



Factor Influencing Fixed Broadband Provider Choice Decision (Case Study of IndiHome Consumer Choice)

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ABSTRACT: Since the Covid-19 pandemic in Indonesia, people's activities have changed drastically due to quarantine and distance restrictions. Almost all activities from school, work, health consultations, sports and others are carried out online from where they live. This gave rise to a new need for the people of Indonesia, namely a broadband internet connection. The demand for fixed broadband internet service providers has increased since the Covid-19 pandemic and is predicted to continue to grow until 2026. This situation opens up enormous business opportunities for fixed broadband internet service providers or what we are familiarly calling Wifi. The number of newcomer brands of fixed broadband internet service providers has created competition. So far, the IndiHome brand still leads the fixed broadband internet service provider market in Indonesia with the largest market share. However, at the end of 2021, to be precise from October to December 2021, IndiHome experienced an increase in the percentage of churn rate (customers who unsubscribe or revoke services). The purpose of this study is to determine the factors that influence customer decisions in choosing fixed broadband internet service provider products and to provide recommendations to IndiHome. Choice modeling analysis will be used in this research, which is to estimate the probability that the Greater Jakarta citizen will choose a brand of fixed broadband internet service provider. This research was conducted on 201 The author creates a description of the question or stated preference scenario using D-efficient from NGENE software. The resulting scenarios are 28 scenarios with 3 alternatives and 7 attributes, namely product quality, internet speed, price, customer service, brand image, promotions, and bundling packages. Respondents were asked to answer product choices according to brands through a combination of scenarios. The results show several attributes that have significant values. These attributes are the prices for the IndiHome, Biznet and Iconnet brands. Internet speed on the IndiHome brand, Customer Service on the IndiHome and Iconnet brands and Bundling Packages on the Iconnet brand. There are several recommendations for IndiHome to pay attention to attributes that have significant and elastic value.

KEYWORDS: Customer Choice Decision, Choice Modeling, Internet Service Fixed Broadband Provider, Wifi.

1. INTRODUCTION

With the emergence of the Covid-19 outbreak that has caused countries around the world to go into lockdown, Indonesia is one of them. After going through the lockdown period, Indonesia finally began to enter a new normal period in 2020. This transition caused people's lifestyles to change as activities changed. Since there are some government regulations about the lock down, new normal and social distancing, many activities are aimed at transforming to digitalization, such as education that leads to school from home, and work becoming work form home [1]. This phenomenon finally gave rise to a new need for life for some people, namely Internet connection service. Currently, there are several fixed broadband internet service providers in Indonesia, such as IndiHome, First Media, MNC, CBN, XL Home, My Republic, Iconnet, Biznet, and Oxygen. But not all brands of fixed broadband internet service are available in all regions in Indonesia, only a few brands have broad coverage, the rest only cover densely populated areas such as Greater Jakarta (DKI Jakarta, Bogor, Depok, Tangerang, Bekasi) or some areas in West Java. Given the current internet has become a primary need. Some people can not live without internet service. Of course, this fixed broadband internet service product is an important factor to support the course of daily activities [2]. This is a great opportunity for fixed broadband internet service providers to compete to increase sales. To be able to continue to compete and survive in the market, of course, companies must innovate to meet the changing needs and desires of customers.

2. BUSINESS ISSUES

According to the survey results of the Indonesian Internet Service Providers Association (APJII) In Indonesia, products from indiHome still dominate 67.54% of the fixed broadband internet service market. The rest is occupied by several other brands such



as First Media which controls 3.88% of the market then MNC Play 2.88%, iConnet 2.24%, Biznet 1.52%, Oxygen 1.04% and there are several other new brands such as XI Home, My Republic and others whose value is still unknown [3]. The emergence of new players who are starting to target the low income market by offering low-cost products in the fixed broadband internet service sector certainly increases the intensity of existing competition. This is also shown by the number of IndiHome customers who unsubscribe or disconnect services. At the end of 2021, precisely from October to December 2021, indiHome's churn rate showed an increase by 29.11%. This research will obtain information or knowledge about significant attributes that can influence customer choice decisions in terms of choosing a fixed broadband internet service provider. Find an effective business strategy for IndiHome to be able to continue to compete with new entrants, expand their market and become the customer's choice

3. METHODOLOGY

For data collection, the author uses primary data collection. Author uses google form media. Which will be distributed to prospective respondents online. The author chose google form as the medium because most people are familiar with google form so that it will be easier. The target respondents themselves are customers or potential customers of fixed broadband internet service who are domiciled in Greater Jakarta (Jakarta, Bogor, Depok, Tangerang, Bekasi) since those areas are densely populated areas and the same areas have been covered by the three brands of fixed broadband internet service providers IndiHome, Biznet, and Iconnet. Author choose Biznet and Iconnet to be the brand alternative of this research because Biznet is one of popular new comer fixed broadband internet service provider in Indonesia, and Iconnet is new comer fixed broadband internet service provider from the government state owned company which offer low price product. The target respondents in this study were 17-50 years old, with male & female gender. Primary data will be obtained from questionnaires that are distributed as minimally as possible 200 Respondents. This study uses a stated preference questionnaire because the author will compare several scenarios to obtain information about customer preferences. In the questionnaire that will be distributed, respondents will choose 3 alternative products along with their attributes on the basis of their preferences for the product or service. The author will provide several scenarios that will be assessed by respondents, where the scenario will be made based on D-efficient using NGENE choice metrics software. This software will make it easier for author to randomize the scenarios that will be given to respondents and also make it easier for respondents to decide on their alternatives that have been provided [4]. In the Table 1 its shows the attribute formulation design data, for the scoring of the attributes Product quality, Customer Service, Brand Image, Promotion its come from the result of the preliminary survey to the respondent, and for the attributes Internet speed, Price, dan bundling package the source its from the company website.

Table 1. Attribute Formulation Design (Author, 2022)

Attribute	IndiHome	Biznet	Iconnet
Product Quality (Score)	5,7,9	5,7,9	1,3,5
Internet Speed (Mbps)	20,30,50,100	30,100,200,250	10,20,50,100
Price (Rp)	270,470,670,970	250,370,570,770	130,180,290,430
Customer Service (Score)	5,7,9	6,8,10	3,5,7
Brand image (score)	3,5,7	5,7,9	2,4,6
Promotion (score)	5,7,9	4,6,8	6,8,10
Bundling Package (Type)	1,2,3	0,1,2	0,1,2

This research uses quantitative methods because the research data is obtained through a survey shown to the respondents. To be able to see the significant attributes and the elasticity of the attributes of products or services for the object of this research, the authors process data from questionnaires that have been filled out by respondents with the Multinomial Logit Model using Pandas Biogeme



[5]. Because in Discrete choice models that have been widely used in marketing, transportation, economics and many other areas to study both revealed and stated preference data. The most commonly used discrete choice model has of course been the Multinomial Logit [6]. Based on the Random Utility Maximization Method theory, probability of a person, symbolize by (n), then in the section choose an alternative denoted by (i) over a set of alternatives (j) that maximize its utility (U_{in}) is shown in Equation.1. [7]

$$P_{in} = Pr (U_{in} > U_{jn}, \forall j \in C_n, j \neq i) \tag{Eq.1}$$

In the formula above, the symbol \cdot appears. Where C_n is the set of choices offered. In this study, each scenario set has three alternative namely IndiHome (IDH), Biznet(BZT), and Iconnet (ICN). This means that if someone wants to choose a IDH as a substitute over BZT and ICN, they need to make sure that the U_{in} of IDH is greater than the U_{in} of BZT and ICN.

The utility U_{in} is then decomposed into a deterministic part denoted by V_{in} (observed and queried by the questionnaire) and a random (unobserved) part denoted by ε_{in} , as shown in Equation 2. [7]

$$U_{in} = V_{in} + \varepsilon_{in} \tag{Eq.2}$$

The purpose of this method is to predict the nominal dependent variable (V_{in}) given one or more independent variables, as shown in Equation 3. This method is sometimes considered an extension of binomial logistic regression, intended to allow grouping of more than one dependent variable.

The utility function for the three alternatives can be seen in Equation 3. [7]

$$V_{in} = \alpha_{in} + \beta_{PR}!PR! + \beta_{B!}!B! + \beta_{PC!}!PC! + \beta_{Q!}!Q! + \beta_{H!}!H! + \beta_{E!}!E! + \beta_{A!}!A! + \beta_{S!}!S! \tag{Eq.3}$$

And for the unlabelled experiment the utility function for the three unlabelled alternative can be seen in equation 4. [7]

$$V_{in} = \beta_{PR}!PR! + \beta_{B!}!B! + \beta_{PC!}!PC! + \beta_{Q!}!Q! + \beta_{H!}!H! + \beta_{E!}!E! + \beta_{A!}!A! + \beta_{S!}!S! \tag{Eq.4}$$

where α_{in} represents the alternative intrinsic constant of people which denoted by (n) in terms of choosing a fixed broadband Internet service provider which denoted by (i). β_k is a parameter that determines the direction and meaning of attribute (k) in alternative use i. Attributes (k) in this case are product quality (pq), internet speed (is), price (ps), customer service (cs), brand image (bi), promotions (pr), and bundle package (bp). In this case, there are three choices (ASC), the alternative choice are IndiHome (ASC1), Biznet (ASC2) and Iconnet (ASC3). ASC 1 is meant as a reference for comparison with ASC 2 and ASC 3, so the results of ASC 1 cannot be extrapolated. A formulation of the probability that person n chooses option i (i=1,2,3) from the set of options (j) shown in Equation

5. [7]

$$P_{in} = \frac{\exp(V_{in})}{\sum_{j=1}^{C_n} \exp(V_{jn})} \tag{Eq.5}$$

In equation 6 shows what happens when a person chooses IDH over BZT or ICN. Model estimation using maximum likelihood estimation (MLE). [7]

$$P_{IMn} = \frac{\exp(V_{IMn})}{\exp(V_{IMn}) + \exp(V_{KMn}) + \exp(V_{FMn})} \tag{Eq.6}$$

Elasticity is another measure used to measure the probability of choice each alternative will change in response to changes in the value of an attribute [7]. In this multinomial and nested logit model, elasticity can be interpreted as the rate of change of the variables associated with or influencing a 1% change in the explanatory variables. Elasticity differs from derivative because it is normalized by the unit variable. Given by equation 7. In the next subsection, author show how to measure the direct elasticity [7]

$$n_{X_{ik}}^{P_i} = \beta_k X_{ik} (1 - P_i) \tag{Eq.7}$$

where $n_{X_{ik}}^{P_i}$ define the elasticity, and β_k is the symbol of attribute coefficient. Attribute level denoted by X_{ik} . And probability symbolized by P_i . All the basic equation will converted into Python-Biogeme language.

4. RESULT AND DISCUSSION

In this study, the authors collected 706 data . Biogeme can estimate model parameters, test hypotheses about those parameters and estimate various random utility models with maximum likelihood. In the end the simulation results will display a number of t-tests and P-values as shown in the table 2:

Researchers select only item that meet the criteria. The selected attribute must have a t-test value $|t| > 1.96$ [8] or P-values with values $\alpha < 0.05$ [9]. The researcher presents the data filtered according to the required criteria in a table 2:



Table 2. Significant Attribute of Labelled Alternative Data (Author, 2022)

No	Name of Attribute	Alternative Description	Attribute description	t-test
1	Price	Biznet	Price	-4,54
2	Bundling Package	Iconnet	Bundling Package	-2,13
3	Customer Service	Iconnet	Customer Service	2,95
4	Price	Iconnet	Price	-3,29
5	Customer Service	IndiHome	Customer Service	-2,46
6	Internet Speed	IndiHome	Internet Speed	4,68
7	Price	IndiHome	Price	-8,10

After getting a number of significant items, the elasticity test will be carried out for these items. If the price elasticity of demand is greater than 1, it is elastic. Conversely, if the price elasticity of demand is less than 1 it is called inelastic [10]. The elasticity measuring result shows in table 3

Table 3. Attribute Elasticity Result of Labelled Alternative Data (Biogeme, 2022)

No	Alternative	Attribute	Elastic Standard	Elasticity Value	Elastic/ Inelastic
1	Biznet	Price	$x \geq 1$	-0.807712	Inelastic
2	Iconnet	Bundling Package	$x \geq 1$	-0.939548	Inelastic
3	Iconnet	Customer Service	$x \geq 1$	1.185790	Elastic
4	Iconnet	Price	$x \geq 1$	-1.267825	Elastic
5	IndiHome	Customer Service	$x \geq 1$	-1.078186	Elastic
6	IndiHome	Internet Speed	$x \geq 1$	0.933788	Inelastic
7	IndiHome	Price	$x \geq 1$	-2.765642	Elastic

5. CONCLUSION

After analyzing the research results the author came up with a research conclusion. The research conclusion will answer the research questions and research objectives of this study. Some of the things that the author found in this study, namely:

In the analysis results as a whole or in general there are 4 attributes that significantly affect the customer choice decision while selecting the Fixed Broadband Internet Service Provider they will use. Those 4 significant attributes are Price, Internet Speed, Customer Service and Bundling Package.

1. For the IndiHome Brand, the attributes that significantly influence the customer choice decision are Price, Internet speed and customer service.
2. For the Biznet Brand, the attribute that significantly influences the customer's choice decision is Price.
3. At the Brand Iconnet, the attributes that significantly influence the customer choice decision are Price, Customer service and Bundling Package.

6. RECOMMENDATION

From the analysis results, the authors suggest IndiHome to create a new product segment aimed at the low affordability segment, add a product with a higher internet speed type to meet the needs of consumers who need high-speed internet, since the competitor



already offer product with the internet speed up to 1000 Mbps. The company also must be able to carry out performance evaluations based on customer suggestions and input regarding customer service and then provide training programs to be able to increase the effectiveness of the services provided and the last the company need to focus on IP products.

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