

Success Strategy for the Trans Jogja to Leverage its Services post COVID-19 Pandemic using Kano Model

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Abstract

Trans Jogja is the public bus Special Region of Yogyakarta Local Government has developed. The number of bus users declined during the COVID-19 pandemic because of mobility restrictions and online activities like schools and offices. This study aims to identify what quality attributes Trans Jogja should have to leverage its customer satisfaction and the customer number using the services. This study used the Kano model. The respondent number of respondents is 100 people. Eighty percent of the respondents have used the Trans Jogja more than twice. There are thirteen attractive quality attributes. For example, the bus provides free Wi-Fi internet access and an excellent passenger seat. There are four one-dimensional quality attributes Trans Jogja should consider. For instance, the bus has become convenient mass transportation. The only must-be quality attribute is that Trans Jogja guarantees safety. It is expected that the higher customer satisfaction, the higher the number of customers using the bus services.

Strategi Sukses Trans Jogja untuk Meningkatkan Layanan setelah Pandemi COVID-19 dengan Kano Model

Abstrak

Trans Jogja merupakan bus umum yang dikembangkan oleh Pemerintah Daerah Istimewa Yogyakarta. Jumlah pengguna bus menurun selama pandemi COVID-19 karena pembatasan mobilitas dan aktivitas online seperti sekolah dan kantor. Penelitian ini bertujuan untuk mengidentifikasi atribut kualitas apa yang harus dimiliki Trans Jogja untuk meningkatkan kepuasan pelanggan dan jumlah pelanggan yang menggunakan layanan tersebut. Penelitian ini menggunakan model Kano. Jumlah responden sebesar 100 orang. Delapan puluh persen responden telah menggunakan Trans Jogja lebih dari dua kali. Ada tiga belas *attractive-quality attribute*. Sebagai contoh, bus menyediakan akses internet Wi-Fi gratis dan kursi penumpang yang sangat baik. Ada empat atribut kualitas yang termasuk ke dalam *one-dimensional quality attribute*. Sebagai contoh, bus menjadi transportasi massal yang nyaman. Satu-satunya *must-be quality attribute* adalah Trans Jogja harus menjamin keamanan. Semakin tinggi kepuasan pelanggan maka diharapkan semakin tinggi pula jumlah pelanggan yang menggunakan jasa bus tersebut.

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INTRODUCTION

Recently, many local governments in Indonesia have developed bus public transport. They are Trans Jogja in the Special Region of Yogyakarta, Trans Java in Semarang, Batik Solo Trans in Solo, Trans Kota Tangerang in Tangerang, Trans Metro Bandung in Bandung, Trans Metro Dewata in Bali, Trans Jakarta in Jakarta, etc. The passengers only need to pay Rp. 3.500 to go around Yogyakarta by Trans Jogja bus (Wahyuni et al., 2021). Most Bus Trans Sidoarjo (BTS) customers use the bus to their workplace (Prayitno et al., 2018). The existence of the bus also gives both local air quality improvement and CO₂ emissions reduction (Dirgahayani, 2013). The bus operators need to attract citizens to use the bus as their transportation mode, especially after the COVID-19 pandemic. During the COVID-19 pandemic, the bus's customer was declining because of the students' and office workers' movement restriction and online activity. It has been proven by the condition of the Bus Rapid Transport (BRT) Trans Semarang (Sedayu & Salsabilla, 2021).

Many studies have been conducted to evaluate the performance and customer satisfaction of the bus. Dimension of Tangible, Empathy, Reliability, Responsiveness and Assurance (TERRA) is used for assessing the service quality of the BRT Trans Semarang (Adibah & Manullang, 2020). The bus stop of Trans Jogja in route 1A, 1B, 2A, and 2B has been evaluated using SERVQUAL (Adi et al., 2020). Trans Jogja in route 4A has met the speed standard, but route 2B has not met the speed standard (Pratomo et al., 2015). The Trans Jogja has been assessed using SERVQUAL and Quality Function Deployment (QFD), and it shows that customer safety is the essential quality attribute (Marliana & Dharmastiti, 2008). The excellent condition of the public bus is hoping that many citizens will move from private transportation modes to public buses. The simulation with the increased number of feeders would make 26% of the personal transportation mode user move to the BRT Trans Semarang using the System

Dynamic approach (Susanty et al., 2014). The Trans Jogja has not served some areas, making people unable and unwanted to use the bus (Ramadhani & Herwangi, 2018) most of the low-income people in the Yogyakarta Urbanized Area (YUA). Accessibility of the bus stop is correlated with the decision about whether use the bus service or not (Masnain, 2019).

The Kano model is a method for assessing the relationship between customer requirements and customer satisfaction. A study that concerns women users of a public bus in Surabaya also elaborated on the Kano model in Surabaya (Prihono et al., 2011). Safety, ticket price, seat, and clean air are attractive quality attributes (Prihono et al., 2011). Customer satisfaction would increase exponentially when the bus operator provides an attractive quality attribute. Cleanliness, on time, driver attitude, and conductor attitude are classified as must-be quality attributes (Prihono et al., 2011). The customer would be neither satisfied nor dissatisfied if the bus operator provided the must-be quality attribute. On the other hand, the customer would be angry if the quality attribute is not available.

Trans Jogja also faces a decrease in the customer using the services during the COVID-19 pandemic. It still covers 52.24% of the city area of Yogyakarta (Valentine et al., 2020). The occupancy level is relatively low, although the service level is quite good (Marwasta & Handoko, 2020). Therefore, this study aims to identify what kind of quality attributes the bus should provide to the customer using the Kano model. The result is hoped to make the citizens use the bus service again, giving the bus operator's income as well as traffic jam decrease and CO₂ emission decrease.

The novelty of this study is evaluating the relationship between customer satisfaction and the product specification of the Trans Jogja that uses the Kano model. The Kano model is appropriate to assess the Trans Jogja because it can represent what kind of quality attribute should be provided by the bus operator based on the relationship between customer satisfaction and product requirements.

METHOD

This study uses the Kano model to identify the level of customer satisfaction and the corresponding achievement of the product requirement. The Kano model classifies the relationship between customer satisfaction and product performance into five quality attributes, i.e., attractive, one-dimensional, must-be, indifferent, and reverse quality attributes. Each of them reflects different customer satisfaction that correlates with product success. Figure 1 shows the Kano Model. The first classification is the attractive quality attribute, that customer satisfaction will increase drastically when a product elaborates the attribute. The second classification is the one-dimensional quality attribute that will linearly increase customer satisfaction with customer requirement fulfillment. The third classification is the must-be quality attribute, a taken-for-granted quality attribute. If the quality attribute exists, the customer will feel neutral, but if the quality attribute does not exist, the customer will be angry. The fourth quality attribute is the indifferent quality attribute. A product should not consider the indifferent quality attribute since the attribute's existence will affect neither satisfaction nor dissatisfaction. The study was conducted using a survey by used of Kano questionnaire. The sample used in this study is 100 respondents who have ever used the Trans Jogja as a transportation mode.

The Kano questionnaire consists of two sides for each question. The first side is the functional answer, and the second side is the dysfunctional answer. The example of the question placement in the Kano questionnaire can be seen in Table 1, which is adapted from other studies (Sharif Ullah & Tamaki, 2011; Cordero-Ampuero et al., 2012) cross-sectional study in adult patients with OA with at least 1 year of disease progression and with at least one prescription of anti-inflammatory drugs within the last year. Sociodemographic, clinical, and treatment characteristics as well as patient-reported outcomes were obtained by phone interview. Using a treatment expectations questionnaire and applying Kano methodo-

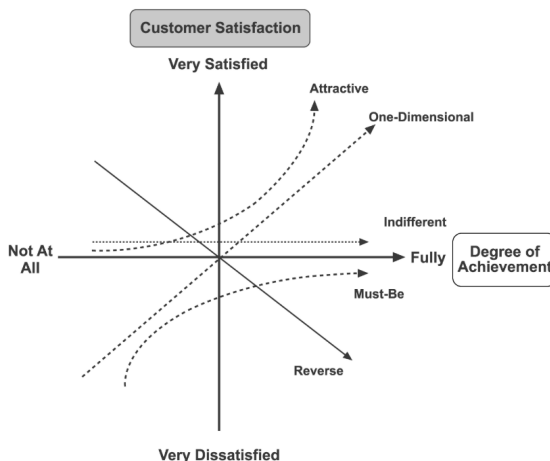


Figure 1. The Relationship between Customer Satisfaction and The Degree of Achievement (Product Performance) (Witell & Löfgren, 2007)

logy, treatment attributes were classified as: must-be; one-directional; attractive; indifferent; reverse or questionable. Results: A total of 965 adult patients with OA [mean age: 64 years (SD: 11. The respondent has five answer choices on each side of the Kano questionnaire. The respondents place a check mark (√) on their answers in the functional and dysfunctional answers. The Kano evaluation table evaluates each combination of the functional and dysfunctional answers (Table 2). For example, when the functional answer of a question is like, and the dysfunctional answer of the respondent is a must-be, the Kano classification decision is an attractive quality attribute for the respondent. But the final classification of the Kano model is not only from one respondent, but many respondents based on the sample size needed. The last category of the Kano model is calculated using Equation 1 or Equation 2-3.

The quality attribute classification of the Kano model is converted into a five scale to make the calculation. The conversion can be seen in Table 3.

This research applied two steps for classifying a quality attribute. The first way is to compare the ABS value and the Q-statistic (Cordero-Ampuero et al., 2012; Matias-Guiu et al., 2012). The ABS value is the absolute difference between the frequencies of the first most voted quality

Table 1. The Example of Integration of The Trans Jogja Quality Attribute into Kano Questionnaire

No.	Assessed Attribute	Functional Answer	Dysfunctional Answer
1	Become a convenient, safe, and easy mass transportation.	If the Trans Jogja <i>has this attribute</i> , how do you feel? I like it √ It must be that way I do not mind either way (I am neutral) I do not like it, but I can tolerate it (live with it) I do not like it and I cannot tolerate it	If the Trans Jogja <i>does not have this attribute</i> , how do you feel? I like it It must be that way I do not mind either way (I am neutral) I do not like it, but √ I can tolerate it (live with it) I do not like it, and I cannot tolerate it

Table 2. Kano Evaluation Table (A, attractive; O, One-dimensional; M, Must-be; I, Indifferent; R, Reverse; Q, Questionable) (Xu et al., 2009)

		Dysfunctional Form of the Question				
		Like	Must-be	Neutral	Live with	Dislike
Functional Form of the Question	Like	Q	A	A	A	O
	Must-be	R	I	I	I	M
	Neutral	R	I	I	I	M
	Live with	R	I	I	I	M
	Dislike	R	R	R	R	Q

Table 3. Kano Classification and The Corresponding Transformed Value (Lai & Wu, 2011)

Kano Classification	Value
A	5
O	4
M	3
I	2
Q/R	1

attribute and the frequency of the second most voted quality attribute. Equation 1 measures the Q-statistic. The quality attribute classification is statistically significant if the ABS exceeds the Q-statistic. The frequency of the first rank of the quality attribute is denoted by a. The frequency of the second rank of the quality attribute is represented by b. The number of the responses is denoted by n for each measured-quality attribute.

Classifying the quality attribute moves to the second step when the first step does not work. The second way can be utilized when the gap between the percentage of a quality attribute and the percentage of the indifferent quality attribute is small enough (Kurt & Atrek, 2012). The second step uses Equations 2 and 3 (Kurt & Atrek, 2012). M, A, O, I, Q and R denote the frequency of each quality attribute of the Kano category. Equation 2 is used when the sum of the M, A, and O is greater than the sum of I, Q, and R. Otherwise, use Equation 3.

There are eighteen quality attributes of the Trans Jogja to be evaluated in this study. It can be seen in Table 4. The quality attributes consist of the facility, convenience, and ease of use aspects of the Trans Jogja, for example, the seat quality, employees, free-internet access, and electronic ticket.

Table 4. Quality Attribute of the Trans Jogja

Quality Attribute No.	Quality Attribute of the Trans Jogja
X1	Become a convenient, safe, and easy mass transportation.
X2	It has a millennial-style chair with reasonable comfort.
X3	The bus seat equipped with foam has good comfort.
X4	Interesting and iconic image/painting of Yogyakarta on the bus outside
X5	It is equipped with free internet access (Wi-Fi).
X6	It is equipped with a TV or music to relieve boredom.
X7	The bus stop is equipped with air conditioning.
X8	It is equipped with reading facilities (newspaper or magazine).
X9	The seat faces forward at an ergonomic distance.
X10	The grip distance is adjusted to the spread of each person.
X11	Durable handle (strong).
X12	The seat foam is not easily deflated.
X13	Electronic tickets/tickets are not easily damaged (durable).
X14	Complaints are handled quickly, responsively, and accurately.
X15	The staff is always smiling when greeting customers.
X16	Guaranteed safety
X17	Customers suggest colleagues use Trans Jogja.
X18	Ease of getting route info via an application on a smartphone.

RESULT AND DISCUSSION

Table 5 shows the demographic data of the respondents of the Kano survey. There are 100 respondents. The proportion between men and women is quite similar. 97.14% of the respondents are more than 20 years old. All respondents have used the Trans Jogja, and 80% have used it more than twice.

Both sides of the Kano questionnaire (functional and dysfunctional answers) are valid (Tables 6 and 7). All the Pearson correlations exceed the r-table.

The Kano questionnaire is reliable for both sides of the questionnaire (Tables 8 and 9). Both Cronbach's Alpha values are more significant than 0.6.

Some quality attributes of the Trans Jogja are classified into attractive quality attributes (Table 10, and the detailed calculation can be seen in Appendix 1). The first is the millennial-style chair with reasonable comfort. The second is that the bus seat equipped with foam has good comfort. The woman respondent states that a comfortable chair is an attractive quality attribute (Prihono et al., 2011). The current

Table 5. Demographic Data of the Respondent of the Kano Survey

No.	Demographic Data	Notes	Respondent Number	Percentage (%)
1.	Gender	Men	36	51.43
		Women	34	48.57
2.	Age	<20 years old	2	2.86
		>20 years old	68	97.14
3.	The frequency of use of the Trans Jogja	Once	14	20.00
		More than twice	56	80.00

Table 6. Validity Test of The Functional Answer of The Kano Questionnaire

Quality Attribute No.	Pearson Correlation	R-Table	Conclusion
X1	0.518	0.1654	Valid
X2	0.389	0.1654	Valid
X3	0.548	0.1654	Valid
X4	0.454	0.1654	Valid
X5	0.583	0.1654	Valid
X6	0.539	0.1654	Valid
X7	0.592	0.1654	Valid
X8	0.528	0.1654	Valid
X9	0.527	0.1654	Valid
X10	0.704	0.1654	Valid
X11	0.720	0.1654	Valid
X12	0.756	0.1654	Valid
X13	0.670	0.1654	Valid
X14	0.725	0.1654	Valid
X15	0.688	0.1654	Valid
X16	0.725	0.1654	Valid
X17	0.672	0.1654	Valid
X18	0.747	0.1654	Valid

Table 7. Validity Test of The Dysfunctional Answer of The Kano Questionnaire

Quality Attribute No.	Pearson Correlation	R-Table	Conclusion
X1	0.681	0.1654	Valid
X2	0.753	0.1654	Valid
X3	0.779	0.1654	Valid
X4	0.694	0.1654	Valid
X5	0.781	0.1654	Valid
X6	0.731	0.1654	Valid
X7	0.827	0.1654	Valid
X8	0.753	0.1654	Valid
X9	0.801	0.1654	Valid
X10	0.788	0.1654	Valid
X11	0.870	0.1654	Valid
X12	0.861	0.1654	Valid
X13	0.838	0.1654	Valid
X14	0.844	0.1654	Valid
X15	0.871	0.1654	Valid
X16	0.784	0.1654	Valid
X17	0.797	0.1654	Valid
X18	0.796	0.1654	Valid

Table 8. Reliability Test of The Functional Answer of The Kano Questionnaire

Reliability	N	%
Valid	70	100
Cronbach's Alpha	N of items	
0.900	18	

Table 9. Reliability Test of The Dysfunctional Answer of The Kano Questionnaire

Reliability	N	%
Valid	70	100
Cronbach's Alpha	N of items	
0.965	18	

Table 10. The Kano Classification of the Eighteen-Quality Attributes of The Trans Jogja

Quality Attribute No.	Quality Attribute	Grade
X1	Become a convenient, safe, and easy mass transportation.	O
X2	It has a millennial-style chair with reasonable comfort.	A
X3	The bus seat equipped with foam has good comfort.	A
X4	Interesting and iconic image/painting of Yogyakarta on the bus outside	A
X5	It is equipped with free internet access (Wi-Fi).	A

X6	It is equipped with a TV or music to relieve boredom.	A
X7	The bus stop is equipped with air conditioning.	A
X8	It is equipped with reading facilities (newspaper or magazine).	A
X9	The seat faces forward at an ergonomic distance.	O
X10	The grip distance is adjusted to the spread of each person.	A
X11	Durable handle (strong).	O
X12	The seat foam is not easily deflated.	A
X13	Electronic tickets/tickets are not easily damaged (durable).	A
X14	Complaints are handled quickly, responsively, and accurately.	O
X15	The staff is always smiling when greeting customers.	A
X16	Guaranteed safety	M
X17	Customers suggest colleagues use Trans Jogja.	A
X18	Ease of getting route info via an application on a smartphone.	A

condition of the seat of the Trans Jogja is good with standard design. The third is that the outside bus's interesting and iconic image/paint represents Yogyakarta's characteristics. It can be the culturally iconic picture of the city on the body bus and the bus stop (Wibowo, 2014). The actual condition of The Trans Jogja is the lack of Yogyakarta's iconic image. For example, some of the buses only represent the Yogyakarta monument. Fourth is equipped with free internet access (Wi-Fi). Students are reluctant to use the Trans Jogja because there is neither Wi-Fi on the bus nor at the bus stop (Yumita et al., 2020). There is still no free internet access in Trans Jogja. The fifth is equipped with a TV or music to relieve boredom. Some bus crews have played music, but there is no display the customer can use to see the screen. The sixth is that the bus stop is equipped with air conditioning. The current air conditioning of the Trans Jogja bus is outstanding. The seventh is equipped with reading facilities (newspaper or magazine). There is no free reading material on the bus and at the bus stop. The eighth is that the grip distance is adjusted to the spread of each person. The current distance between customers who sit on the chair is good. On the other hand, the distance between customers sitting on the seat and the customer standing on the bus is too close, so their legs can touch or collide. The ninth is that seat foam is not easily deflated. The current quality of the seat foam is good.

The tenth is that electronic tickets/ tickets are not easily damaged (durable). The e-ticket can be used in all the Trans Jogja (Khasanah et al., 2022). E-ticketing has good sustainability to be used in Bus Trans Semarang to support Semarang Smart City (Mahida & Handayani, 2019). Right now, somebody can only use the electronic ticket on the Trans Jogja Bus, but, in the past, the customer could use it when they entered the bus stop to buy or claim the electronic ticket. The eleventh is that the staff is always smiling when greeting customers. It is similar to the BRT Trans Semarang (Sedayu & Salsabila, 2021). The bus crews are helpful now. The twelfth is that customers suggest colleagues use Trans Jogja. The last is the ease of getting route info via an application on a smartphone. It is similar to the Bus Rapid Transit (BRT) Trans Siginjai Jambi in that the bus needs to give the routes served so the customer can choose the appropriate bus to get to their destination quickly (Marnilawati et al., 2020). Besides that, research has been conducted for Bus Trans Semarang, so the bus customers can easily search the bus route they should choose based on their current location and destination using the information system (Ardana & Saputra, 2016). An official application that helps customers use Trans Jogja is Teman Bus, which customers can download using Play Store on a smartphone. Trans Jogja may consider those factors to get higher customer satisfaction, although it would raise the

investment cost. More customers using Trans Jogja are expected to have higher customer satisfaction and customer number using the service to cover the investment cost. The increase in customer satisfaction is exponential in those quality attributes. In other words, when Trans Jogja provides the customer requirement, the rise of customer satisfaction is faster and higher than a one-dimensional quality attribute.

Some quality attributes of the Trans Jogja are classified into the one-dimensional quality attribute (Table 10, and the detailed calculation can be seen in Appendix 1). First, the bus has become a convenient, safe, and easy mass transportation. The Trans Jogja has opened two new bus routes accommodating passengers along Kaliurang Street and Tajem-Maguwoharjo Street this year. Second, the bus seat faces forward at an ergonomic distance. The seat arrangement on the bus surrounds the bus side facing the center of the bus now. Third, the bus has a durable handle. The current handle quality for passengers standing on the bus is excellent, with the grip complying with the human hand and made from solid plastic materials. Fourth, complaints are handled quickly, responsively, and accurately. It is the same with a Trans Kota Tangerang Bus study, i.e., responsiveness significantly affects customer satisfaction (Supriatna & Muljadi, 2019). There are two hotlines that passengers can use to give feedback to the bus, i.e., 0822-4357-6006 and 0819-0402-0535.

There is only one must-be quality attribute (Table 10, and the detailed calculation can be seen in Appendix 1). The bus should guarantee safety. Trans Jogja operators should improve the illuminance quality at the bus stop to improve the customer's safety (Adi et al., 2020). Good lighting around the bus stop is helpful for passengers' safety and security (Wirasmoyo et al., 2019). A CCTV device may be installed at the bus stop to improve the customer's feeling, like in a public bus in Surabaya (Prihono et al., 2011). Safety is considered on the bus and at the bus stop (Nugroho, 2021). There is CCTV on all Tran Jogja buses. On the other hand, there is no CCTV at the bus stop. The illumination of

the bus is excellent on the bus, but the lighting at some bus stops is terrible (quite dark) at night.

CONCLUSION AND RECOMMENDATION

The Kano model is successful in evaluating the service of the Trans Jogja. There are thirteen attractive quality attributes. If Trans Jogja applies this attribute, customer satisfaction is hoped to increase significantly. It is expected that the higher customer satisfaction, the higher the number of customers using the bus services. For example, the bus provides free Wi-Fi internet access, an application on the smartphone to get the correct bus to reach the destination, and an excellent passenger seat.

There are four one-dimensional quality attributes Trans Jogja should consider. Customer satisfaction would increase linearly with the increase in customer requirement fulfillment. The level of customer satisfaction is under the level of customer satisfaction of the attractive quality attribute. For instance, the bus has become a convenient, safe, and easy mass transportation, and all the complaints should respond to quickly and clearly.

The only must-be quality attribute is that Trans Jogja guarantees safety. Safety is not only on the bus but also at the bus stop. If this attribute is not fulfilled, the customer will feel disappointed.

The Trans Jogja operator must provide the quality attribute classified into the must-be quality attribute and should give the quality attributes classified into the attractive quality attribute. Those strategies are for increasing customer satisfaction correlating with bus success.

Because this study does not evaluate and differentiate the customer need of each bus route of the Trans Jogja, future research is hoped to consider it. Every route may have a different customer need offered by the bus operator based on the customer's background.

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Appendix 1. The Assessment of the Eighteen-Quality Attributes of the Trans Jogja Evaluated Using the Kano Model

Attribute No.	A	O	M	I	R	Q	n	\bar{x}	S	$\frac{n'}{n}$ ($\alpha=0.05$)	ABS	Q _z -statistic	M+A+O	I+Q+R	Grade
X1	30 30%	10 10%	21 21%	31 31%	1 1%	7 7%	100 100%	3.23	1.38	$e = \frac{n'}{n}$ 93.32	1	10.743	61	39	O
X2	50 50%	13 13%	6 6%	24 24%	0 0%	7 7%	100 100%	3.75	1.45	$e = \frac{n'}{n}$ 96.04	26	11.266	69	31	A
X3	47 47%	7 7%	6 6%	34 34%	1 1%	5 5%	100 100%	3.55	1.50	$e = \frac{n'}{n}$ 96.04	13	11.455	60	40	A
X4	48 48%	12 12%	6 6%	27 27%	2 2%	5 5%	100 100%	3.67	1.47	$e = \frac{n'}{n}$ 98.71	21	11.297	66	34	A
X5	56 56%	9 9%	4 4%	24 24%	0 0%	7 7%	100 100%	3.83	1.48	$e = \frac{n'}{n}$ 93.5	32	11.432	69	31	A
X6	50 50%	5 5%	6 6%	31 31%	2 2%	6 6%	100 100%	3.58	1.54	$e = \frac{n'}{n}$ 94.80	19	11.455	61	39	A
X7	49 49%	16 16%	10 10%	18 18%	0 0%	7 7%	100 100%	3.82	1.39	$e = \frac{n'}{n}$ 94.67	31	11.014	75	25	A
X8	50 50%	5 5%	4 4%	37 37%	0 0%	4 4%	100 100%	3.6	1.5	$e = \frac{n'}{n}$ 96.04	13	11.568	59	41	A
X9	44 44%	7 7%	8 8%	34 34%	1 1%	6 6%	100 100%	3.47	1.5	$e = \frac{n'}{n}$ 96.04	10	11.381	59	41	O
X10	43 43%	12 12%	17 17%	22 22%	2 2%	4 4%	100 100%	3.64	1.38	$e = \frac{n'}{n}$ 93.32	21	10.929	72	28	A
X11	26 26%	17 17%	21 21%	29 29%	2 2%	5 5%	100 100%	3.26	1.32	$e = \frac{n'}{n}$ 99.02	3	10.419	64	36	O
X12	46 46%	13 13%	10 10%	23 23%	2 2%	6 6%	100 100%	3.66	1.45	$e = \frac{n'}{n}$ 96.04	23	11.092	69	31	A
X13	45 45%	9 9%	10 10%	26 26%	4 4%	6 6%	100 100%	3.53	1.51	$e = \frac{n'}{n}$ 97.32	19	11.166	64	36	A
X14	28 28%	21 21%	25 25%	19 19%	3 3%	4 4%	100 100%	3.44	1.27	$e = \frac{n'}{n}$ 99.14	3	10.298	74	26	O
X15	36 36%	15 15%	22 22%	20 20%	2 2%	5 5%	100 100%	3.53	1.34	$e = \frac{n'}{n}$ 94.62	14	10.588	73	27	A
X16	19 19%	28 28%	33 33%	13 13%	2 2%	5 5%	100 100%	3.39	1.14	$e = \frac{n'}{n}$ 94.38	5	10.743	80	20	M
X17	43 43%	14 14%	16 16%	19 19%	2 2%	6 6%	100 100%	3.65	1.4	$e = \frac{n'}{n}$ 96.04	24	10.792	73	27	A
X18	43 43%	13 13%	10 10%	27 27%	3 3%	4 4%	100 100%	3.58	1.44	$e = \frac{n'}{n}$ 94.72	16	11.130	66	34	A