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THE ROLE OF CUSTOMER LOYALTY PROGRAMS IN PROVIDING INTEGRATED ENERGY SERVICES TO RESIDENTIAL CONSUMERS

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Objectives of the study

- **Objectives:**
  - What is the role of loyalty programs (LP) on energy markets?
  - Which factors impact on consumer‘s decision to participate in LP?
    - Consumer’s and household characteristics, energy services offered, supplier’s characteristics, consumption levels?
  - And, if the offer of integrated energy services is one of decisive factors.

Integrated energy services:
offer of all types of residential energy fuels and all other energy services aiming at energy savings, energy cost reductions and environmental-friendly use.

Motivation I

- **Research questions:**
  - Why LPs even entered into energy markets?
  - What is LP on energy market? What does it offer to consumers?

- **Answers:**
  - **Deregulation** caused transformation of energy markets
    - Increased competition between suppliers
    - Enriched offer with variety of energy services
    - Transition toward consumer engagement and relationship building
  - Present in other, already deregulated service markets (Verhoef, 2003)
  - Requirements for successful implementation of LPs (Berry, 1995)
    - Presence of competition on the market
    - Free choice of service provider
    - Ongoing demand for service

Motivation II (Loyalty programs)

- **Goals** of loyalty programs**:**
  - Enhancing consumer's loyalty (Peng & Wang, 2006)
    - Attitudinal loyalty (Berry L. , 1995)
    - Behavioral loyalty (Dick & Basu, 1994; Zeithaml, Berry, & Parasuraman, 1996)
  - Increasing consumer's satisfaction (Bansal, Taylor, & St-James, 2005)
    - Preferences for services (Hartmann & Ibáñez, 2007)
    - Rewarding mechanisms (Meyer-Waarden, 2015, Cook, 2016)
    - Minimization of price perception (Payne & Frow, 1997).
  - Tailoring market strategies
    - Differentiating service portfolio
    - Attracting new consumers

➡ **Sustainable and mutually beneficial long-term relationship**

Motivation III (Slovenian electricity market)

Figure 51: Movements of market shares of electricity suppliers to household consumers in the period 2011–2015

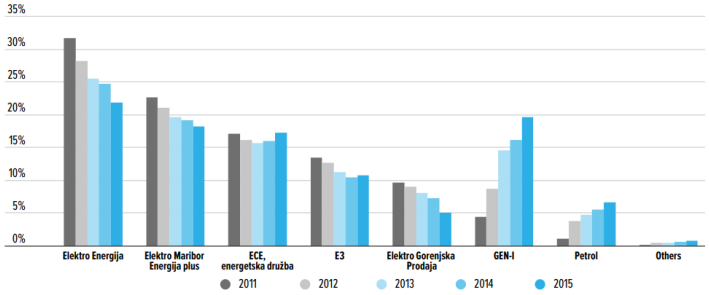
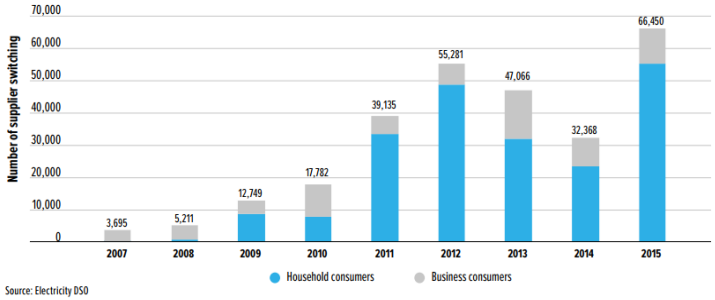
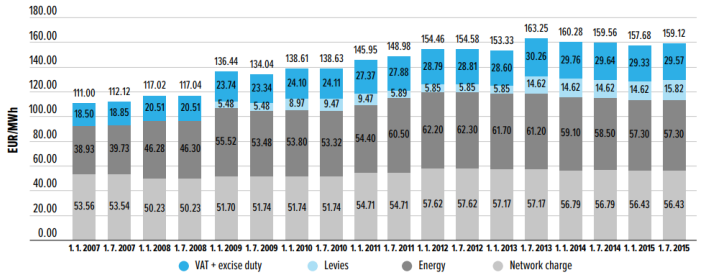


Figure 53: Number of supplier switching in the period 2007–2015



Source: Electricity DSO

Figure 43: Movements of final electricity price for a typical household consumer in Slovenia (Dc – 3500 kWh per year) in EUR/MWh



Source: Eurostat

- **Increased competition:** from 5 to 18 electricity suppliers supplying electricity with joint market share of new entrants more than 27% *(new entrants are more active toward consumers also with loyalty programs)*
- **Free choice of service provider:** 7.1% switching rate in 2015 indicates positive trend in comparison to previous years (*probably due to consumer's recognition of monetary gains of switching).*
- **Ongoing demand for service:** in 2015 electricity was supplied to 940,740 households and the number is increasing

Theoretical framework

- **Model**: participation in particular group of LP can be determined by:
  - Consumer's loyalty (Bolton, Kannan, & Bramlett, 2000; Verhoef, 2003; Peng & Wang, 2006; Hartmann & Ibáñez, 2007; Meyer-Waarden, 2015)
  - Consumer's satisfaction (Yang, 2014)
  - Consumer's preferences for energy services (Hartmann & Ibáñez, 2007)
  - The level of energy consumption (Wieringa & Verhoef, 2007)
  - Socio-economic characteristics (Peng & Wang , 2006; McDaniel & Groothuis, 2012)
- **Methods:**
  - Principal component analysis (PCA) to identify groups of preferences
  - Multinomial model (MLM) to identify determinants of participation in LP
    - Dependent variable consist of groups of loyalty program
    - Explanatory variables are PCA scores of preferences and other determinats of the model
- **Data:**
  - Supplier's database
  - Own survey data

Data

- **Supplier's database**
  - Electricity purchasing contractors or bill payers
    - Sample of 5,466 electricity consumers
    - Electricity bill information, Geographical location (region), Settlement (city, town, village), Age
  - Buyers at petrol stations (loyalty club card):
    - Information on purchase habits (amount, frequency, loyalty points)

- **Own survey data** (research on behavioral and attitudinal factors)
  - Online survey (self-administered questionnaire)
  - Carried out in February 2016
  - Final sample of 984 consumers

Principal component analysis: consumer's preferences

- **Core service quality**
  - Offering reliable, uninterrupted services
- **Service process quality**
  - Organizing a network of firms providing repair of HH appliances
  - Company is a consumer friendly company
  - Rewarding consumer loyalty
  - Free of charge help to the consumers
  - Offering advice on reducing electricity consumption
- **Competitive and transparent pricing**
  - Offering the lowest price
  - Company's bill is clear and transparent
- **Brand reputation**
  - Company has great reputation
- **Offer of additional services**
  - Offering multiple tariff billing systems
  - Offering household's specifications tailored offer
  - Opening online electricity bill payment
  - Opening an online consumption monitoring system
  - Opening a specialized shop offering electric appliances
  - Offering energy card
- **Offer of green energy**
  - Offering green energy

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Principal component analysis:
Results I

Description	PC1	PC2	PC3	Communalities
Core service quality				
Offering reliable, uninterrupted services			0.673	0.541
Service process quality				
Organizing a network of firms providing repair of HH appliances	0.583			0.643
Company is a consumer friendly company	0.711			0.644
Rewarding consumer loyalty	0.635			0.520
Free of charge help to the consumers	0.723			0.633
Offering advice on reducing electricity consumption	0.728			0.630
Competitive and transparent pricing				
Offering the lowest price			0.690	0.559
Company's bill is clear and transparent			0.590	0.499
Brand reputation				
Company has great reputation	0.548			0.497
Offer of additional services				
Offering multiple tariff billing systems		0.488		0.379
Offering household's specifications tailored offer		0.567		0.513
Opening online electricity bill payment		0.507		0.489
Opening an online consumption monitoring system		0.583		0.547
Opening a specialized shop offering electric appliances		0.737		0.618
Offering energy card		0.740		0.575
Offer of green energy				
Offering green energy		0.664		0.487
Explained variance (%)	**19.1**	**19.6**	**16.2**	
Cronbach alpha	**0.835**	**0.802**	**0.682**	

Principal component analysis:
Results II

- PCA extracted three PCs, namely:
  - ***PC1:*** *service process quality + brand reputation* ***= relationship management***
  - ***PC2:*** *additional services + EE + green energy* ***= integrated energy services***
  - ***PC3:*** *core service quality + competitive and transparent pricing* ***= reliable and low price services***
- Statistical tests confirm three PCs solution:
  - All items had satisfactory loadings as well **Cronbach's alphas** were satisfactory indicating that the scale is very reliable.
  - **Bartlett's** test of Sphericity with p-value = 0.000
  - **Kaiser-Meyer-Olkin** (**KMO**) test = 0.91
  - **Confirmatory factor analysis (CFA)** with GoF = (0.974; 0.957; 1.000)

Multinomial modeling I

- Multinomial model employed
- Logistic distribution assumed
- Dependent variable is a random variable indicating the choice made. Probability of choosing option *j* by consumer *i* is:

$$\Pr(Y_i = j \mid \mathbf{x}_i) = \frac{\exp(x_i' \beta_j)}{\sum_{l=1}^{J} \exp(x_i' \beta_l)}$$

- where $\sum_{l=1}^{J} \frac{\exp(x_i' \beta_j)}{\sum_{l=1}^{J} \exp(x_i' \beta_l)} = 1$

- Maximum Likelihood (ML) estimation

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Multinomial modeling II

- **Dependent variable:**
  - Loyalty card (LC) (61%),
  - Payment loyalty card (PLC) (25%)
  - No loyalty card (NC) (14%)
- **Explanatory variables:**

Variable name	Description	Calculation
PC1	PC1: Relationship management	Principal component factor score
PC2	PC2: Integrated energy services	Principal component factor score
PC3	PC3: Reliable and low price services	Principal component factor score
SAT	Satisfaction with energy supplier	Score on five-point Likert scale
USG_SERV	Usage of additional services	Average monthly bill for additional energy services (in €)
USG_FUELS	Usage of additional energy fuels	Average monthly number of additional energy fuels
CONSUMP	Average monthly consumption	Average monthly electricity bill (in €)
HH_MEMB	Number of HH members	Count of HH members (including children)
HH_INC	Household income (per capita)	Average income group achieved by sum of incomes of all HH members
EDUC	Education	Education level of contract holder

Descriptive statistics :
Consumer's profile and LP's statistics

- **Behavioral:**
  - very responsive to supplier's campaigns, two year term contract, 76% are buyers of two or more fuels, often use of benefits
- **Demographic:**
  - gender male, age between 45-55

•**Economic:**
- traditional lifestyle, number of HH members: 3, HH income (per capita): 1500-3000€, education level: University, electricity bill: € 60.35

•**Geographic:**
- central Slovenian region, size of the city: village

	Loyalty card (LC)	Payment card (PLC)	No card (NC)
Year 2015			
Loyalty card points			
Current status(8.1.2016)	1012.69	2022.62	0
Accumulated	1889.54	3617.65	0
Used	1041.40	1695.52	0
Energy bill – electricity (in €)	56.31	63.95	53.62
Energy bill - all fuels (in €)	676.02	880.41	543.32
Number of energy fuels	1.15	1.47	1.09
Number of bills for energy	12.15	14.71	10.05
Number of E-bills for energy	0.28	0.51	0.16

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Multinomial modelling: Results

Explanatory variables	Payment card vs. Loyalty card		No card vs. Loyalty card	
	Coeff.	S.E.	Coeff.	S.E.
Intercept	-5.220**	1.045	-.929	1.453
PC1: Relationship management	**-.210***	.115	.157	.171
PC2: Integrated energy services	**.402****	.107	.186	.155
PC3: Reliable and low price services	.103	.107	.083	.148
Satisfaction with energy supplier	**.484****	.170	-.189	.228
Usage of additional services	**.319****	.095	**-.275***	.130
Usage of additional energy fuels	**1.461****	.199	-.578	.403
Average monthly consumption	**.356****	.102	-.260	.173
Number of HH members	-.024	.081	.101	.127
Household income (per capita)	-.024	.117	.028	.172
Education	.130	.089	-.045	.133

The overall model has = 137.93, p = 0.00.

Pseudo R-square: McFadden = 0.120.

* Significant at the 0.10 level.

** Significant at the 0.01 level.

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Conclusions:
Recommendations for future market strategies

- **General recommendations:**
  - Consumers have heterogeneous preferences for energy services, which is reflected in different participation in loyalty program.
  - Differentiation of marketing strategies, tailoring offers (products and services) according to consumers' needs
- **LC group** (the biggest segment and potentially the most important)
  - Marketing campaign should be directed to improve relationship program in order to enhance/ activate these consumers. Emphasis on building strong relationship with consumers
  - Promoting additional services and increase their consumption/ use of services
- **PLC group**
  - PLC group are heavy users, they have to be targeted with even more additional services. Offering energy efficient technologies, green energy and bundled offers of different fuels.
- **NC group**
  - It is necessary to consider if it is worth dealing with these consumer segment. What to offer them? Large deviation in coefficients indicate not unique causes of inactivity.

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THANK YOU FOR YOUR TIME

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