the electricity distribution network. Besides these five firms new firms supplying electricity on the retail market are emerging. The ownership of new firms is in most cases mixed, i.e. partly private, partly state-owned. New suppliers entered the retail electricity market due to electricity market opening. In Slovenia, full electricity market opening took place in 2007. This has enabled horizontal mobility of business consumers and households; both are now free to select and/or switch to another electricity supplier. Enabled horizontal mobility was thus a precondition for establishing competition between electricity suppliers.

Although the abovementioned changes created favourable conditions for strengthened competition, it nonetheless remains weak and it has not yet achieved the desired effects. As a result, the five predominantly state-owned electricity distribution companies still maintain the predominant position on the retail electricity market with their market share exceeding 75 per cent (Energy Agency, 2010: p. 56). Furthermore, only a small percentage of consumers have since switched their retail supplier. In the first three years, after the market fully opened, only 21,655 changed their supplier, representing only 2.4 per cent of all electricity consumers. In this period, the largest increase in the number of consumers switching their supplier took place in 2009, when 12,749 business and household consumers, i.e. 1.4 per cent of all consumers, changed their retail electricity supplier. As it had been expected, household consumers were more reluctant to do so than business consumers. In 2009, only 1.1 per cent of all household consumers changed their electricity supplier (Energy Agency, 2010: p. 54).

The changes due to the opened electricity market and weak but increasing horizontal mobility of customers have brought forward the need to design new marketing strategies in Slovenian electricity distribution companies. In order to design such strategies the need to analyse the characteristics of electricity demand is also highlighted. This paper focusses on the issues related to demand and electricity consumers' preferenc-

Table 1: Sample descriptive statistics

Variable	Mean value	Standard deviation	Min	Max
Satisfaction with current electricity supplier	3.80	0.99	1	5
Monthly electricity bill in €	45.46	27.42	0	320
Number of household members	3.44	1.42	1	8
Number of household members under the age of 18	0.72	0.95	0	7
Number of male household members	1.56	0.85	0	5
Number of household members with a university degree	0.79	0.99	0	6
Number of household members employed full time	1.34	0.99	0	6

es and choices. The analysis is limited to household customers. By studying the characteristics of household electricity demand we build the basis for designing new marketing strategies in Slovenian electricity distribution companies. The aim of this paper is threefold. First, it investigates horizontal mobility of households and the factors that influence consumers' decision-making process whether to switch their electricity supplier. Second, we study consumer expectations of the expansion of provided products and services. Third, we also investigate consumers' willingness to pay for such additional services and products.

2. SAMPLE OF SLOVENIAN HOUSEHOLD ELECTRICITY CONSUMERS

Our analysis of demand and electricity consumers' preferences and choices is limited to household customers. An unbalanced stratified sample of households purchasing electricity from Supplier X, one of five electricity distribution companies in Slovenia, is applied. The data about consumers' preferences and choices were collected with direct interviews using a detailed questionnaire. 501 households were interviewed in customer service offices of Supplier X from October to December 2007. This period was chosen as at that time all households were already able to choose their electricity supplier, however, this option was still novel as it had been available for 4 months only. The sample is representative of the total population of consumers of Supplier X as the share of interviewed household customers in a particular area corresponds to the share of the Supplier X's household customers living in that area.

The questionnaire used for direct interviews consists of five parts. The first part is comprised of questions related to consumer preferences about the provision of additional services and products to be offered by Supplier X. The second part includes questions about customers' inclination toward switching their current electricity supplier in cases of (a) price differentials between their current supplier and other suppliers on the market, (b) differences in the array of additional services and products offered by their current supplier compared to other suppliers on the market, (c) differences in reliability of electricity supply between their current supplier and other suppliers on the market, and (d) complexity of administrative procedures related to switching to other electricity supplier. The fourth part is comprised of questions about customers' inclination to switch their current electricity supplier if the current supplier offered specific additional services and products. In this part of the questionnaire the additional services and products were specified in advance. The fifth part consists of demographic characteristics of the households.

Table 1 shows selected characteristics of the interviewed household consumers. Satisfaction with a current electricity supplier is measured with the five-point Likert scale (5 indicates high satisfaction). An average household in our sample spends €45.46 monthly for electricity and has 3.44 household members. The average number of members under the age of 18 is 0.72, the average number of male members is 1.56 and the average number of members with a university degree equals 0.79. On average 1.72 members are employed either full time or part time and 0.62 members are pensioners.

3. FACTORS AFFECTING HORIZONTAL MOBILITY OF HOUSEHOLD ELECTRICITY CONSUMERS

In this section of the paper we investigate horizontal mobility of households. We focus on electricity prices as the key factor affecting horizontal mobility of household electricity consumers. We look at the factors that influence consumers' price sensitivity. Identification of such factors allows us to infer conclusions about factors that affect consumers' decisions to switch to another electricity supplier. Based on the literature review (e.g. Choynowski, 2002; Ek and Söderholm, *2008;* Ferrari and Giulietti, 2005; Gamble et al., 2009; Hansla, 2004; *Pomp and Shestalova, 2007*) we set the following goals of our analysis. First, we investigate whether households are sensitive to price differentials between electricity suppliers and whether they are sensitive to such an extent that they would consider switching their current electricity supplier. Additionally, we investigate whether consumers' sensitivity to price differentials between electricity suppliers is affected by non-price factors, such as the provision of additional either electricity related or electricity unrelated services and products, reliability of electricity supply and complexity of administrative procedures associated with switching of the electricity supplier.

In the direct interviews the household consumers were asked whether they would consider switching their current electricity supplier if the price of their current electricity supplier exceeded the price of other electricity suppliers by 2, 5, 8, 10, 15 or 30 per cent. Based on these data we were able to investigate whether households are sensitive to price differentials between electricity suppliers by directly calculating the point price elasticity for electricity demand that reflects the relative change in the number of household consumers of a particular electricity supplier in response to a one-per-cent change in electricity price. The described data thus enabled us to overcome the parameter identification problem related to simultaneous equation relationship (Douglas, 1987; Tajnikar et al., 2000).

The results are shown in Column I of Table 2. Table 2 shows the cumulative share of household consumers that would consider switching their current electricity supplier at various price differentials. As indicated by Column I, at the electricity price differential between the current and other suppliers amounting to 10-15 per cent, the cumulative share of households considering switching their current supplier equals 51.02 per cent. Therefore, if only prices differed between electricity suppliers more than half of household consumers would consider switching their current electricity supplier at price differentials amounting up to 15 per cent. The point price elasticity is highest when the electricity price of the current electricity supplier exceeds the price of other potential suppliers by 8-10 per cent. This indicates that households' price sensitivity is highest when price differentials amount to 8-10 per cent. The results in Table 2 show that over 65 per cent of household customers would consider switching their current supplier at price differentials amounting up to 30 per cent. This result indicates that over 30 per cent of household customers are not price sensitive at the suggested price differences.

To investigate whether consumers' sensitivity to price differentials between electricity suppliers

Table 2: Households' sensitivity to electricity price differentials

Electricity price differential (in %)	only differences in electricity price		current electricity supplier offers additional products/services		current electricity supplier assures higher reliability of electricity supply		administrative procedures of switching electricity supplier are complex	
	(I)		(II)		(III)		(IV)	
	Cumulative share of households	Price elasticity	Cumulative share of households	Price elasticity	Cumulative share of households	Price elasticity	Cumulative share of households	Price elasticity
0-2	4.67	2.43	2.63	1.34	2.42	1.23	5.07	2.64
2-5	10.77	2.20	6.87	1.47	6.26	1.32	11.56	2.36
5-8	22.97	4.93	15.76	3.29	13.13	2.46	21.09	3.77
8-10	40.45	**13.35**	31.92	**10.80**	24.24	**6.67**	34.48	**9.30**
10-15	51.02	3.78	43.84	3.71	39.59	4.45	45.23	3.44
15-30	65.86	2.25	60.20	2.12	57.37	2.15	59.83	1.88

is affected by non-price factors, we again used direct interviews in order to establish whether household customers would consider switching their current electricity supplier if the price of their current electricity supplier exceeded the price of other electricity suppliers by 2, 5, 8, 10, 15 or 30 per cent, although their current supplier would provide either additional services and products or higher reliability of electricity supply. We also investigated whether at the same price differentials consumers' sensitivity would be affected by the complexity of administrative procedures associated with switching of the electricity supplier.

Results in Columns II-IV in Table 2 confirm that non-price factors impact the consumers' price sensitivity as suggested by theory (Douglas, 1987). It is reasonable to expect that the provision of additional products and services would decrease the consumers' price sensitivity. Column II of Table 2 confirms this expectation. In this case a lower percentage of consumers (60.2 instead of 65.86) would consider switching their current supplier at price differentials amounting up to 30 per cent. This indicates that almost 40 per cent of household customers are not price sensitive at the suggested price differences if additional products and services are offered by their current electricity supplier. Also in this case the households' price sensitivity is highest when price differentials amount to 8-10 per cent. Expectedly, the point price elasticity coefficient is lower (10.8) than in the case when the provision of additional products or services is not considered. A similar conclusion can be drawn from the results of the household consumers' price sensitivity in the case of the current supplier's superior reliability of electricity supply compared to other potential suppliers (Column III, Table 2) as well as in the case of complexity of administrative procedures associated with switching of the electricity supplier (Column IV). Interestingly, the share of households that are not price sensitive at the suggested price differentials is highest when the current electricity supplier assures higher reliability of electricity supply. The point price elasticity is also the lowest in this case.

Our discussion reveals that household consumers are price sensitive, however, electricity suppliers have an option to lessen the customers' price sensitivity and thereby retain their customer base even when price differentials are set in place. The key factor affecting price sensitivity is reliability of electricity supply. However, the latter cannot be affected by retail electricity suppliers as an electricity system network operator is responsible for assuring reliability. Similarly, electricity retailers have limited influence on the complexity of administrative procedures linked to switching the electricity supplier. On the other hand, they are free to design and expand the array of offered products and services. Hence, we further investigate the possibilities of electricity suppliers additionally providing both, the electricity related and the electricity non-related products and services.

4. NON-PRICE COMPETITION THROUGH ADDITIONAL PRODUCTS AND SERVICES OF ELECTRICITY DISTRIBUTION COMPANIES

This section of the paper investigates the willingness of household customers to buy additional electricity related and electricity non-related products and services offered by electricity suppliers in order to retain their customer base. The goal of our analysis is to establish those products and services that the consumers would include in the array of products and services offered by their current electricity supplier. To attain this goal we use the data obtained by means of direct interviews as mentioned in Section 2 of this paper.

In order to investigate the willingness of household consumers to buy additional electricity related and non-related products and services, we employed a benchmarking analysis to create a list of products and services offered by German and British retail electricity suppliers. This was then adapted to conditions on the Slovenian market and the capacity of Slovenian electricity distribution companies to include them in their offer (Tajnikar et al., 2008). Such a revised list of additional electricity related and non-related products and services was included in the questionnaire and evaluated by the interviewed households.

The interviewed households were asked to assess each of the listed additional products and services. They were asked to express whether they would include an individual product/service in the array of products and services offered by their current electricity supplier. Products and services were evaluated using the five point Likert scale with 1 indicating that the household consumer does not want a particular products or service in the array of products and services offered by their current electricity supplier and 5 indicating that the household consumer strongly agrees with the inclusion of a particular product or service into the supplier's array of products and services.

For every product and service included in the questionnaire Table 3 shows the mean value

Table 3: Consumers' willingness to buy additional products and services

Service/product	Mean value	Share of responses with mark 5 or 4 (in %)	Share of households NOT WILLING to buy (in %)	Share of households WILLING to buy (in %)
Offering advice on reducing electricity consumption	3.94	78.28		
Installing modern electricity meters	3.89	75.33	33.55	66.45
Offering a 24/7 maintenance and repair of electrical installation and wiring	3.66	67.22	30.96	69.04
Offering special offers and discounts for various products and services	3.61	62.28		
Opening a specialised shop offering electric devices	3.50	56.74	43.37	56.63
Designing and constructing electricity installations	3.46	58.17	46.57	53.43
Organising a network of firms providing repair of electrical household appliances	3.29	51.97	48.71	51.29
Organising a network of firms providing repair of TV and radio devices	3.26	50.11	50.00	50.00
Organising reward games for customers	3.12	39.29		
Publishing a monthly bulletin	3.08	40.27		
Providing internet access	3.06	39.73	64.16	35.84
Providing cable TV	2.94	34.35	65.45	34.55
Providing mobile phone services	2.73	26.42	74.09	25.91
Opening an internet specialised shop	2.71	27.46	77.54	22.46
Providing stationary phone services	2.69	25.74	72.04	27.96
Managing apartment buildings	2.50	19.95	77.97	22.03
Providing grocery delivery service	2.11	9.73	88.01	11.99
Providing home delivery of medicine	2.07	9.37	86.94	13.06
Providing prepared food delivery service	2.06	9.48	91.42	8.58

of the obtained answers from the interviewed household consumers based on the five-point Likert scale. Table 3 also shows the share of household consumers that assessed the products and services with highest marks of 4 and 5. In Table 3, the analysed products and services are listed in a descending order according to the mean value of the obtained assessments. The household consumers perceive the service of offering advice on reducing electricity consumption, the service of installing modern electricity meters and the service of a 24/7 maintenance and repair of electrical installation and wiring as the most appealing. For these three services a high share of household consumers selected either marks 4 or 5. As indicated by Table 3 services such as grocery delivery, prepared food delivery, home delivery of medicine and funeral services are perceived as the least interesting. Although these services are offered by several German and British electricity providers, households in Slovenia do not associate them with electricity distribution companies. Namely, households link such services to other more traditional types of utility service providers.

Although all products and services listed in Table 3 expand the activities of electricity distribution companies, not all of them can generate the supplier's additional revenue directly. Namely, services like advice on reducing electricity consumption, special offers and discounts, reward games and provision of monthly bulletins are forms of consumer bonuses provided free of charge. Their aim is to contribute to customer satisfaction and to thereby retain or even expand the customer

base. All other listed products and services are to be sold to household consumers. These products and services are also expected to increase customer satisfaction but more importantly they can generate additional revenue to their providers.

In assessing the potential for generating revenues by providing additional products and services both, their demanded quantity and an acceptable price, have to be considered. To shed some light on the demanded quantity of products and services that are to be sold to the household consumers, the interviewed household consumers were asked to identify whether they would actually buy such products and services from their current electricity supplier. The last two columns of Table 3 show the results. As expected, the strongest willingness to buy is characteristic for the service of a 24/7 maintenance and repair of electrical installation and wiring and the service of installing modern electricity meters. Namely, 69.04 per cent of household consumers are willing to buy these services. Similarly, 66.45 per cent of the interviewed household consumers would purchase the service of installing modern electricity meters. Willingness to buy is smallest for funeral services as only 7.74 per cent of the interviewed households would buy this service from their current electricity supplier.

In order to asses the acceptable price for additional products and services of electricity suppliers the aforementioned analysis of the willingness to buy has to be supplemented by an analysis of consumers' willingness to pay.

5. CONSUMERS' WILLINGNESS TO PAY FOR ADDITIONAL PRODUCTS AND SERVICES PROVIDED BY ELECTRICITY DISTRIBUTION COMPANIES

In this section of the paper we analyse the customers' willingness to pay for selected additional products and services that could be offered by electricity suppliers. Willingness to pay (hereinafter WTP) is the maximum amount an individual is willing to pay to acquire some goods or services, or the maximum amount an individual is willing to pay to avoid a prospective loss. WTP is usually elicited from stated or revealed preference experiments (Culyer, 2010: 549). In our case we assess WTP using the contingent valuation. Contingent valuation measures record preferences expressed in response to hypothetical circumstances as specified in the questionnaire (Brent, 2003: 298). Using the questionnaire, described in section 2 of this paper, the interviewed household consumers were presented with different possible future scenarios about the provision of additional products and services from their current electricity supplier. The respondents were asked to state the maximum amount of money they are willing to pay for a particular product or service. They were also asked to identify the price level they perceive as too high for a particular product or service.

Considering the questionnaire length and interview time limitations, the WTP was not assessed for all products and services listed in Table 3. After consulting the representatives of the Supplier X, only the provision of internet access and service of organising a network of firms providing repair of household appliances, TV and radio sets were included in the WTP analysis. These two services were selected because the Supplier X already has the needed capacities to assure their provision in a very short time. Although the two services selected for the WTP evaluation are not perceived by consumers as most interesting (see Table 3), a significant share of household consumers expressed their willingness to buy both services (50 per cent for services of organising network of firms providing repair of household appliances, TV and radio sets and 35.84 per cent for providing internet access).

5.1 WILLINGNESS TO PAY FOR INTERNET ACCESS

The data obtained by means of the questionnaire as described in Section 2 of this paper show that 68.54 per cent of all the interviewed households already have internet access. More than half of such household consumers (50.15 per cent) stated that they would be willing to change their internet service access provider and purchase internet access from their existing electricity supplier. 79.01 per cent of respondents that would consider changing their existing internet access provider stated that a lower price would be the main reason for changing their existing internet access provider. Other listed reasons for switching the internet access provider include better quality of access, faster access, greater reliability, etc. Of all the interviewed households 31.46 per cent do not have internet access. 15 per cent of such consumers indicated that they would be willing to purchase internet access from their existing electricity supplier either because they still do not have internet access, because other internet providers were not able to offer them internet access or because they would be interested in purchasing both internet access and electricity from the same provider. The latter reason is related to the principle of "one stop utility" shop.

Table 4: WTP for internet access

Groups of respondents	Category	N	Average	Standard deviation	Min	Max
			in € per month			
All respondents	WTP	472	11.61	8.38	0	30
	WTP_{max}	471	17.95	13.55	0	100
Respondents with internet access provided by other internet providers	WTP	322	13.76	7.14	0	30
	WTP_{max}	322	21.36	12.12	0	100
Respondents with internet access that would consider purchasing internet access from Supplier X	WTP	162	14.71	6.22	0	26
	WTP_{max}	158	21.81	9.09	0	40
Respondents without internet access	WTP	148	6.75	8.79	0	25
	WTP_{max}	147	10.37	13.56	0	50
Respondents without internet access that would consider purchasing internet access from Supplier X	WTP	19	14.61	6.77	0	24
	WTP_{max}	17	23.65	9.91	0	50

In order to evaluate WTP of the interviewed household consumers all respondents were asked to identify the amount they would be willing to pay for the provision of internet access by their existing electricity supplier. Considering that the majority of households in Slovenia already have internet access and that internet access is offered by several providers with intense marketing activities, we assumed that the interviewed household consumers have a fairly good notion about the price ranges. This is why we first asked an open-ended question asking the consumers to specify an amount of money they would be willing to pay for internet access. This amount represents an acceptable price for internet access for an individual interviewed household consumer. Second, we asked them to specify the level of price they would perceive as too high for the service of internet access. Results of the WTP evaluation are presented in Table 4. In Table 4, the descriptive statistics of the answers received on the question about the amount of money the interviewed households would be willing to pay for internet access are presented under category "WTP". The descriptive statistics of the received answers related to the second question are described under category "WTP_{max}".

As indicated in Table 4, the amount an average interviewed household consumer is willing to pay for internet access service is €11.61 per month. The average level of internet access price the respondents would perceive as too high for this service is €17.95 monthly. The average amount the respondents are willing to pay is highest in both groups of households that would consider purchasing internet access from Supplier X irrespective of whether they have or do not have internet access. Expectedly, the average amount the respondents are willing to pay for internet access is lowest in the group of households without internet access that are not considering the Supplier X as their potential internet access provider.

Besides identifying the amount households are willing to pay for internet access, we analysed willingness to pay further by studying its determinants. We used Tobit or censored regression analysis (Tobin, 1958) to investigate whether selected demographic and other characteristics of households obtained by means of the questionnaire significantly influence the above discussed amounts the households are willing to pay for internet access. Tobit model is typically applied in the case of data where a dependent variable, in our case willingness to pay, is 0 for a significant of observations. Namely, in such cases estimates obtained by conventional regression methods are biased. To study the determinants of willingness to pay we apply the following model (Greene, 2003):

$$WTP_i^* = \mathbf{x}'_i \beta + \varepsilon_i, \text{ where}$$

$$WTP_i = WTP_i^* \text{ if } WTP_i^* > 0 \text{ and } WTP_i = 0 \text{ otherwise}$$

WTP_i is the willingness to pay stated by household consumers. WTP_i^* is an unobserved latent variable. $\mathbf{x}_i$ stands for a vector of explanatory variables, β is a vector of regression coefficients and ε_i is a random error.

We estimated two models. The specification of the-willingness-to-pay factors that are tested as explanatory variables is identical for both models. Explanatory variables include an average monthly household electricity bill (*ebill*), number of household members (*member*), number of household members under the age of 18 (*member18*), number of male household members (*male*), number of household members with higher education de-

gree (*educ*) and number of employed household members (*employ*). The first model investigates the determinants of the amount the households have specified in the questionnaire as an acceptable price for internet access (WTP):

$$WTP_i^* = \beta_0 + \beta_1 ebill + \beta_2 member + \beta_3 member18 + \beta_4 male + \beta_5 educ + \beta_6 employ + \varepsilon_i$$

The second model studies those factors that determine the level of price the interviewed household consumers would perceive as too high for the service of internet access (WTP_{max}):

$$WTP\max_i^* = \beta_0 + \beta_1 ebill + \beta_2 member + \beta_3 member18 + \beta_4 male + \beta_5 educ + \beta_6 employ + \varepsilon_i$$

For the results of the Tobit regression estimation of both models see Table 5. The estimated coefficients in the second column represent the marginal effects of explanatory variables on the latent variable *WTP**. Similarly, the estimated coefficients shown in the fifth column represent the marginal effects of explanatory variables on the latent variable WTP_{max}*. Since our data are not censored, i.e. the dependent variables *WTP* and WTP_{max} are not incompletely observed but are continuous random variables over strictly positive values, we are interested in the marginal effects of explanatory variables on the expected observed dependent variables *WTP* and WTP_{max}. Thus, we are reporting not only the marginal effects on the latent dependent variable but also the marginal effects of explanatory variables on the unconditional expected value of the observed dependent variable (Cong, 2000). Coefficients representing the latter marginal effects are shown in the third and sixth columns of Table 5 for *WTP* and WTP_{max} respectively. Marginal effects of all explanatory variables are calculated at the means of variables. This means that they are calculated for the average household.

The analysis shows that the amount the households are willing to pay for internet access significantly increases with the average monthly household electricity bill. Results show that for one unit increase in the average monthly household electricity bill the expected increase in willingness to pay for internet access is €0.035. Households with more employed household members also exhibit higher willingness to pay for internet access. Given a one unit increase in the number of employed household members the expected increase in willingness to pay for internet access is €1.35. The impact of other variables is not found to be statistically significant.

Similarly, the level of price that the interviewed household consumers perceive as too high is positively influenced by the average monthly household electricity bill, but the impact is less significant. Results show that for a one unit increase in the average monthly household electricity bill the expected increase in the price level households perceived as too high for internet access is €0.48. The level of price that the interviewed household consumers perceive as too high is also determined by the number of employed household members. In this case the size of the coefficient, measuring the impact of the employed household members, is higher than in the first model. For a one unit increase the number of employed household members the expected increase in the price level households perceived as too high for internet access is €2.14.

Table 5: Tobit regression results

Variable	WTP			WTP_{max}		
	Marginal effect – latent	Marginal effect – unconditional expected value	t	Marginal effect – latent	Marginal effect – unconditional expected value	t
ebill	0.0415**	0.0347**	2.17	0.0577*	0.4755*	1.87
member	0.2116	0.1768	0.33	1.1747	0.9676	1.14
member18	-0.7053	-0.5893	-1.06	-1.0892	-0.8972	-1.01
male	-0.7318	-0.6115	-0.88	-1.5792	-1.3008	-1.18
education	0.3259	0.2723	0.60	1.4368	1.1836	1.61
employment	1.6127***	1.3476***	2.80	2.5999***	2.1417***	2.78
constant	6.1837***	5.1672***	4.18	6.5766***	5.4175***	2.72
LR $\chi 2$	23.27***			33.95***		

Notes: * significant at p<0.1, ** significant at p<0.05 and *** significant at p<0.01

Our results also indicate that the willingness to pay increases with the number of household members and the number of household members with a higher education degree. Willingness to pay, on the other hand, decreases with the number of household members under the age of 18 and the number of male household members. However, the related regression coefficients are not statistically significant.

5.2. WILLINGNESS TO PAY FOR THE SERVICE OF ORGANIZING A NETWORK OF FIRMS PROVIDING REPAIR OF HOUSEHOLD APPLIANCES, TV AND RADIO SETS

According to Table 3, more than half of all interviewed household consumers would be interested in buying the service of organizing a network of service providers for repairing household appliances, TV and radio sets from their current electricity supplier. In order to evaluate WTP for the service of organizing a network of firms providing repair of household appliances, TV and radio sets all the interviewed household consumers were asked to identify the amount they would be willing to pay for the provision of this service by their existing electricity supplier. Considering that this is a novel service not only for the electricity suppliers but also on the Slovenian market, we did not expect the interviewed household consumers to have a good notion about the price ranges for such a service. This is why, contrary to the questions posed in the case of internet access, we used a multiple choice question to infer about the price the interviewed household consumers would consider acceptable for the service of organizing a network of firms providing repair of household appliances, TV and radio sets. Multiple choice questions limited respondents' answers as they were offered six different price levels for the analysed service (0, 2, 5, 7, 10 and 11 euros) and then asked to select one of the offered price levels. In addition to selecting the acceptable price level, the respondents were also asked to identify the level of price they would perceive as too high for the service of organizing a network of firms providing repair of household appliances, TV and radio sets.

For the results of the WTP evaluation for the service of organizing a network of firms providing repair of household appliances, TV and radio sets see Table 6. They indicate that 45 per cent of respondents are not willing to pay for this service. Approximately 30 per cent of the respondents are willing to pay €2 monthly, nearly 15 per cent of the respondents would be willing to pay €5 monthly and only slightly more than 10 per cent would pay €7-11 monthly.

Table 6: Willingness to pay for the service of organizing a network of firms providing repair of household appliances, TV and radio sets

Category	N	Share (in %)
WTP 0 €	221	45.29
WTP 2 €	143	29.30
WTP 5 €	73	14.96
WTP 7 €	28	5.74
WTP 10 €	16	3.28
WTP 11 €	7	1.43
Total	**488**	**100**

As mentioned, the respondents were also asked to identify the level of price they would perceive as too high for the service of organizing a network of firms providing repair of household appliances, TV and radio sets (WTP_{max}). 467 of the interviewed household consumers answered this question. The average stated price amounts to €7.66 monthly with a standard deviation equalling €17.58.

Also for the service of organizing a network of service providers for repairing household appliances, TV and radio sets the willingness to pay was investigated further by studying its determinants. Again, we used Tobit regression analysis to investigate whether selected demographic and other characteristics of households obtained by means of the questionnaire significantly influence the above discussed amounts the households are willing to pay for the service of organizing a network of service providers for repairing household appliances, TV and radio sets. In this case we estimated only one model due to data limitations. The estimated model tests the factors that determine the level of price for the analysed service the interviewed household consumers perceive as too high (WTP_{max}):

$$WTP\max_i^* = \beta_0 + \beta_1 ebill + \beta_2 member + \\ + \beta_3 member18 + \beta_4 male + \beta_5 educ + \\ + \beta_6 employ + \varepsilon_i .$$

The results of the Tobit regression estimation for the tested model are in Table 7. Also in this case both the marginal effects of explanatory variables on the latent dependent variable and the marginal effects of explanatory variables on the expected observed dependent variable are reported. Marginal effects are again calculated at variable means, so the results hold for the average household. The analysis shows that the price level households perceive as too high for the analysed

Table 7: Tobit regression results

Variable	WTP_{max}		
	Marginal effect – latent	Marginal effect – unconditional expected value	t
ebill	-0.0073	-0.0041	-0.24
member	2.5063*	1.4022*	1.79
member18	-4.2179***	-2.3597***	-2.84
male	-1.0708	-0.5991	-0.61
education	2.3072**	1.2908**	2.02
employment	1.3700	0.7664	1.10
constant	-4.5958	-2.5711	-1.49
LR $\chi 2$	23.52***		

Notes: * significant at p<0.1, ** significant at p<0.05 and *** significant at p<0.01

service significantly increases with the number of household members and with the number of household members with a higher education degree. The results show that for one unit increase in the number of household members the expected change in the price level households perceive as too high for the analysed service is €1.4. One unit increase in the number of household members with high education will result in a €1.29 increase of the price level households perceive as too high for the analysed service. On the other hand, this price level is significantly negatively affected by the number of household members under the age of 18. Results show that for one unit increase in the number of household members under the age of 18 the expected decrease in the price level households perceive as too high for the analysed service is €2.36. Additionally, the price level that the interviewed households perceive as too high is negatively influenced by the average monthly household electricity bill although this impact is statistically insignificant. The same holds true for the impact of the number of male household members. The impact of the employed household members is, on the other hand, positive but also statistically insignificant.

6. CONCLUSION

This paper addresses three issues related to designing new marketing strategies in Slovenian electricity distribution companies in light of the changes brought by the electricity market opening.

The first issue addressed in this paper is horizontal mobility of household electricity consumers and the factors that influence consumers' decisions to switch the electricity supplier. Research shows that household electricity consumers are price sensitive, however, the electricity suppliers have an option to lessen the customers' price sensitivity by increasing reliability of electricity supply, by influencing the complexity of administrative procedures related to switching their current electricity supplier or by offering additional products and services to electricity consumers. The key factor affecting price sensitivity is reliability of electricity supply. However, the reliability of electricity supply cannot be affected by the retail electricity suppliers as assuring reliability is a responsibily of the electricity system network operator. Similarly, electricity retailers have limited influence on the complexity of administrative procedures related to switching the electricity supplier. On the other hand, they are free to design and expand the array of offered products and services.

This is why the second issue investigated in this paper is the willingness of household customers to buy additional electricity related and non-related products and services from their current electricity supplier. We employed a benchmarking analysis to create a list of products and services offered by German and British retail electricity suppliers. This array was than adapted to conditions on the Slovenian markets and the capacity of Slovenian electricity distribution companies to include them in their offer. We found that the household consumers perceive the service of offering advice on reducing electricity consumption, the service of installing modern electricity meters and the service of a 24/7 maintenance and repair of electrical installation and wiring as most appealing. As expected, households expressed

the strongest willingness to buy for the service of a 24/7 maintenance and repair of electrical installation and wiring and the service of installing modern electricity meters.

The willingness to buy selected additional products and services has to be supplemented by the analysis of consumers' willingness to pay to assess the potential of electricity suppliers for generating business revenues. This is why the third issue addressed in this paper is the consumers' willingness to pay for such additional services and products. Willingness to pay was evaluated for two services. For internet service access an average interviewed household consumer is willing to pay €11.61 per month. The average level of internet access price the respondents would perceive as too high for this service is €17.95 monthly. Both the acceptable and maximum amount the households are willing to pay for internet access is significantly higher in households with higher monthly electricity expenditures and in households with more employed members. In the case of the service of organising a network of firms providing repair of household appliances, TV and radio sets approximately 30 per cent of the respondents are willing to pay €2 monthly, nearly 15 per cent of the respondents would be willing to pay €5 monthly and only slightly more than 10 per cent would pay €7-11 monthly. 45 per cent of the interviewed household consumers are not willing to pay for this service. The average price perceived as too high for this service amounts to €7.66 monthly. The analysis shows that the price level households perceive as too high for the analysed service significantly increases with the number of household members and the number of household members with a higher education degree.

The three issues explored enable us to draw a platform for designing new marketing strategies in electricity distribution companies in Slovenia. Our research indicates that electricity distribution companies in Slovenia need to rethink and redesign their mission, vision and goals as well as their marketing strategy as part of their general business strategy. This conclusion stems from our findings that current customers of electricity distribution companies accept and expect increased market orientation of their current electricity suppliers as they are aware of the advantages of increased competition. Namely, our results show that electricity consumers are willing to change their current electricity suppliers, that they are sensitive to both price and non-price competition and that they are willing to purchase and pay for additional products and services.

The redesign of mission, vision and goals has to take into account the necessity to change the focus of electricity distribution companies from operations related to the functioning of the network to operations related to purchasing and selling electricity. Our results indicate that electricity consumers expect reorientation of processes towards creating higher value-added for customers. In creating higher value-added, reliability and the quality of electricity supply have to be a precondition and market orientation has to be the basic characteristic of new marketing strategies and policies of electricity distribution companies.

Changes brought by the electricity market opening and the readiness of consumers to switch their current electricity supplier no longer foster the existing regional geographical distribution of suppliers. As a result a single Slovenian electricity market is being formed where all electricity suppliers compete for all potential customers. The aggregate electricity demand in such a market is limited. In such circumstances the competition between suppliers will strengthen as the consumers' awareness of the possibility of horizontal mobility increases. Because our results show that electricity consumers are price sensitive, it is probable that the electricity prices will decrease almost to a level of average costs. In such circumstances purchase price of electricity, efficiency and non-price elements of competition become important issues. Our results confirm that electricity consumers are open to non-price competition. This means that marketing strategies of electricity distribution companies have to shift not only from assuring reliability and the quality of electricity supply to selling electricity but also from price to non-price competition. Namely, the electricity distribution companies will not be able to maintain or expand their customer base solely on the premise of reliability of supply and electricity price. The sale of electricity will have to be accompanied by the provision of other customer-oriented products and services. The expected pressures on electricity prices and our evaluation of willingness to pay indicate that future profits will strongly depend on the inclusion of additional products and services as complements to electricity supply.

In order to implement marketing strategies and policies based on the aforementioned platform, electricity distribution companies have to change their organisational structure and assign a greater role to their sales and marketing departments. Necessity for electricity distribution companies to engage in non-price competition and expand their array of products and services by including

both electricity related and non-related additional products and services also requires organisational changes. As a result electricity suppliers will have to become diversified multi-purpose companies.

Even though the results provide a valuable insight into preferences of household electricity consumers, some limitations of our study have to be highlighted. The first limitation stems from the fact that only household consumers of one of five electricity distribution companies were surveyed. Second, we make our conclusions based on stated preferences. Namely, there is a strong possibility that the survey based on stated preferences may result in the overstated actual willingness to buy and in the overstated actual willingness to pay. Third, the survey was carried out in 2007 when the electricity market fully opened. At that time the idea of horizontal mobility was new to household consumers. Repeating the survey at a later time might thus provide additional conclusions. However, it is reasonable to expect that the awareness of consumers about their options to change their electricity supplier will increase and that household consumers will become even more demanding and will increasingly seek ways to minimize their electricity bill and/or obtain additional value from their electricity suppliers. This is why we believe that the conclusions advocated in this paper will gain even more relevance as the electricity market develops and competition on the supply side strengthens.

REFERENCES

1. Brent, R.J. (2003). Cost-Benefit Analysis and Health Care Evaluations. Cheltenham (UK); Northampton (MA): Edward Elgar.
2. Choynowski, P. (2002). Measuring Willingness to Pay for Electricity, ERD Technical Note No.3. Mandaluyong City: Asian Development Bank.
3. Cong, R. (2000). Marginal Effects of the Tobit Model. Stata Technical Bulletin, 56, 27-34.
4. Culyer, A.J. (2010). The Dictionary of Health Economics, Second Edition. Cheltenham (UK); Northampton (MA): Edward Elgar.
5. Douglas, E.J. (1987). Managerial Economics: Analysis and Strategy. London: Prentice-Hall International.
6. Ek, K., & Soderholm, P. (2008). Households' Switching Behavior between Electricity Suppliers in Sweden. Utilities Policy, 16, 254-261.
7. Energy Agency of the Republic of Slovenia (2010). Report on the Energy Sector in Slovenia. Maribor: Energy Agency of the Republic of Slovenia.
8. Ferrari, A., & Giulietti, M. (2005). Competition in Electricity Markets: International Experience and the Case of Italy. Utilities Policy, 13, 247-255.
9. Gamble, A., Juliusson, E.A., & Garling, T. (2009). Consumer Attitudes towards Switching Supplier in Three Deregulated Markets. Journal of Socio-Economics, 38, 814-819.
10. Green, W.H. (2003). Econometric Analysis, Fifth Edition. Upper Saddle River: Prentice Hall.
11. Hansla, A., Gamble, A., Juliusson, A., Garling, T. (2008). Psychological Determinants of Attitude Towards and Willingness to Pay for Green Electricity. Energy Policy, 36, 768-774.
12. Pomp, M., & Shestalova, V. (2007). Switching Costs in Netherlands Energy Markets: Can Liberalisation Bring Benefits to Small Customers? De Economists, 155, 305-321.
13. Tajnikar, M., Brščič, B., Bukvič, V., & Ogrin, N. (2000). Upravljavska ekonomika z vajami. Ljubljana: Ekonomska fakulteta.
14. Tajnikar, M., Došenovič Bonča, P., Milenkovič, A., Ponikvar, N., & Pušnik, K. (2008). Ocena konkurence na trgu električne energije v Republiki Sloveniji in identifikacija ključnih tržnih strategij podjetja Elektro Maribor, d.d.. Ljubljana: Ekonomska fakulteta, Inštitut za javni sektor.