

Chapter 4

Research Results

This chapter presents the results of the data analysis and data interpretation based on the research objectives, which are organized into the following five sections.

- 1 General information of the respondents
- 2 Opinion on service quality and customer loyalty
- 3 Correlation analysis
- 4 Regression analysis
- 5 Hypothesis testing

General information of the respondents

In this paper, before analyzing data, the collected samples are analyzed by descriptive statistics to ensure that the data are representative and timely, so as to facilitate the subsequent statistical analysis, and the results of the relevant descriptive statistical analysis are shown in Table 4.1 below.

Table 4.1 Descriptive statistics of customer information of valid samples

(n=386)

Demographic Data	Quantity	Number of people	Percentage
Gender	Male	137	34.25
	Female	249	65.75
Age	Under 20 years old	37	9.25
	21-29 years old	109	27.25
	30-39 years old	141	35.25

Table 4.1 Descriptive statistics of customer information of valid samples (Cont)

Demographic Data	Quantity	Number of people	Percentage
Education	Undergraduate Degree	196	49.00
	Bachelor's Degree	104	26.00
	Higher than Bachelor's Degree	100	25.00
Occupation	Students	62	15.50
	Company Staff	59	14.75
	Civil Servants	64	16.00
	Institution Staff	61	15.25
	Individual Practitioners	57	14.25
	Retired Personnel	67	16.75
	Others	30	7.50
Monthly Income before Tax (yuan)	Less than 1000/month	52	13.00
	1000-3000/month	84	21.00
	3001-5000/month	78	19.50
	5001-7000/month	48	12.00
	7001-10000/month	60	15.00
	10001-20000/month	46	11.50
	More than 20000 /month	32	8.00
Time of usage of Pinduoduo	Less than 1 year	98	24.50
	1-3 years	85	21.25
	4-6 years	203	50.75
Frequency of use of Pinduoduo	More than 6 years	14	3.50
	Occasional use	95	23.75
	Frequent use	194	48.50
How did you learn about Pinduoduo	non-use	47	11.75
	Others	64	16.00
	Media Reports	51	12.75
	Advertising	134	33.50
	Recommended by Friends	122	30.50
	Links to Other Websites	66	16.50
	Others	27	6.75

Table 4.1 Descriptive statistics of customer information of valid samples (Cont)

Demographic Data	Quantity	Number of people	Percentage
Reasons for using Pinduoduo	Buy products or services with lower prices	68	17.00
	Purchase products or services with better quality	102	25.50
	Purchase products or services more conveniently	143	35.75
	Improve overall life experience	62	15.50
	Others	25	6.25

The following is a detailed description of the table:

1) Gender: In this sample, there are 137 male clients, accounting for 34.25%, and 249 female clients, accounting for 65.75%.

2) Age: The age distribution in the sample is as follows: 37 people under 20 years old, accounting for 9.25%; 109 people between 21-29 years old, accounting for 27.25%; 141 people between 30-39 years old, accounting for 35.25%; 89 people between 40-49 years old, accounting for 22.25%; and 24 people aged 50 years old and above, accounting for 6.00%.

3) Education: In this sample, there are 196 clients with bachelor's degree, accounting for 49.00%; 104 clients with bachelor's degree, accounting for 26.00%; and 100 clients with higher than bachelor's degree, accounting for 25.00%.

4) Occupation: The distribution of clients in different occupations in the sample is as follows: 62 students, accounting for 15.50%; 59 employees of companies, accounting for 14.75%; 64 civil servants, accounting for 16.00%; 61 employees of organizations, accounting for 15.25%; 57 self-employed people, accounting for 14.25%; 67 retirees, accounting for 16.75%; other occupations, accounting for 16.75%. (16.75%); and 30 persons in other occupations (7.50%).

5) Monthly Income: The monthly incomes of the clients in the sample are as follows: 52 clients with monthly incomes of less than 1,000 yuan, accounting for 13.00%; 84 clients with monthly incomes of 1,000-3,000 yuan, accounting for 21.00%; 78 clients with monthly incomes of 3,001-5,000 yuan, accounting for 19.50%; and 78 clients with monthly incomes of 5,001-7,000 yuan, accounting for 19.50%. 48 people, or 12.00%, with monthly income between 5001-7000 yuan; 60 people, or 15.00%, with monthly income between 7001-10000 yuan; 46 people, or 11.50%, with monthly income between 10001-20000 yuan; and 32 people, or 8.00%, with monthly income of more than 20000 yuan.

6) Time of usage of Pinduoduo (Time of usage of Pinduoduo): The distribution of the length of time that customers in the sample have used Pinduoduo is as follows: 98 people have used Pinduoduo for less than 1 year, accounting for 24.50%; 85 people have used Pinduoduo for 1-3 years, accounting for 21.25%; 203 people have used Pinduoduo for 4-6 years, accounting for 50.75%; 14 people have used Pinduoduo for more than 6 years, accounting for 11.50%; 32 people have a monthly income of more than 20000 yuan, accounting for 8.00%. There are 14 people who have used Pinduoduo for more than 6 years, accounting for 3.50%.

7) Frequency of use of Pinduoduo (Frequency of use of Pinduoduo): The frequency of use of Pinduoduo by customers in the sample is as follows: 95 people use Pinduoduo occasionally, accounting for 23.75%; 194 people use Pinduoduo frequently, accounting for 48.50%; 47 people don't use Pinduoduo, accounting for 11.75%; and 64 people in other cases, accounting for 16.00%. 16.00%.

8) How did you learn about Pinduoduo: The distribution of the ways in which customers learned about Pinduoduo in the sample is as follows: 51 people learned about Pinduoduo through media reports, accounting for 12.75%; 134 people learned about Pinduoduo through advertisements, accounting for 33.50%; 122 people learned about Pinduoduo through friends' recommendations, accounting for 30.50%;

122 people learned about Pinduoduo through other websites, accounting for 30.50%; and 122 people learned about Pinduoduo through other websites, accounting for 30.50%. 30.50%; 66 people learned about Pinduoduo through links to other websites, accounting for 16.50%; 27 people learned about Pinduoduo in other ways, accounting for 6.75%.

9) Reasons for using Pinduoduo: The reasons for customers using Pinduoduo in the sample are distributed as follows: to buy cheaper products or services: 68 people, 17.00%; to buy better quality products or services: 102 people, 25.50%; to buy more convenient products or services: 143 people, 35.75%; to improve overall life. 35.75%; 62 people, or 15.50%, for improving overall life experience; and 25 people, or 6.25%, for other reasons.

Opinion on service quality and customer loyalty

Table 4.2 Opinion on overview research variables

(n=386)

Overview of Variables	Mean	Standard deviation	Interpret	Ranking
Reliability	4.51	0.932	the highest	3
Responsiveness	4.81	0.882	the highest	2
Assurance	4.90	0.857	the highest	1
Reputation	4.12	0.996	high	4
Information Quality	3.98	0.980	high	5
Customer Loyalty	3.92	0.881	high	6
Total	4.37	4.647	high	

Based on the tabular data provided, the following results were obtained:

1) Reliability: the Mean of this variable is 4.51 and the standard deviation is 0.932. a higher Mean indicates that most of the samples have a positive feeling and

they feel that Pinduoduo is more efficient. The smaller standard deviation indicates that the samples have some consistency about the Reliability of Pinduoduo.

2) Responsiveness: the Mean value of this variable is 4.81 and the standard deviation is 0.882. A high Mean value indicates that most of the samples feel positively and they feel that Pinduoduo is performing better in terms of fulfillment. A small standard deviation indicates that there is some consistency in the samples' perception of Pinduoduo's fulfillment.

3) Assurance: The Mean value of this variable is 4.90 and the standard deviation is 0.857. A high Mean value indicates that most of the samples have a positive feeling that Pinduoduo has good Assurance. A small standard deviation indicates that the samples have some consistency about the system usability of Pinduoduo.

4) Reputation: The Mean value of this variable is 4.12, and the standard deviation is 0.996. A relatively low Mean value indicates that the majority of the samples have average feelings about the Reputation protection of Pinduoduo. A large standard deviation indicates that the samples have large differences in Reputation protection of Pinduoduo.

5) Information Quality: The Mean value of this variable is 3.98, and the standard deviation is 0.980. A relatively low Mean value indicates that most of the samples are less satisfied with Pinduoduo. A large standard deviation indicates that there is a large variation in the Information Quality of the samples with Pinduoduo.

6) Customer Loyalty: The variable has a Mean of 3.92 and a standard deviation of 0.881, with a higher Mean indicating that most of the samples have a higher Customer Loyalty to Pinduoduo and a higher level of recognition of Pinduoduo, and a smaller standard deviation indicating that the samples have a certain degree of consistency in their Customer Loyalty to Pinduoduo.

Table 4.3 Opinion on Reliability

(n=386)

Reliability	Mean	Standard deviation	Interpret	Ranking
1. Pinduoduo platform is trustworthy	3.99	0.832	high	2
2. The service is efficient	3.65	0.844	high	5
3. The service matches the description	3.82	0.936	high	4
4. The payment methods are reliable	3.59	0.868	high	6
5. Transaction information is easily accessible	3.97	0.880	high	3
6. The consulting service is reliable	4.14	0.916	high	1

According to Table 4.3, this table shows the results of the opinion survey on Reliability.

The Mean value and interpretation data for the 3 statements ranked at the 1st, 2nd, and 3rd in Table 4.3 are:

1) The consulting service is reliable Mean value of 4.14, interpreted as high reliability and ranked 1st.

2) Pinduoduo platform is trustworthy Mean value of 3.99, interpreted as high reliability and ranked 2nd.

3) Transaction information is easily accessible Mean value of 3.97, interpreted as high reliability and ranked 3rd.

Table 4.4 Opinion on Responsiveness

(n=386)

Responsiveness	Mean	Standard deviation	Interpret	Ranking
1. Customer service and after-sales support have a good attitude	3.78	0.904	high	3
2. Customer issues are fully resolved	3.89	0.892	high	2
3. Remedial measures are taken promptly	4.01	0.928	high	1
4. Logistics information is updated in a timely manner	3.48	0.940	high	5
5. The transaction process is easy to operate	3.73	0.856	high	4

According to Table 4.4, the table shows the results of the opinion survey on Responsiveness.

Based on the data provided in Table 4.4, the number of MEAN value and Interpret data for the 3 statements ranked at the 1st, 2nd, and 3rd are as follows:

1) Remedial measures are taken promptly MEAN value of 4.01, interpreted as high responsiveness and ranked 1st.

2) Customer issues are fully resolved MEAN value of 3.89, interpreted as high responsiveness and ranked 2nd.

3) Customer service and after-sales support have a good attitude MEAN value of 3.78, interpreted as high responsiveness and ranked 3rd.

Table 4.5 Opinion on Assurance

(n=386)

Assurance	Mean	Standard deviation	Interpret	Ranking
1. The transaction is secure	3.56	0.905	high	3
2. Reputation is ensured	3.67	0.843	high	2
3. Delivery is secure	3.92	0.903	high	1

According to Table 4.5, the table shows the results of the opinion survey on Assurance.

Based on the data provided in Table 4.5, the number of MEAN value and Interpret data for the 3 statements ranked at the 1st, 2nd, and 3rd are as follows:

1) Delivery is secure MEAN value of 3.92, interpreted as high assurance and ranked 1st.

2) Reputation is ensured MEAN value of 3.67, interpreted as high assurance and ranked 2nd.

3) The transaction is secure MEAN value of 3.56, interpreted as high assurance and ranked 3rd.

Table 4.6 Opinion on Reputation

(n=386)

Reputation	Mean	Standard deviation	Interpret	Ranking
1. Personalized services are provided	3.52	0.938	high	2
2. Accurate positioning is available	3.45	0.826	high	3
3. Pinduoduo maintains content standards	3.74	0.871	high	1

According to Table 4.6, the table shows the results of the opinion survey on Reputation.

Based on the data provided in Table 4.6, the number of MEAN value and Interpret data for the 3 statements ranked at the 1st, 2nd, and 3rd are as follows:

1) Pinduoduo maintains content standards MEAN value of 3.74, interpreted as high reputation and ranked 1st.

2) Personalized services are provided MEAN value of 3.52, interpreted as high reputation and ranked 2nd.

3) Accurate positioning is available MEAN value of 3.45, interpreted as high reputation and ranked 3rd.

Table 4.7 Opinion on Information Quality

(n=386)

Information Quality	Mean	Standard deviation	Interpret	Ranking
1. Information provided is accurate	4.05	0.856	high	1
2. Information is timely	3.61	0.879	high	3
3. Information is easy to understand	3.80	0.810	high	2

According to Table 4.7, the table shows the results of the survey of views on Information Quality..

Based on the data provided in Table 4.7, the number of MEAN value and Interpret data for the 3 statements ranked at the 1st, 2nd, and 3rd are as follows:

1) Information provided is accurate MEAN value of 4.05, interpreted as high information quality and ranked 1st.

2) Information is easy to understand MEAN value of 3.80, interpreted as high information quality and ranked 2nd.

3) Information is timely MEAN value of 3.61, interpreted as high information quality and ranked 3rd

Table 4.8 Opinion on Customer Loyalty

(n=386)

1.	Making purchases on Pinduoduo is repeatedly.	3.84	0.958	high	3
2.	Making purchases is repeatedly if other platforms offer the same products as Pinduoduo	4.06	0.961	high	2
3.	Making purchases is repeatedly if the price of goods on Pinduoduo increases	3.81	0.985	high	4
4.	I will persuade other people to make purchases on Pinduoduo	4.17	0.861	high	1
5.	I will follow other people's purchasing advice on Pinduoduo	3.80	0.826	high	5

According to Table 4.8, the table shows the results of the survey on the views of Customer Loyalty.

Based on the data provided in Table 4.8, the number of MEAN value and Interpret data for the 3 statements ranked at the 1st, 2nd, and 3rd are as follows:

1) I will persuade other people to make purchases on Pinduoduo MEAN value of 4.17, interpreted as high customer loyalty and ranked 1st.

2) Making purchases is repeatedly if other platforms offer the same products as Pinduoduo MEAN value of 4.06, interpreted as high customer loyalty and ranked 2nd.

3) Making purchases on Pinduoduo is repeatedly MEAN value of 3.84, interpreted as high customer loyalty and ranked 3rd.

Correlation Analysis

Table 4.9 Matrix of correlation coefficients for each variable

	reliability	responsiveness	assurance	reputation	information quality	customer loyalty
Reliability	1					
Responsiveness	.831*	1				
Assurance	.724*	.701*	1			
Reputation	.676*	.606*	.661*	1		
Information quality	.604*	.579*	.473*	.568*	1	
Customer loyalty	.549*	.628*	.516*	.640*	.884*	1

Note: *Significance less than 0.05 is considered relevant.

Based on the matrix of correlation coefficients in Table 4.9, we can find that among the five variables of reliability, responsiveness, assurance, revenue and information quality, the correlation between them and customer loyalty are all positive. This Means that if a company can perform better in the above five variables, then it has a higher probability of having more loyal customers.

Further, we find that the correlation between reliability and customer loyalty is the smallest at 0.549, while information quality has the next highest correlation with customer loyalty at 0.884. This suggests that while reliability and information quality have less impact on customer loyalty, customer loyalty, assurance and revenue have more impact on customer loyalty. That is, if firms perform better on these three dimensions, then they are likely to be better at attracting and retaining customer loyalty.

Multiple Regression analysis

Table 4.10 Results of multiple regression analysis

Variables	a	b	Std. Error	β	t	p	VIF
	constant						
Reliability	0.006	0.304	0.185	0.312	5.325	.000	1.452
Responsiveness		0.127	0.028	0.209	2.837	.000	1.237
Assurance		0.059	0.034	0.342	5.537	.000	1.575
Reputation		0.296	0.001	0.106	2.618	.000	1.118
Information quality		0.138	0.034	0.217	3.494	.000	1.301

Note: *Dependent variable: customer loyalty

According to the provided table of regression analysis results (Table 4.10), the following are the T-values and P-values for the five variables:

1) Reliability: The T-value of 5.325 indicates that the effect of reliability on customer loyalty is statistically significant. The P-value of .000, which is less than the set level of significance (usually .05), indicates that the effect of the variable on the other dependent variables is significant.

2) Responsiveness: The T-value of 2.837 indicates that the effect of responsiveness on customer loyalty is statistically significant. The P-value of .000 is less than the set level of significance, implying that the effect of the variable on the other dependent variables is significant.

3) Assurance: The T-value of 5.537 indicates that the effect of assurance on customer loyalty is statistically significant. The P-value of .000, which is less than the

set level of significance, indicates that the effect of the variable on the other dependent variables is significant.

4) Reputation: The T-value of 2.618 indicates that the effect of reputation on customer loyalty is statistically significant. The P-value is .000 which is less than the set level of significance implying that the effect of the variable on other dependent variables is significant.

5) Information quality: The T-value of 3.494 indicates that the effect of information quality on customer loyalty is statistically significant. The p-value is .000 which is less than the set level of significance implying that the effect of this variable on other dependent variables is significant.

Based on the β coefficients in the above table, the ranking of the degree of influence of each independent variable on the dependent variables (from largest to smallest) can be ranked as follows:

- (1) Assurance ($\beta=0.342$)
- (2) Reputation ($\beta=0.106$)
- (3) Information quality ($\beta=0.217$)
- (4) Reliability ($\beta=0.185$)
- (5) Responsiveness ($\beta=0.209$)

In this case, Assurance has the greatest effect on the dependency variable and Responsiveness has the least effect on the dependency variable.

Table 4.11 R² Table

Variables	R ²
Reliability	0.304
Responsiveness	0.127
Assurance	0.059
Reputation	0.296
Information quality	0.138

R² is the degree of fit of the regression model and indicates how much of the variance of the explanatory variables can be explained by the model. Specifically, a higher R² value indicates that the regression model explains the data better, i.e., the model fits the data better. In this table, the R² value of each independent variable indicates the ability of that independent variable to explain the dependent variable (customer loyalty).

- (1) The R² value of 0.304 for the reliability variable indicates that reliability explains 30.4% of the variance in the customer loyalty variable.
- (2) The R² value of 0.296 for the reputation variable indicates that reputation explains 29.6% of the variance in the customer loyalty variable
- (3) The R² value of 0.138 for the information quality variable indicates that information quality explains 13.8% of the variance in the customer loyalty variable
- (4) The R² of 0.127 for the responsiveness variable indicates that responsiveness explains 12.7% of the variance in the customer loyalty variable

- (5) The R^2 of 0.059 for the assurance variable indicates that assurance explains 5.9% of the variance in the customer loyalty variable

Hypothesis testing

Based on the results of the above correlation and regression analyses, the hypothesis testing conclusions of this study are presented in the table below:

Table 4.12 Synthesis of findings on the validation of research hypotheses

Hypotheses	Hypothetical content	Verification results
H1	There is a significant positive relationship between reliability and customer loyalty on Pinduoduo.	valid
H2	There is a significant positive relationship between responsiveness and customer loyalty on Pinduoduo.	valid
H3	There is a significant positive relationship between assurance and customer loyalty on Pinduoduo.	valid
H4	There is a significant positive relationship between reputation and customer loyalty on Pinduoduo.	valid
H5	There is a significant positive relationship between information quality and customer loyalty on Pinduoduo.	valid