

FACTORS INFLUENCING THE DECISION OF PREPAID ELECTRICITY USERS, AT PT PLN (PERSERO)-PT NATIONAL ELECTRICITY COMPANY (LIMITED LIABILITY COMPANY)

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ABSTRACT

Prepaid electricity, also known as smart electricity, is the newest innovation of Perusahaan Listrik Negara (PLN) (national electricity company), that offers numerous benefits to customers. However, it received a negative response from customers of Bandar Lampung PLN. This study aims to investigate the factors influencing customers to use prepaid electricity. A total of 100 customers (50 prepaid electricity customers and 50 postpaid electricity subscribers) of Rayon Way Halim PLN, participated in the tests.

Qualitative descriptive study and factor analysis were the methodologies adopted. We performed descriptive analysis to determine whether cultural, social, personal, and psychological factors influence the decision of customers. The results show that all the variables collectively and individually have significant effects on the decisions of postpaid and prepaid electricity customers regarding prepaid electricity. Therefore, the strategy for marketing prepaid electricity must focus on the abovementioned factors, especially the increase of socialization activity directly to the community.

KEYWORDS: *Customer Behavior, Influencing Factors, Prepaid Electricity*

Article History

Received: 27 Nov 2017 | Revised: 11 Dec 2017 | Accepted: 12 Dec 2017

INTRODUCTION

PLN (national electricity company) is the only BUMN (state-owned enterprise) managing the electrical industry of Indonesia. Electricity became available in Indonesia at the end of the 19th century. Electricity and Gas Department with a capacity of 157.5 MW was established on October 27, 1945. PLN customers have since availed postpaid electricity service. In this setup, customers are billed each month according to their electricity use. This type of service presents several problems. PLN must record the meter, calculate and issue the bill that customers must pay, conduct billing to customers who are late or do not pay, and disconnect electrical power if customers do not pay the electricity bill after a certain time.

Prepaid electricity service was launched to respond to the complaint of the community on the problems of surging electricity use, inaccurate meter reading, the visit of meter record officer that is considered disturbing, and power outage as a result of delayed bill payment. The adoption of prepaid electricity service is expected to address customer complaints and control electricity use.

However, several communities who prefer postpaid electricity service did not respond well to this offer from PLN. According to these communities, they do not want to be bothered with electricity matters and want everything to be sorted out. In particular, numerous customers in Lampung would feel ashamed to their neighbors for various reasons, such as if the alarm will ring when their electrical credit runs out.

Table 1: Number of PLN Lampung Customers

Customer Category	Total	Percentage (%)
Postpaid	1,100,797	70%
Prepaid	472,896	30%
Total	1,573,693	100%

Data in April 2013

Source: PT PLN (Persero) Lampung Distribution¹

Table 2: Number of PT PLN (PERSERO) Rayon Way Halim Customers

Year	Category				Difference	Total
	Postpaid	Percentage (%)	Prepaid	Percentage (%)		
2012	68,554	88	9,260	12	9	77,814
2013	67,370	77	20,354	13		87,724
May 2014	66,721	74	23,475	26	3	90,196

Source: PT PLN (Persero) Lampung Distribution¹

The data presented above demonstrate that the number of prepaid electricity customers in Rayon Way Halim increased from 2012 to 2013 at an annual rate of 9%. The number of customers increased from 2013 to May 2014, but the increase was only 3%, which is nonsignificant. The aim of PLN is that all customers use prepaid electricity. Therefore, the factors that will influence customers to use prepaid electricity must be determined. Krishnamurthy et al. (2016)² defined consumer behavior research as the study of when, why, how, and where people do or do not buy a product. Consumer behavior research combines elements from psychology, sociology, social anthropology, and economics. This type of research attempts to understand the decision making of consumers as individuals and as a group. The people's wants are studied by investigating the characteristics of individual consumers, particularly demographics and behavioral variables. The effects on consumers in groups, such as families, friends, reference groups, and society in general are also explored.

METHODOLOGY

Descriptive analysis was the data analysis method used in this study. Likert scale questionnaires were provided to the respondents.

Data collection was conducted through the following methods:

Questionnaire Survey

Questionnaire survey is a data collection method that involves sending written forms containing questions. It is used to obtain information from the object of study. It can be conducted at a large scale, is inexpensive, can be used to

obtain personal answers. However, the answers can be inaccurate, not all questions are answered, and not all answer sheets are returned.

Literature Research

The author obtained data from previous studies and other writings certainly related to the problems studied.

This study used survey questionnaire as its research instrument. The population in this study is the total number of PLN postpaid and prepaid customers in the household group (R1-R3) in Rayon Way Halim. All the customers in the household group (R1-R3) are considered homogeneous because they exhibit similar behaviors, which is the habit of paying electricity bills late.

Table 3: Number of Customers of PT PLN (Persero) Rayon Way Halim as of June 2014

Group/Rate	Number of Customers	
	Prepaid	Postpaid
R.1/450 VA	22	11,388
R.1/900 VA	13,145	28,415
R.1/1,300 VA	6,738	17,029
R.1/2,200 VA	1,880	4,605
R.2/3,500 VA to 5,500 VA	501	982
R.3/above 6,600 VA	61	157
Sub total	22,353	62,576
Total	84,929	

Source: PT PLN (Persero) Lampung Distribution¹

The study population is 84 929. The study was conducted on customers who have used prepaid electricity and those who still use postpaid electricity. The number of samples in each category was obtained through disproportional stratified random sampling. In this approach, sampling was conducted without performing comparison among subpopulations with respect to the number of members. The samples can be equal for each subpopulation taken from the populations of equal size, or the size only corresponds to the number of members in each subpopulation without accurate calculation (unsystematic).

For instance, if each sample has 10% of each type of customers, then 10% of 22 353 prepaid electricity customers is 2235 respondents and 10% of 62 576 postpaid electricity customers is 6257 respondents. The number of samples with 10% of each type of customers cannot be determined because the sample calculated is large, and the study is constrained by time. However, Gay et al. (1992)³ stated that “the minimum sample size that can be accepted can be viewed based on the design or method of study used. If its study design is descriptive-correlational, the minimum sample is 30.”

During sampling, the number of respondents who use postpaid electricity is equal to that of respondents who use prepaid electricity. The sampling is conducted through accidental sampling (convenience sampling). Convenience sampling (also known as haphazard or accidental sampling) is a type of nonprobability or nonrandom sampling, where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, and willingness to participate, are included in the study⁴. It also involves identifying subjects of the population easily accessible to the researcher⁵. The main criterion in this study is household groups of PLN Rayon Way Halim customers. The study variables include cultural (X₁), social (X₂), personal (X₃), and psychological (X₄) factors and product purchasing decision (Y).

Questionnaire Validity Test

An instrument is considered valid if it can measure what it is intended to be measured and can accurately reveal data from the variables studied. The validity of instruments show the extent at which collected data diverges from the description of the referred validity.

The value of r_{table} in the probability value (sig) in the value of α , as much as 0.05 (5%) is determined by using the following criteria of instrument validity:

- If $r_{count} > r_{table}$, then H_0 is rejected and H_a is accepted.
- If $r_{count} < r_{table}$, then H_0 is rejected and H_a is accepted.

Questionnaire Reliability Test

Reliability in statistics and psychometrics is the overall consistency of a measure⁶. A measure is said to have a high reliability if it produces similar results under similar conditions. Reliability is the characteristic of a set of test scores related to the amount of random error from the measurement that might be embedded in the scores. Highly reliable scores are accurate, reproducible, and consistent from one testing occasion to another. That is, if the testing process is repeated with a group of test takers, then the same results would essentially be obtained. Various kinds of reliability coefficients, with values ranging between 0.00 (large error) and 1.00 (no error), are usually used to indicate the amount of error in the scores⁷. In the present study, Cronbach’s alpha technique and SPSS (Version 20) for Windows are used to perform reliability testing.

Whether a questionnaire item is reliable is determined by the following criteria:

- If $\alpha > 0.60$, then the study instrument is considered reliable
- If $\alpha < 0.60$, then the study instrument is considered unreliable

RESULTS AND DISCUSSIONS

Descriptive Statistics of Each Variable

Each variable is described by first grouping the data on the basis of frequency distribution, frequency percentage, and category. The group (category) numbers can be divided by using the following formula:

$$\text{Interval} = \frac{\text{NT} - \text{NR}}{\text{K}}$$

Information

- NT : Total value of the highest expectation
- NR : Total value of the lowest expectation
- K : Category

$$\text{Interval} = \frac{50 - 10}{5} = 8$$

The calculation above shows that the group interval value obtained is 8; thus, the answer criteria can be determined for all variables.

Table 4: Criteria of Respondent's Answers

Group Interval	Answer Criteria
42 – 50	Very High
34 – 41	High
26 – 33	Medium
18 – 25	Low
10 – 17	Very Low

Source: Processed Primary Data, 2014

Response of Respondents on Cultural Variable (X1)

Postpaid Electricity Customers

The answers of postpaid electricity customers on question regarding culture, which affects the decision of Rayon Way Halim PLN customers to purchase prepaid electricity, indicated that all of the cultural factors (%) had “high” reliability (62.6%).

Prepaid Electricity Customers

The answers of prepaid electricity customers on questions regarding culture, which affects decision of Rayon Way Halim PLN customers to purchase prepaid electricity, indicated that the factor of culture (%) had “high” reliability (69.44%).

Response of Respondents on Social Variable (X2)

Postpaid Electricity Customers

The answers of postpaid electricity customers on questions regarding social variables affecting the decisions of Rayon Way Halim PLN customers to purchase prepaid electricity demonstrate that the social factor (%) had “high” reliability (71.4%). The result is consistent with the theory of Lamb (2001)⁸, that is, a social factor refers to a group of people who equally consider the similarity closely in status or community appreciation that continuously socialize formally and informally. Baker et al. (2016)⁹ said that the strength of a social relationship tends to influence a WOM receiver’s intentions to purchase a brand; however, social tie strength has a considerably weak association with a consumer’s WOM retransmission intentions.

Prepaid Electricity Customer

The answers of prepaid electricity customers on questions regarding social variables affecting the decision of Rayon Way Halim PLN customers to purchase prepaid electricity showed that social factor (%) had “high” reliability (70.88%). The results are also consistent with the theory presented by Lamb (2001)⁸.

Response of Respondents on Personal Variable (X3)

Postpaid Electricity Customers

The answers of postpaid electricity customers on questions regarding personal variables affecting the decision of Rayon Way Halim PLN customers to purchase prepaid electricity revealed that the personal factor (%) had a “high” reliability (63.7%).

Prepaid Electricity Customers

The answers of prepaid electricity respondents on question regarding personal variables affecting the decision of Rayon Way Halim PLN customers to purchase prepaid electricity showed that the personal factor (%) had a “high” reliability (68.73%).

Response of Respondents on Psychological Variable (X4)

Postpaid Electricity Customers

The answers of postpaid electricity customers on questions regarding psychological variables affecting the decision of Rayon Way Halim PLN customers to purchase prepaid electricity showed that psychological factors (%) had “high” reliability (69.1%).

Prepaid Electricity Customers

The answers of prepaid electricity customers on questions regarding psychological variables affecting decision of Rayon Way Halim PLN customers to purchase prepaid electricity showed that psychological factors (%) had “high” reliability (70.13%).

Response of Respondents on Product Purchasing Decision (Y)

Postpaid Electricity Customers

The answers of postpaid electricity customers about prepaid electricity product purchasing decision of customers of Rayon Way Halim PLN, show that the product purchasing factor (%) had “high” reliability (61.3%)

Prepaid Electricity Customers

The answers of prepaid electricity customers about prepaid electricity product purchasing decision of customers of Rayon Way Halim PLN show that the purchasing decision factor (%) had “high” reliability (66.64%).

From the study results, the conclusions in the following table can be drawn:

Table 5: Summary of Percentage (%) and Variable Category on Postpaid and Prepaid Electricity Customers

Variable	Postpaid		Prepaid	
	%	Category	%	Category
Culture	62.6	High	69.44	High
Social	71.4	High	70.88	High
Personal	63.7	High	68.73	High
Psychological	69.1	High	70.13	High
Purchasing Decision	61.33	High	66.64	High

Source: Processed Primary Data, 2014

Table 5 shows that the social factor is the most dominant factor among the variables that affect the decision of customers to use prepaid electricity. The variables and the most dominant factor that affect the decision of customers to use prepaid electricity is thus determined.

LITERATURE REVIEW

Several researchers claim that the introduction of a prepaid electricity system in several countries is beneficial to consumers and companies. For example, the prepaid electricity metering system in India minimizes human intervention in meter reading, bill calculations, and bill delivery, and thus ultimately reduces numerous defects found in current postpaid billing systems (Valluru, 2014)¹⁰. Datuk Amar Leo Moggie, Minister of Energy, Communications, and Multimedia in Kuala Lumpur, Malaysia, said that the introduction of a prepaid electricity system will result in consumers appreciating electricity better, especially in terms of power utilization. The adoption of such system will also reduce the number of defaulters and late payment for electrical bills (Baharuddin, 2001)¹¹. In Nigeria, a high percentage of electricity revenue is lost to power theft, incorrect meter reading and billing, and reluctance of consumers toward paying electricity bills on time in the context of a postpaid electricity metering system. A considerable amount of revenue losses can be reduced by using prepaid energy meters (Alpha, 2014)¹². Therefore, from the viewpoint of companies and states, economic factors and psychological factors, that is, motivation, influence customers' decision to use prepaid electricity.

The results of this research reveal that the social factor is the most dominant factor influencing the decision of customers in Lampung, Indonesia to use prepaid electricity. In contrast with Indonesia, several countries have adopted prepaid electricity long before. For example, Kettless in Alpha (2014)¹² stated that, prepayment metering/ prepaid electricity has been adopted in the UK for over 70 years and over 3.9 million electricity consumers subscribed to prepayment metering alone. Nowadays, customers have the option of availing prepaid electricity service from several electricity providers. Customers typically select companies on the basis of the rates provided. Customers in Dallas, Texas, USA decide to use prepaid electricity on the basis of their income, given price, and ease of use (M2 Presswire, 2016)¹³. Prepaid electricity service is also available in other countries such as the UK, Australia, and Philippines. These data demonstrate that the economic factor, which is a personal factor, influences customers' decision to use prepaid electricity.

In contrast with the USA, UK, Australia, and Philippines, several factors influence the decision of customers in Nairobi, Kenya to use prepaid electricity. Access to information and education are the two most influential psychological factors. Income, economic status, and the advantages of prepaid electricity are other factors that affect the decision of customers to use prepaid electricity (Mukosi, 2010)¹⁴.

CONCLUSIONS AND IMPLICATION

Conclusions

This study aims to investigate factors that affect the decisions of postpaid and prepaid electricity customers to use prepaid electricity. Thus, the following conclusions can be drawn on the basis of the study results and discussion:

- Cultural, social, personal, and psychological factors simultaneously influence customers' decision to use prepaid electricity. This condition equally applies to postpaid and prepaid electricity users.
- Cultural, social, personal, and psychological factors individually affect customers' decision to use prepaid electricity. This condition equally applies to postpaid and prepaid electricity users.
- Social factor is the most dominant factor affecting postpaid and prepaid electricity customers' decision to use prepaid electricity.

Implication

On the basis of the study results, the author provides the following recommendations:

PT PLN (Persero) Rayon Way Halim must improve their strategy, for marketing prepaid electricity by adopting a more aggressive approach that directly influences the community (related to social factor). By regularly conducting socialization activities, the company can provide customers with clear and complete information about prepaid electricity, which will consequently increase the percentage of other variables.

PT PLN (Persero) Rayon Way Halim must pay more attention on other influencing factors, such as improving innovation on prepaid electricity products offered to customers. For example, the company can add tone features from which customers can select as their notification that their electricity credit must be refilled. PLN must also develop innovations to integrate the metering service of prepaid electricity and cellphone to enable customers to control the electricity use whenever and wherever they are. This innovation is related to the indicator of product quality. The innovations increase the value of prepaid electricity and convince customers to switch to the use of prepaid electricity.

PT PLN (Persero) should also provide test drive service for prospective customers within a certain period (for example, for a month), to prove the effectiveness of prepaid electricity service.

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