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Among Subscribers of Two Biggest Telecommunication Providers in Indonesia: What Factors are Involved in Customer Retention?

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Abstract
The study objective was to compare influencing factors on customer retention of two brands – SimPATI and IM3 – of telecommunication services owned by Telkomsel and Indosat, two giant mobile telecommunication providers in Indonesia. The authors applied predictor variables including perceived tariff, perceived quality, switching barriers, and customer satisfaction. These variables were used after reviewing literature in quantitative studies on consumer behaviour relating to telecommunication services. This study used indicators adopted and adapted from literature. The quantitative data were gathered in Jakarta, involving 205 subscribers of SimPATI and 202 subscribers of IM3. The authors selected respondents purposively. Data were analysed using both exploratory and confirmatory factor analyses. Two fitted models were developed confirming factors that were involved in customer retention as stated on the proposed model: perceived tariff, perceived quality, switching barriers, and customer satisfaction. However, parts of the hypotheses were rejected.
Keywords
Customer retention, switching barriers, telecommunication providers, structural equation model, SimPATI, IM3, Indonesia

1. INTRODUCTION

Most studies on customer behaviour in mobile telecommunication services took place in Africa and Asia, particularly relating to customer retention, perceived tariff, customer satisfaction, perceived service quality, and switching barriers. In Africa, for example, Oyeniyi and Joachim (2008) in Nigeria; Ocloo and Tsetse (2013) and Antwi-Boateng, Owusu-Prempeh, and Asuamah (2013) in Ghana;Katono (n.d.) in Uganda;

Furthermore, in South Asia includingIqbal, Zia, Bashir, Shahzad, and Aslam (2008), Aamir, Ikram, and Zaman (2010), Siddiqui and Javed (2012),Kouser, Qureshi, Shahzad, and Hasan (2012),and Afzal, Chandio, Shaikh, Bhand, and Ghumro (2013) in Pakistan; Rajkumar and Chaarlas (2012), Sathish, Kumar, Naveen, and Jeevanantham (2011), Chaarlas, Rajkumar, Kogila, Lydia, and Noorunisha (2012), and Kumar and Singh (2008) in India; In South East Asia, includingUturestantix, Warokka, and Gallato (2012) in Indonesia;Habib, Salleh, and Abdullah (2011) in Malaysia. In East Asia, includingM.-K. Kim, Park, and Jeong (2004) in Korea; Chen and Myagmarsuren (2011) in Taiwan; (Guo, Zhang, Wang, & Li, n.d.) in China; it may show that in these continents, the telecommunication service industry is developing and dynamic. In addition, studies with different setting of regions also can be found, for example, in the USA (Shin & Kim, 2008) and in Germany (Gerpott, Rams, & Schindler, 2001).

To select which variables to predict customer retention, the authors identified variables used by existing literature in the telecommunication industry. The table below indicates that perceived tariff, customer satisfaction, perceived service quality, and switching barriers were chosen to predict customer retention.

Table 1-factor analysis results of perceived tariff

Perceived tariff	Perceived service quality	Switching barriers	Customer satisfaction	Customer retention	Sources
●			●	●	Ali et al. (2010)
●	●			●	Blery et al. (2009)
		●	●	●	Oyeniyi and Abiodun (2010)
			●	●	Dzisah (2013)
			●	●	Katono (n.d.)
		●	●		Kyriazopoulos and Rounti (2007)
	●		●		Mabkhot (2010)
		●	●	●	Sari and Suryadi (2013)

The main objective of this study is addressed to examine a model to predict customer retention of two telecommunication service providers in Indonesia.

2. Literature review

This study is conducted based on literature on customer retention in telecommunication service industry. As mentioned above, there are four predictor variablesto be included to predict customer intention (see the table below).

According to Kyriazopoulos and Rounti (2007), Shahzad Khan (2012), and Khuhro, Azahr, and Bhutto (2011), customer satisfaction is influenced by perceived tariff. Their studied indicated that the influent is significant and positive. Furthermore, Deng, Lu, Wei, and Zhang (2010) and Mabkhot (2010) proved that customer satisfaction is influenced significantly and positively by perceived service quality.

Perceived tariff might have a significant and a positive link with customer retention as studied by Ranaweera and Neely (2003) and Molapo and Mukwada (2011). In addition, customer satisfaction also might have a significant and positive link with customer retention as studied by Dzisah (2013), Katono (n.d.), Novianti, Suryoko, and Nugroho (2013), Oyeniyi and Abiodun (2010), and Peighambari (2007).

Furthermore, Ranaweera and Neely (2003) and Molapo and Mukwada (2011) in their studies tested a link between perceived service quality and customer retention. As a result, these scholars found that there was a significant and positive link between those variables.

The last predictor variable in this study is switching barriers. This variable, according to Oyeniyi and Abiodun (2010), Peighambari (2007), and Sari and Suryadi (2013) had a significant and positive link with customer retention.

Table 2-List of literature referenced in this study

Independent variable		Dependent variable		Sources
Perceived tariff	→	Customer satisfaction	(+)	Kyriazopoulos and Rounti (2007), Shahzad Khan (2012), Khuhro et al. (2011)
Perceived tariff	→	Customer retention	(+)	Ranaweera and Neely (2003), Molapo and Mukwada (2011)
Customer satisfaction	→	Customer retention	(+)	Dzisah (2013), Katono (n.d.), Novianti et al. (2013), Oyeniyi and Abiodun (2010), Peighambari (2007)
Perceived service quality	→	Customer satisfaction	(+)	Deng et al. (2010), Mabkhot (2010)
Perceived service quality	→	Customer retention	(+)	Ranaweera and Neely (2003), Molapo and Mukwada (2011)
Switching barriers	→	Customer retention	(+)	Oyeniyi and Abiodun (2010), Peighambari (2007), Sari and Suryadi (2013)

2.1. The proposed model

According to previous researchers who studied on telecommunication services, customer retention might have direct relations with perceived tariff, customer satisfaction, perceived service quality, and switching barriers(Ali et al., 2010; Blery et al., 2009; Oyeniyi & Abiodun, 2010).

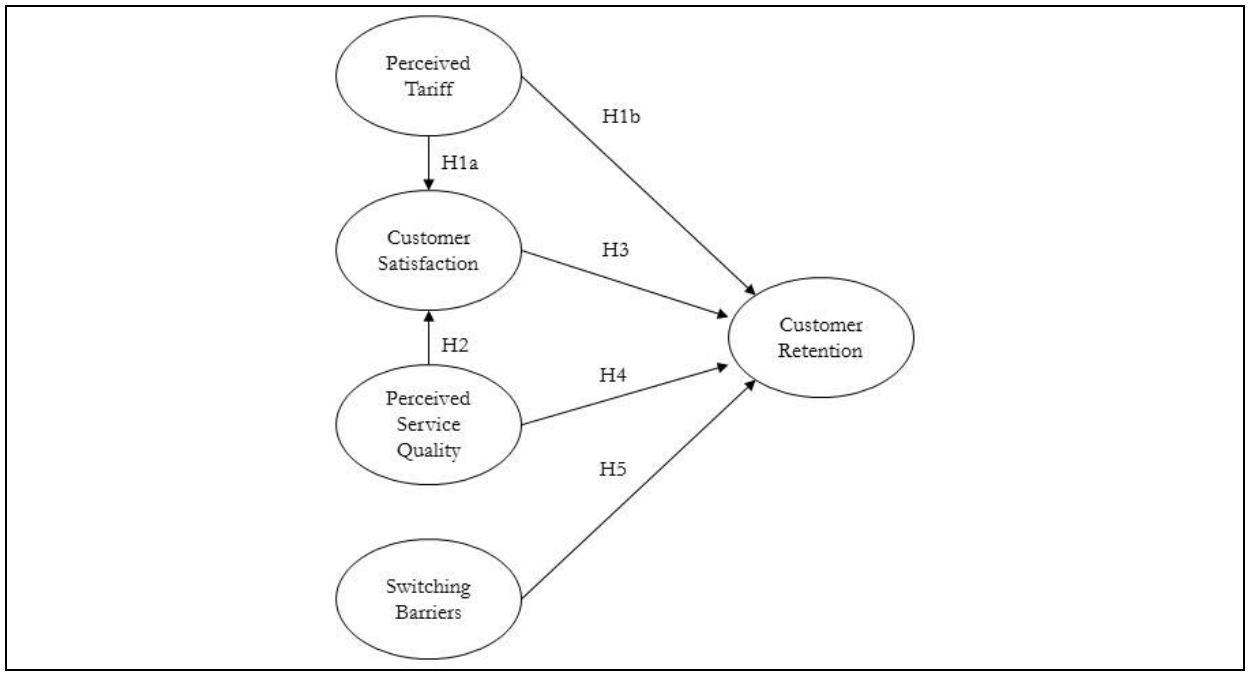


Figure 1-The proposed model

2.2. Hypotheses

There were six hypotheses to be tested in this study as follow:

H1a There is a positive and significant link between perceived tariff and customer satisfaction.
H1b There is a positive and significant link between perceived tariff and customer retention.
H2 There is a positive and significant link between perceived service quality and customer satisfaction.
H3 There is a positive and significant link between customer satisfaction and customer retention.
H4 There is a positive and significant link between perceived service quality and customer retention.
H5 There is a positive link and significant link between switching barriers and customer retention.

3. Methods

3.1. Instrument

To develop the instrument, the authors adapted indicators used and validated by existing researchers, including Mokadikwa (2008), Zhang and Feng (2009), B. Kim (2010), and Shin and Kim (2008) for perceived tariff variable. For customer satisfaction variable, the indicators were from studies conducted by Shin and Kim (2008), Zhang and Feng (2009), and Qian, Peiji, and Quanfu (2011).

Furthermore, indicator for perceived service quality variable were adapted from Shin and Kim (2008) and Nurfarhana (2012).For switching barriers variables were taken from Shin and Kim (2008), Peighambari (2007), and Martins, Hor-Meyll, and Ferreira (2013) whereas for customer retention indicators were from (Peighambari, 2007) and Bakar and Diantono (2010).

3.2. Pilot study

A pilot study was conducted involving university students in Jakarta, 50 of simPATI subscribers and another 50 of IM3 subscribers. Based on a validity test using factor analysis, some indicators were dropped or revised.

3.3. Respondent profile

In total, 407 respondents participated, consisted of 205 simPATI subscribers (118 males and 87 females) and 202 IM3 subscribers (99 males and 103 females).

3.4. Data analysis

All data were analysed using exploratory factor analysis using SPSS version 22 and confirmatory factor analysis using AMOS version 21.

4. Findings and discussion

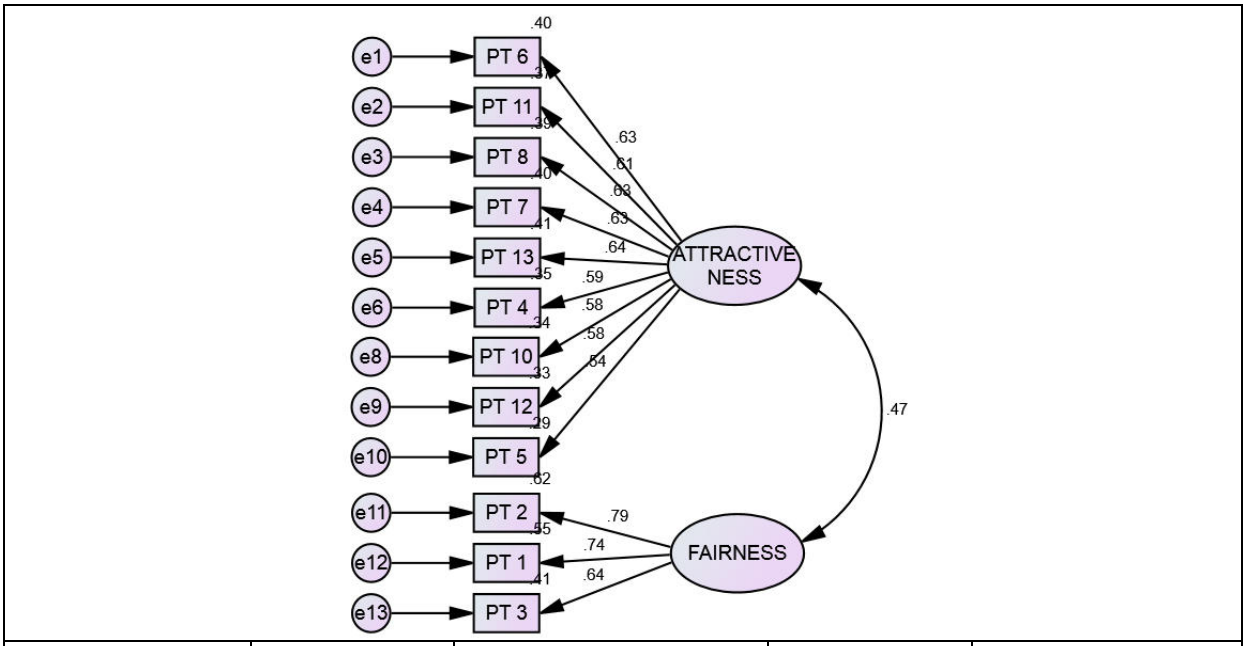
4.1. Perceived tariff

EFA produced two dimensions of perceived tariff. The first dimension consisted of ten indicators with factor loadings ranging from 0.542 to 0.709 and the second dimension consisted of three indicators with factor loadings ranging from 0.813 to 0.836 (see the table below).

Table 3-Factor analysis results of perceived tariff

	Attractiveness	Factor loadings
PT 6	The fee that I have to pay for the use of Mobile Data Services is too high.	0.709
PT 7	I am pleased with the fee that I have to pay for the use of Mobile Data Services.	0.699
PT 8	This operator took effective ways to help us know its pricing policies of product and services.	0.677
PT 12	A good service provider offer more features at a cheaper rate or at a rate equal to competitor.	0.665
PT 4	Service providers should offer globally competitive pricing.	0.662
PT 9	The pricing policies of products and services from this operator are attractive.	0.652
PT 13	This operator is offering flexible pricing for various services that meet my needs.	0.644
PT 10	I think the price for the mobile service is reasonable.	0.638
PT 11	I will continue to stay with this operator unless the price is significantly higher for the same service.	0.630
PT 5	I think the monthly charge for the mobile use is reasonable.	0.542
	Cronbach's alpha	0.852
	Fairness	
PT 2	I am pleased with the fee that I have to pay for the use of mobile data services.	0.836
PT 1	The pricing policies of products and services from this operator are attractive.	0.813
PT 3	This operator took effective ways to help us know its pricing policies of products and services.	0.813
	Cronbach's alpha	0.775

These results of EFA were further examined using CFA. All indicators retained and formed a fitted model with probability value of 0.056, CMIN/DF 0f 1.326, CFI of 0.987, and RMSEA of 0.028 (see the figure below).



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.056	1.326	0.987	0.028
Cut-off	>0.05	<3.0	>0.95	<0.05

Figure 2-Confirmatory factor analysis result of perceived tariff

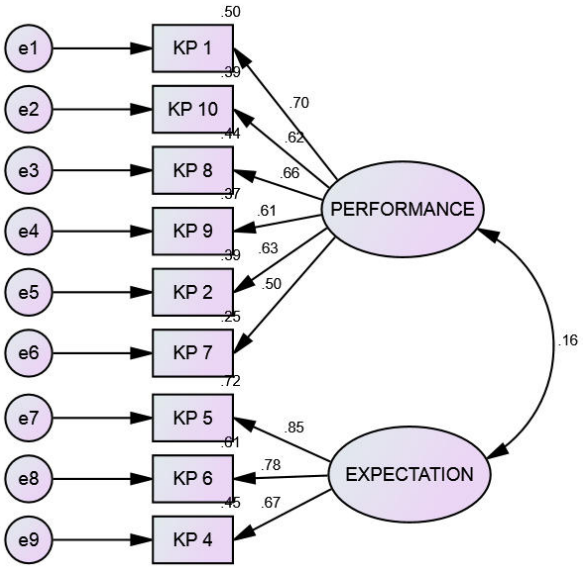
4.2. Customer satisfaction

Indicators of customer satisfaction were tested using EFA. It produced two dimensions. Six indicators for the first dimension had factor loadings ranging from 0.573 to 0.760 whereas four indicators for the second dimensions had factor loadings ranging from 0.709 to 0.853 (see the table below).

Table 4-Factor analysis results of customer satisfaction

	Performance	Factor Loadings
KP 1	I am satisfied with the current service.	0.760
KP 8	I am satisfied with the professional competence of this operator.	0.733
KP 9	I am satisfied with the performance of the frontline employees of this operator.	0.705
KP 2	The current service meets all the requirements that I see reasonable.	0.704
KP 10	I am comfortable about the relationship with this operator.	0.702
KP 7	I am satisfied with the overall service quality offered by this operator.	0.573
	Cronbach's alpha	0.758
	Expectation	
KP 5	I think this telecom company has successfully provided mobile data service.	0.853
KP 6	This mobile data service is better than expected.	0.839
KP 4	I am satisfied with the data services provided by this telecom company.	0.809
KP 3	The mobile data services provided by my service provider canaddress my requirements.	0.709
	Cronbach's alpha	0.818

The two dimensions and their indicators as indicated in the table above survived in CFA and carried out a fitted model with probability of 0.208, CMIN/DF of 1.213, CFI of 0.994, and RMSEA of 0.023 (see below).



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.208	1.213	0.994	0.023
Cut-off	>0.05	<3.0	>0.95	<0.05

Figure 3-Confirmatory factor analysis result of customer satisfaction

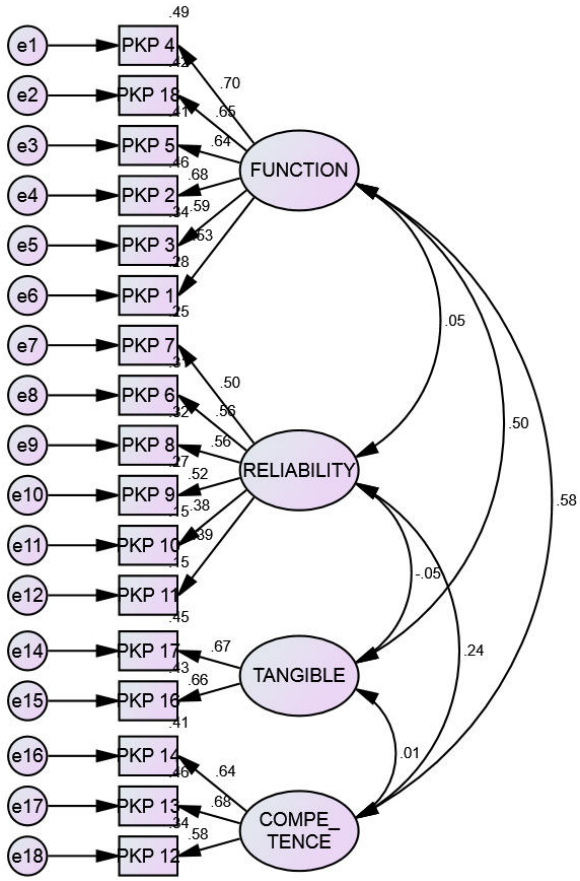
4.3. Perceived service quality

Four dimensions were formed after examining perceived service quality indicators. The first dimension contained six indicators with factor loadings ranging from 0.636 to 0.717. Further, the second indicators had six indicators too with factor loadings ranging from 0.531 to 0.696. The third and fourth dimensions each owned three indicators.

Table 5-Factor analysis results of perceived service quality

	Function	Factor loadings
PKP 4	When I face a problem, my mobile operator solve it seriously.	0.717
PKP 18	Jam operasi operator seluler Anda fleksibel.	0.701
PKP 5	My mobile operator keep informing subscribers when the service would be delivered.	0.695
PKP 2	My mobile service provides a quality of content and services that I need	0.642
PKP 3	When my mobile operator promised to do something at a certain time, they could keep it.	0.636
PKP 1	I think that my current mobile operator satisfying services.	0.636
	Cronbach's alpha	0.798
	Reliability	
PKP 7	The customer service team are always (ready) willing to help me.	0.696
PKP 6	The customer service team give me a proper care.	0.693
PKP 8	The customer service team are always available to serve me.	0.652
PKP 9	Behavior of the customer service team make me confident.	0.560
PKP 10	I feel safe conducting transactions with my mobile operator.	0.531
PKP 11	The customer service team are polite to me consistently.	0.403
	Cronbach's alpha	0.645
	Tangible	
PKP 15	Equpment of by my mobile operator look modern.	0.768
PKP 17	The customer service crew look neat.	0.666
PKP 16	Phisical facilities of by my mobile operator look interesting.	0.635
	Cronbach's alpha	0.558
	Competence	
PKP 14	The customer service team of my mobile operator understand my specific needs.	0.713
PKP 13	My mobile operator is the best for me.	0.711
PKP 12	The customer service team of my mobile operator have enough knowledge to answer my questions.	0.623
	Cronbach's alpha	0.663

CFA produced a fitted model with probability of 0.017, CMIN/DF of 1.261, CFI of 0.980, and RMSEA of 0.025.



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.178	1.122	0.989	0.017
Cut-off	>0.05	<3.0	>0.95	<0.05

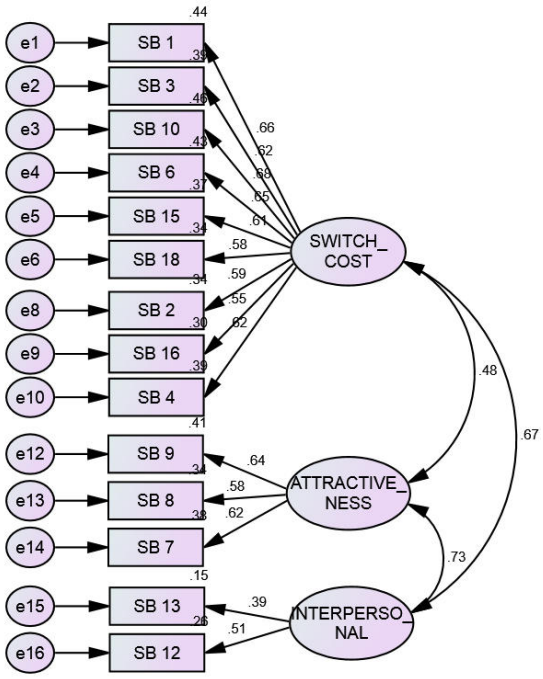
Figure 4-Confirmatory factor analysis result of perceived service quality

4.4. Switching barriers

Three dimensions of switching barriers variable were carried out from exploratory factor: first dimension, with 12 indicators and factor loadings ranging from 0.554 to 0.710; second, with three indicators and factor loadings range from 0.665 to 0.772; third, with four indicators and factor loadings range from 0.502 to 0.645.

Table 6-factor analysis results of perceived tariff

	Switching cost	Factor loadings
SB 3	It takes a lot of time to get information about other carrier	0.710
SB 15	I hate spending time finding a new mobile service provider	0.697
SB 1	It is difficult for me to use other carrier	0.691
SB 18	It would cost me a lot of money to switch from my mobile operator to another mobile operator	0.680
SB 10	It would cost me a lot of effort to switch from my mobile operator to another mobile operator.	0.674
SB 6	I would feel uncertain if i have to choose a new mobile service provider.	0.671
SB 19	It would be complicated for me to change carrier.	0.670
SB 5	I would miss my mobile operator if i change	0.633
SB 4	I feel there is a bond between My mobile operator and myself.	0.599
SB 17	I'm not certain about the quality of services that other operators will provide me with.	0.591
SB 16	I hate re-registering to another mobile service provider.	0.570
SB 2	I will lose a friendly and comfortable relationship with my mobile operator if I change.	0.554
	Cronbach's alpha	0.848
	Attractiveness of alternative	
SB 7	In general it would be a hassle changing carriers.	0.772
SB 8	If i change, there is a risk a new mobile operator won't be as good as My mobile operator.	0.688
SB 9	It would cost me a lot of effort to switch from my mobile operator to another mobile operator.	0.665
	Cronbach's alpha	0.647
	Interpersonal relationship	
SB 13	I'm very likely to switch to another mobile service provider.	0.645
SB 12	I trust on my mobile operator more than mobile service providers.	0.638
SB 11	I like the public image of my mobile operator	0.617
SB 14	I do not care about the brand/company name of the service provider I use.	0.502
	Cronbach's alpha	0.329



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.104	1.211	0.988	0.023
Cut-off	>0.05	<3.0	>0.95	<0.05

Figure 5-Confirmatory factor analysis result of switching barriers

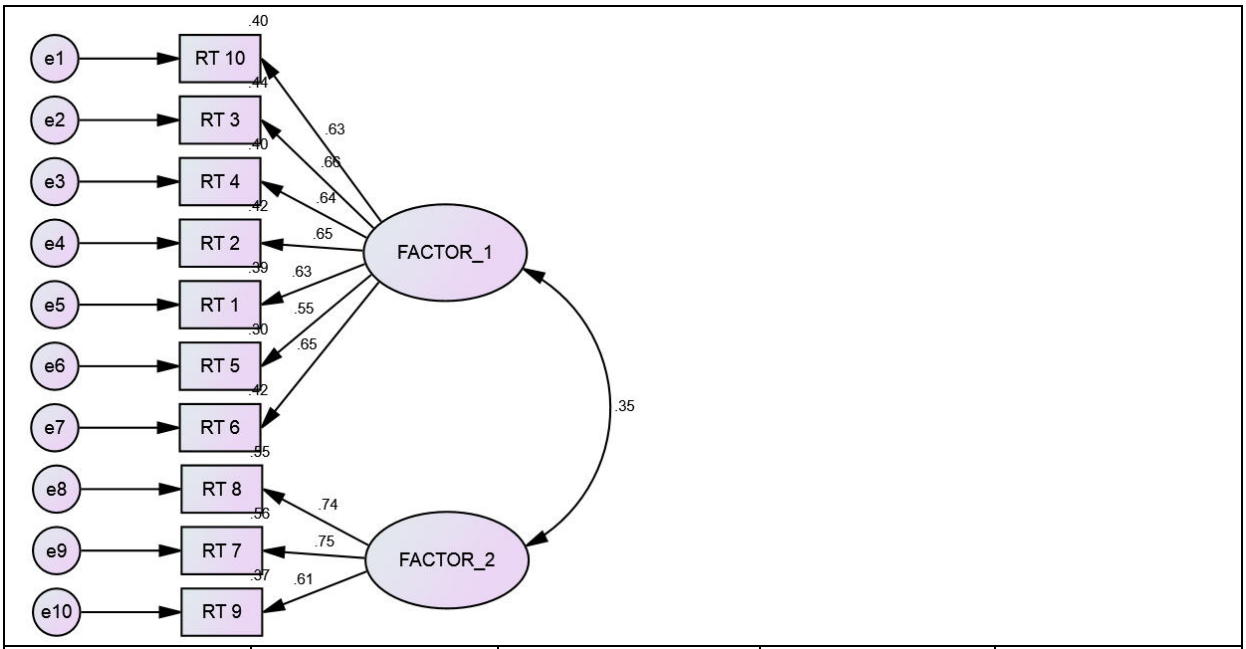
4.5. Customer retention

Two dimensions of customer retention came out from EFA. The first dimension kept seven indicators with factor loadings ranging from 0.640 to 0.726 whereas the second dimension owned three indicators with factor loadings ranging from 0.804 to 0.815.

Table 7-factor analysis results of retention

	Priority of using	Factor loadings
RT 2	I plan to continue my relationship with my mobile operator in future.	0.726
RT 3	I would recommend my mobile operator as the best mobile service provider in the area.	0.723
RT 1	If I had needed mobile services now, my mobile operator would be my first choice.	0.704
RT 4	I would encourage friends and relatives to do business with my mobile operator.	0.699
RT 10	I prioritise more to use the cellular card issued by my mobile operator as my cellular card.	0.681
RT 6	I have said positive things about my mobile operator to others	0.680
RT 5	I'm very loyal to my mobile operator.	0.640
	Cronbach's alpha	0.822
	Intensive of using	
RT 7	I consider my mobile operator as my first choice for mobile service.	0.815
RT 8	I often recharge for services of my mobile operator.	0.809
RT 9	I often use services of my mobile operator.	0.804
	Cronbach's alpha	0.739

In a structural equation model test, these two dimensions and all indicators retained and shaped a fitted construct with probability of 0.433, CMIN/DF 1.021, CFI of 0.999, and RMSEA of 0.007.



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.432	1.022	1.000	0.000
Cut-off	>0.05	<3.0	>0.95	<0.05

Figure 6-Confirmatory factor analysis result of customer retention

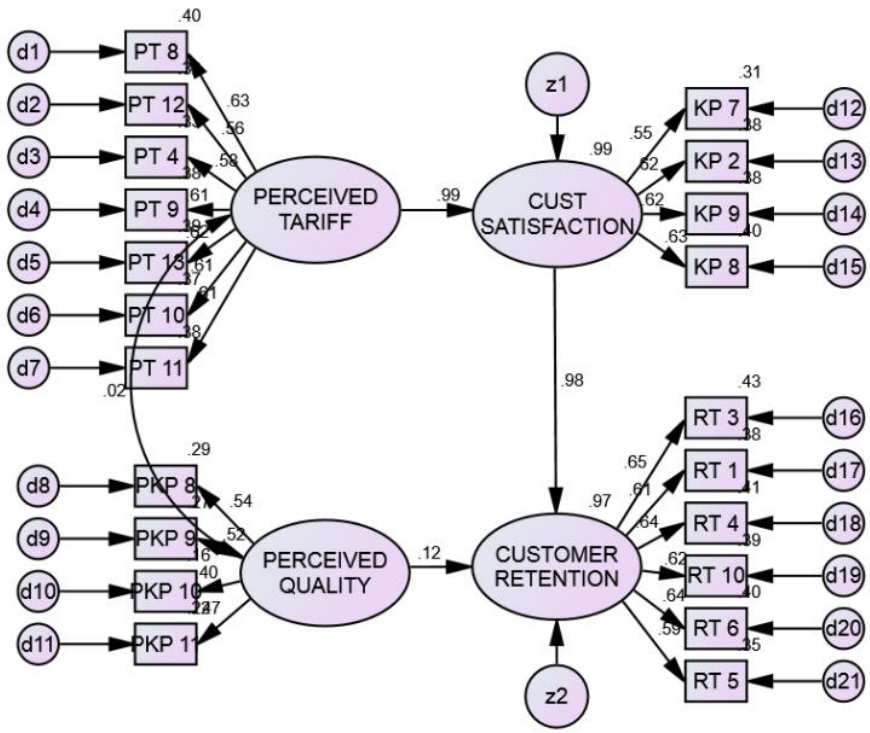
4.6. Constructs testing

Two competing fitted models were developed to predict customer retentions of simPATIand IM3 subscribers.

4.7. The fitted first model

In the first model, perceived tariff, customer satisfaction, and perceived service quality were retained whereas switching barrier was dropped due to insignificance. Perceived tariff and customer satisfaction had a direct link to customer retention.

On the other hand, perceived tariff also had an indirect link to customer retention as well as perceived service quality as they had to be mediated by customer satisfaction. The link between perceived tariff and customer retention was 0.96 and considered as the highest standardised weight among other links. All links were in positive forms. This fitted model had probability value of 0.835, CMIN/DF of 0.899, CFI of 1.000, and RMSEA of 0.00.



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.835	0.899	1.000	0.000
Cut-off	>0.05	<3.0	>0.95	<0.05

Figure 7-Confirmatory factor analysis result of the first fitted model

In total, three hypotheses (H1a, H3, and H4) were significant and supported by literature whereas another three hypotheses (H1b, H2, and H5) were insignificant (see the table below). Two of the hypotheses have very strong total effect scores (H1a and H3) and a hypothesis (H4) has a weak total effect score.

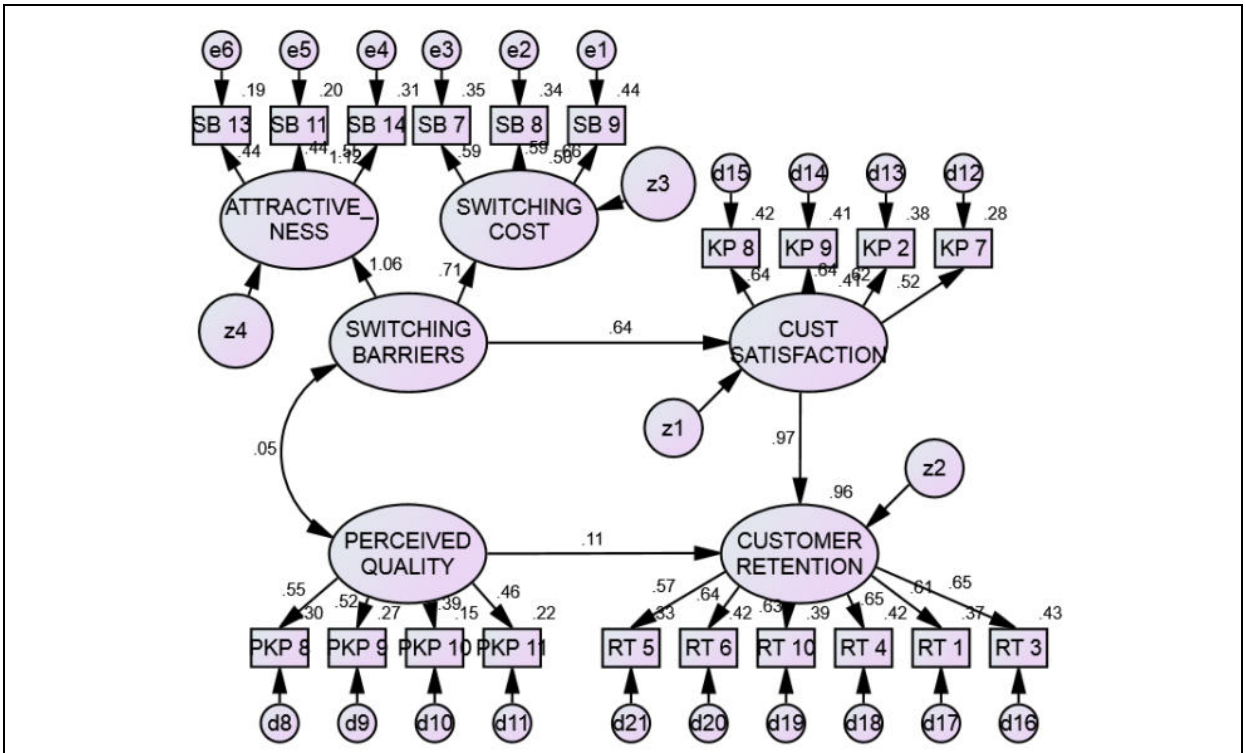
Table 8-Summary of significant hypotheses

Hypothesis	Dependent variable	Independent variable	t.value	Total effect	Inter-pretation	Significant/ insignificant
H1a	PT	CS	9.436	0.994	Very strong	Significant
H1b	PT	CR	-	-	-	Insignificant
H2	PSQ	CS	-	-	-	Insignificant
H3	CS	CR	9.860	0.978	Very strong	Significant
H4	PSQ	CR	2.469	0.117	Weak	Significant
H5	SB	CR	-	-	-	Insignificant

Note: PT-Perceived Tariff, CS-Customer Satisfaction, PSQ-Perceived Service Quality, SB-Switching Barriers, CR-Customer Retention

4.8. The second fitted model

In the modification model, two hypotheses were significant (H3 and H4). On the other hand, four hypotheses were insignificant, including H1a, H1b, H2, and H5 (see the table below). The output of confirmatory factor analysis suggested a new link between switching barriers and customer satisfaction with t-value of 6.138 and total effect score of 0.618 which was considered a strong influence. Further, a hypothesis (H3) is considered with a very strong total effect (0.969), a hypothesis (H4) with a strong total effect (0.618), and a hypothesis with a very weak total effect (0.114).



Criteria	P	CMIN/DF	CFI	RMSEA
Results	0.394	1.026	0.997	0.008
Cut-off	>0.05	<3.0	>0.95	<0.05

Figure 8-Confirmatory factor analysis result of the second fitted model

Table 9-Summary of significant hypotheses

Hypothesis	Dependent variable	Independent variable	t.value	Total effect	Inter-pretation	Significant/ insignificant
H1a	PT	CS	-	-	-	Insignificant
H1b	PT	CR	-	-	-	Insignificant
H2	PSQ	CS	-	-	-	Insignificant
H3	CS	CR	8.877	0.969	Very strong	Significant
H4	PSQ	CR	2.171	0.114	Very Weak	Significant
H5	SB	CR	-	-	-	Insignificcant
-	SB	CS	6.138	0.618	Strong	New link

Note: PT-Perceived Tariff, CS-Customer Satisfaction, PSQ-Perceived Service Quality, SB-Switching Barriers, CR-Customer Retention

5. Conclusion

The study involved young subscribers of two giant mobile telecommunication providers in Indonesia. Four-hundred-ten respondents participated with majority of them were female (65%).

Two fitted constructs were developed. The first construct, retaining perceived tariff to have a direct link to customer satisfaction, and customer satisfaction had a direct link to customer retention. Another variable, perceived service quality had a direct link to customer retention. The second construct, switching barriers with

two dimensions – switching cost and attractiveness of alternative – had a direct link to customer satisfaction (excluded in the hypotheses), and customer satisfaction had a link to customer retention. In addition, perceived service quality had a direct link to customer retention.

Apparently, in this study, perceived tariff and switching barriers could not be installed in a full model a long together to predict customer retention. As perceived tariff was placed, switching barriers would be dropped and vise versa. The authors expect for future research to test these two models with different setting of brands, group of respondents, and place.

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