

An Analysis Approach of The Influence of Customer Reviews and Ratings, Influencer Reviews, and References Group on The Purchase Decision of Frozen Food Products

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Abstract

Business in the food and beverage industry is currently growing rapidly. Changes in people's lifestyles, including food consumption styles, lead to instant food, one of which is frozen food. The frozen food product business industry is considered profitable, making competition in this field quite high. This is also supported by the style of people who currently like to shop online in e-commerce. With this, many people see the business of selling on e-commerce. This research aims to determine the effect of consumer reviews and stars, influencer reviews, and group references on consumer purchasing decisions. This research will find out what factors can encourage purchasing decisions for frozen food products based on the relationship shown in the results of the research. Analysis of research data will use the method of Structural Equation Modeling with Partial Least Square (PLS) model. The data will be processed assisted by the Microsoft Excel application and the SmartPLS 3.0 application. In this research, the questionnaire was filled out by 190 respondents and then removed according to the respondent's profile that matched the research so that as many as 169 respondents could be processed. The independent variables in this research are consumer reviews and stars (X1), influencer reviews (X2), and reference groups (X3) while the dependent variable in research on purchasing decisions (Y). The results showed that each independent variable had a positive and significant effect on purchasing decisions.

Keywords

Frozen food products, customer reviews and stars, influencer reviews, reference groups, purchasing decisions

1. Introduction

Food and beverage is one of the largest industries. Many entrepreneurs are trying their luck in the food and beverage industry because it has good potential and rapid development (Wijiati and Santosa 2013). The dynamics of society is increasing along with changes in the strategic environment in business development that cause changes in customer lifestyles, including shifts in food consumption patterns (Santoso *et al.* 2018). The instant food that is often chosen by the public is frozen food (Anggraeni *et al.* 2014). According to Purwaningsih *et al.* (2021), frozen food has a growth rate

of almost 20% from 2013 to 2017. Frozen food is processed food that is frozen so that it is durable and easy to serve, aiming to minimize damage to the appearance, smell, and taste (Alsailawi *et al.* 2020).

There are various types of frozen food products that make the frozen food sector grow (Panajkar 2019). Even in 2020, when Indonesia began to enter the COVID-19 pandemic, the demand for frozen food was high. The entry of the COVID-19 virus caused the Indonesian government to implement physical distancing regulations which were strengthened through the Large-Scale Social Restriction policy regulated in PP No. 21 of 2020, which was later lowered in Minister of Health Regulation No. 9 of 2020 concerning PSBB Guidelines. Circumstances that cause limited human space for movement indirectly change people's behavior towards digital technology (Kahar *et al.* 2020). Customers, who generally carry out activities to meet their daily needs outside, now have experienced changes in conducting online transactions by making more use of e-commerce (Nurlela 2021).

Competition in the business world is not a new thing, including the current digital era. Competitors have an important role in the success and failure of a business (Wirasati 2005). Every entrepreneur competing to generate effective sales. Effective sales are carried out by influencing someone to receive, consider information and make decisions in purchasing a product (Surapati and Mahsyar 2019). Not only relying on the information listed on the product or from the product company, customers also often rely on personal information or other parties (Bansal and Voyer 2000). This personal or other party information includes other customers, influencers, or friends or family. This includes electronic word of mouth (e-WOM), where this activity influence customer decisions through digital media. E-WOM is used by customers who already have experience with the use of products and help potential customers to make the right buying decisions (Ban *et al.* 2019).

Therefore, this research will discuss the influence of customer reviews and ratings, influencer reviews, and reference group on purchase decisions. In this research, researchers will make observations of the three factors that have an influence on online frozen food purchasing decisions.

1.1 Objectives

With the description of the problems put forward by previous researchers, this research objectives as follows:

1. Knowing the influence of customer reviews and ratings on consumer purchasing decisions.
2. Knowing the influence of influencer reviews on consumer purchasing decisions.
3. Knowing the influence of reference groups on consumer purchasing decisions.

2. Literature Review

Entrepreneur is someone who knows their potential and who learns to capture and develop existing opportunities followed by efforts to pursue their goals (ideals) (Saragih 2017). There has been a change in conducting online transactions by making more use of e-commerce (Nurlela 2021). E-commerce or electronic commerce is an application in the business and trade fields of Information and Communication Technologies (ICT) and the internet (Hendrawan *et al.* 2018). In terms of the growth trend of e-commerce retail, Indonesia is one of the largest e-commerce markets in Asia (Agus *et al.* 2020). In fact, new e-commerce users in Indonesia when COVID-19 conditions escalated caused a surge in transactions from 3.1 million to 4.8 million transactions with 51% of sales coming from food and clothing (Nurlela 2021). Nowadays, the tendency to buy canned food is decreasing and switching to instant food (Purwaningsih *et al.* 2021). Frozen food is processed instant food that is frozen so that it lasts longer and is easy to serve (Santoso *et al.* 2018). This is supported by Roos (2021) that said food freezing is a technology in preserving food at cold temperatures so that food is frozen naturally and can be stored for a certain period of time. Storage with lower temperatures (colder) will slow down the deterioration of food and increase the growth of microorganisms (Zhao *et al.* 2021).

This study will refer to 3 (three) appropriate variables from the preliminary survey conducted by researchers that can influence purchase decisions. The appropriate variables are customer reviews and ratings, influencer reviews, and reference group.

Reviews from customers online are marked by writing personal preferences or opinions regarding the uses and features of the products purchased (Ahani *et al.* 2019). Meanwhile, ratings, which are usually marked with a star, are used to show ratings from customers for the product purchased as a whole (Zhao *et al.* 2019). In the purchasing decision process, the research by Rangsang & Millayani (2021), states that online customer reviews also significantly influence the purchasing decision process. Consumer reviews that are used by consumers as a source of information about products

are discussed in the research of Pratminingsih et al. (2022), which was found to have a significant influence on purchasing decisions. Not only from customer reviews, the rating listed on the e-commerce platform in the research of Rarung et al. (2022) to become the second variable after customer reviews that have a significant positive influence on purchasing decisions.

H1: Customer reviews and ratings have a positive and significant influence on purchase decisions.

An influencer is someone who has a high reputation and has an engaged audience (Makrides *et al.* 2020). A Social Media Influencer (SMI) often shares their life (lifestyle) on social media, including the products they use, and often even shares reviews on certain products (Hermenda *et al.* 2019). Research on Social Media Influencers (SMI) conducted by Andreani et al. (2021) that shows, influencers who have followers with the same interests (relevance) and followers who fully support the influencer (resonance) have a positive and significant impact on purchasing decisions. According to research from Sudha & Sheena (2017), it was concluded that influencers who write about products through their blogs and have an understanding of the product and feel they have a responsibility can influence their followers significantly on purchasing decisions. However, this research contradicts research conducted by Cooley & Parks-Yancy (2019), surprisingly that followers who follow celebrities/influencers, do not have a significant impact on purchasing decisions.

H2: Influencer reviews have a positive and significant influence on purchase decisions.

A reference group is an individual or group who can influence someone, especially those closest to him, such as family or friends by giving advice or invitations so that they are usually involved in making a decision in making a purchase transaction (Suganda 2022). This is in line with research conducted by Pratminingsih et al. (2022), where the reference group is one of the most powerful factors in influencing customer behavior to shop online, including in purchasing decisions. Another study conducted by Yoshita & Rao (2019), also found that the main influence in the buying stage came from their family and friends.

H3: Reference group have a positive and significant influence on purchase decisions.

A purchase decision is an action or behavior in making a purchase or transaction (Rachmawati *et al.* 2019). It can be said, purchasing decisions are the last process for customers in the purchase decision-making process (Hanaysha 2018). Decision making in purchasing decisions is based on various factors, both in terms of their age, income, character, and lifestyle (Sari and Prihartono 2020).

3. Methods

This research will use quantitative methods. According to the journal Queirós et al. (2017), mentions the quantitative research will focus on objectivity and has excellent measurement accuracy if the variable data and conclusions of a sample in the population can be measured. The data used uses measurements with an ordinal scale where the scale is sorted by ranking from the largest to the smallest or vice versa and these have differences that are not constant from one another (intervals are not fixed) (Misbach 2013). Which would refer to 1 = strongly disagree, 2 = disagree, 3 = quite agree, 4 = agree, 5 = strongly agree. This data through non-parametric statistical test. In non-parametric statistical testing, the data are ordinal data that do not spread normally and do not continue (Amiarsi *et al.* 2015).

The data in this research collected using an online questionnaire containing the opinion of the respondent assembly's customer reviews and ratings, influencer reviews, reference group, and purchase decision through a five-point likert scale, ranging from strongly disagree (1) to strongly agree (5). Researcher slightly modified the item word to fit the content of this research. Since the survey study was conducted in Indonesia, the original English questions were translated into Indonesian to make it easier for respondents to understand each question. Then, Respondent responses obtained through questionnaires were then processed into indicator codes according to the variables. This is done so that software application programs can process research. The research measurements are presented in Table 1.

Table 1. Measurements questionnaire

Variable	Definition	Indicators	Measurement
<i>Customer Review and Rating</i>	Suggestions and comments from users who have purchased or used the product (Park and Lee 2009)	Quality (Bambauer-Sachse and Mangold 2011)	I often read product reviews from other customers to find out what frozen food products have good quality.
		Information (Bambauer-Sachse and Mangold 2011)	I often gather information from online customer product reviews before I buy frozen food products.
		Confirmation (Bambauer-Sachse and Mangold 2011)	To make sure I buy the right frozen food product, I often read product reviews from other customers.
<i>Influencer Review</i>	Someone who is publicly recognized online has a promotional influence on a product (Zhang <i>et al.</i> 2018)	Trust (Ohanian 1990)	Frozen food influencers look trustworthy.
		Knowledgeable (Ohanian 1990)	Frozen food influencers look knowledgeable.
		Honest (Ohanian 1990)	Frozen food influencers look honest.
<i>Reference Group</i>	Description of a person or group to the products that are being consumed (Bearden and Etzel 1982)	Others Confirmation (Shukla 2011)	I often consult with other people to help choose the best alternative in purchasing frozen food products.
		Group Information (Shukla 2011)	Before I buy frozen food products, I often collect information from friends or family about the product.
		Confirmation (Shukla 2011)	To make sure I buy the right frozen food products, I often observe what frozen food products other people buy.
<i>Purchase Decision</i>	Decisions of customers are influenced by various information, both positive and negative about the product (Cheung <i>et al.</i> 2009)	Comfortability (Cheung <i>et al.</i> 2009)	I feel comfortable relying on online platforms to make frozen food purchases.
		Decision making (Bambauer-Sachse and Mangold 2011)	Online product reviews impact your purchasing decisions.

The data collected will processing using the Structural Equation Modeling analysis technique or commonly abbreviated as SEM. SEM is a technique for testing statistical models using statistical applications that can analyze relationships between latent variables and indicators (Anuraga and Otok 2013). The use of SEM is widely used as an analytical instrument that tests latent variables that show a cause-and-effect relationship or to find out what variables can be the driving force of the endogenous variables (Hair *et al.* 2014). The SEM technique is the researcher's choice considering that it can be used for multivariate statistics or research objects that analyze the relationship of 2 (two) or more variables. Mentioned in the journal Putlely *et al.* (2021), that one of the reasons for using the SEM technique is because the use of SEM is able to analyze or estimate the relationship of 2 (two) or more between variables or multiple relationships. The SEM model used is Partial Least Square or PLS is a method of analyzing that does not require having a large number of research samples and the data does not have to have a multivariate normal distribution (Cahyaningrum *et al.* 2015). This is also supported in journal Afthanorhan (2013), where the SEM-PLS data does not have to be normally distributed because it is carried out using non-parametric methods and the number of sample sizes is also not limited. Thus, this

research will use the SEM-PLS method using the SmartPLS 3.0 software. SmartPLS itself is a software capable of analyzing data and statistical calculations in the SEM-PLS model. This research will test outer model for validity, reliability, and also inner model for coefficient of determination (R^2), cross-validated redundancy (Q^2), path coefficient, effect size (f^2), and hypothesis testing.

4. Data Collection

In this research, researchers will use a purposive sampling technique. Purposive sampling is a sampling method that is non-random sampling or non-random samples where the researcher determines the identity of the respondents who match the research objectives so that they can answer the problem formulation (Lenaini 2021).

In sampling, the researcher refers to the book Nunnally & Bernstein (1968), that the amount of data to be processed has a ratio of 10:1 from the number of questions. Which means that the minimum number of respondents is 110 from 11 questions on the questionnaire. After going through the stage of distributing questionnaires to the sample, 169 respondents who are ready to be tested are obtained from 190 respondents who have filled out the questionnaire.

The results of the questionnaire distribution where there are 190 respondents who have filled out the google form. 172 of them have shopped for frozen food by online, and 169 of them are domiciled in Jakarta, Bogor, Depok, Tangerang, Bekasi. The responses contain their opinions on research topics ranging from customer reviews and ratings, influencer reviews, reference groups, and purchasing decisions. The characteristics of respondent seen in Table 2.

Table 2. Data collection

	Category	Number	Frequency (%)
Gender	Male	50	30
	Female	119	70
Age	20 – 25	52	31
	26 – 30	14	8
	31 – 35	8	5
	36 – 40	9	5
	41 – 45	21	12
	> 45	65	39
	Domicile	Jakarta	46
Bogor		9	5
Depok		16	10
Tangerang		83	49
Bekasi		15	9
Budget expense	<Rp. 50.000	18	10
	Rp. 50.001 – Rp. 150.000	86	51
	Rp. 150.001 – Rp. 300.000	40	24
	>Rp. 300.000	25	15
Packs purchases	1 – 3	114	67
	4 – 6	40	24
	>6	15	9
Size	100 grams	19	11
	250 grams	62	37
	500 grams	67	40
	1000 grams	17	10
	>1000 grams	4	2

5. Results and Discussion

In this research, we determined that there would be two stages: the outer model and the inner model. In the outer model, validity and reliability will be tested. (Table 3) Validity analysis uses two measurements, namely convergent validity analysis with loading factor criteria > 0.7 and average variance extracted (AVE) > 0.5 criteria (Garson 2016). And for discriminant validity, a test is carried out paying attention to the value of cross loading where there will be a comparison

of the value between one latent variable and another variable, (Table 4) which if it is said to be valid if the value of the latent variable must be greater than the other latent variables (Riyanti 2018). Followed by a reliability analysis carried out to determine whether the instrument used in this research can be trusted to get the actual results with this measurement criteria considered to meet if the composite reliability value > 0.6 and Cronbach's alpha > 0.6 (Riyanti 2018).

Table 3. validity and reliability test

Latent Variable	Indicators	Loading factor	Cronbach's alpha	Composite reliability	Remark	AVE	Remark
Customer review and rating	CR1	0.860	0.853	0.910	Reliable	0.771	Valid
	CR2	0.884			Reliable		Valid
	CR3	0.891			Reliable		Valid
Influencer review	IR1	0.913	0.882	0.910	Reliable	0.809	Valid
	IR2	0.874			Reliable		Valid
	IR3	0.911			Reliable		Valid
Reference Group	RG1	0.866	0.819	0.890	Reliable	0.731	Valid
	RG2	0.833			Reliable		Valid
	RG3	0.866			Reliable		Valid
Purchase Decision	PD1	0.863	0.710	0.873	Reliable	0.774	Valid
	PD2	0.896			Reliable		Valid

Table 4. Cross loading test

Indicators	CR	IR	RG	PD
CR1	0.860	0.234	0.298	0.278
CR2	0.884	0.292	0.311	0.282
CR3	0.891	0.211	0.262	0.352
IR1	0.252	0.913	0.438	0.371
IR2	0.295	0.874	0.472	0.387
IR3	0.205	0.911	0.372	0.434
RG1	0.279	0.407	0.866	0.307
RG2	0.281	0.363	0.833	0.033
RG3	0.281	0.434	0.866	0.329
PD1	0.299	0.391	0.304	0.863
PD2	0.317	0.391	0.435	0.896

Note: CR = Customer review dan rating, IR = Influencer review, RG = Reference group, PD = Purchase decision.

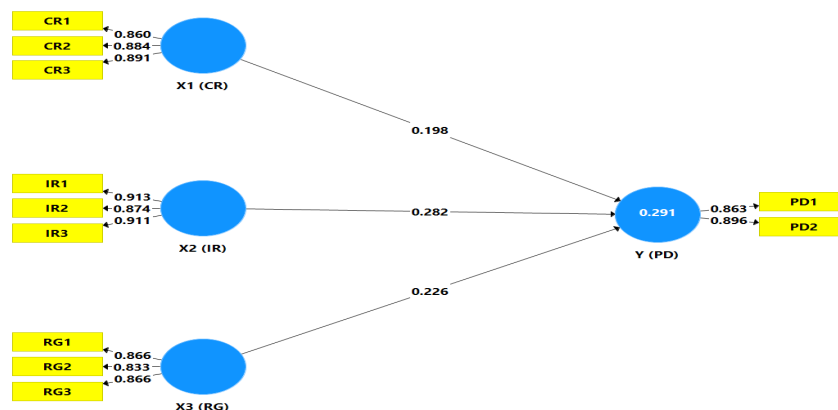


Figure 1. Validity and reliability test

The tests carried out are convergent validity, discriminant validity and reliability. In the convergent validity test, the test is said to be valid if the loading factor value has a minimum value of 0.70 and the Average Variance Extracted (AVE) value is at least 0.5 (Garson 2016). In this research, the loading factor value on all indicators is above 0.7 and the AVE value is above 0.5, which means the data in this test is valid. Another measurement for validity test is discriminant validity with cross loading. This test compares the correlation of indicators with its construct and other constructs. Where, the latent variable itself must have a greater value than the other variables as listed in Table 4. For the reliability test, the test is done by looking at the value of Cronbach's alpha and composite reliability. Cronbach's alpha and composite reliability values are at least 0.6 to be said to be reliable (Riyanti 2018). In the outer model, the data in this research are all valid and reliable as shown in the Table 3 and Figure 1.

Meanwhile, in the inner model, coefficient of determination (R^2), cross-validated redundancy (Q^2), path coefficient, effect size (f^2), and hypothesis testing will be tested. After the results are declared valid and reliable, then testing the inner model if there is a structural relationship between variables as evidenced by some test. The test will be based on journal Hair et al. (2014), the coefficient of determination (R^2) for the percentage of the effect of exogenous variables tested on endogenous variables. Then cross-validated redundancy (Q^2) which will show the accuracy value of the results of this observation. After that the path coefficient which is standardized coefficients ranging from -1 to +1, where +1 directs the relationship in a positive/strong direction. And as well as the effect size that is able to determine the level of the relationship (small, medium, or large). Then a hypothesis test is carried out by bootstrapping method with the aim of knowing whether the previously described hypothesis has a relationship or not. The significant test results will show t-statistic > 1.96 and p-value ≤ 0.5 (Garson 2016). The results of this hypothesis test can be used by entrepreneur in the frozen food business industry who can determine the influence between variables that can increase business through purchase decision.

Table 5. R^2 test

	R^2
Purchase decision	0.291

Table 6. Q^2 test

	Q^2
Purchase decision	0.210

Table 7. Path coefficient test

	Purchase decision
Customer review and rating	0.198
Influencer review	0.288
Reference group	0.226

Table 8. f^2 test

	Purchase Decision	Effect
Customer review and rating	0.049	Large
Influencer review	0.085	Large
Reference group	0.053	Large

Table 9. Hypothesis test

Hypothesis	Relationship between variables	t-statistics	p-value	Description
H1	Customer review dan rating → purchase decision	2.427	0.016	Significant positive
H2	Influencer review → purchase decision	3.445	0.001	Significant positive

H3	Reference group → purchase decision	2.520	0.012	Significant positive
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The tests carried out are coefficient of determination (R^2), cross-validated redundancy (Q^2), path coefficient, the effect size (f^2), hypothesis test. In testing the coefficient of determination measurement of the predicted effect of endogenous variables on exogenous variables hair, 2014. From the test results which shows on Table 5, the influence of customer reviews and ratings, influencer reviews, reference groups in influencing purchasing decisions are $R^2 = 0.291$. This shows that 29.1% of purchasing decisions are influenced by customer reviews and ratings, influencer reviews, and reference groups. Which means, there are 70.1% purchasing decisions influenced by other variables outside this research model. Next, cross-validated redundancy that measures the accuracy of predictions on the model using a blindfolding zero hair test, 2014. From the test results show on Table 6, the value is $Q^2 = 0.210$. This shows the value of the observations produced in this research can be said to be good because the test value is greater than 0 (zero). The next test is the path coefficient to see the positive or negative relationship between endogenous variables and exogenous variables (Hair, 2014). From the result as seen in Table 7, it shows the three exogenous variables in this research have a positive relationship to purchasing decisions. The effect size test will prove the relationship between variables whether small, medium or large. If small effect minimum value is 0.02, medium effect minimum value is 0.15, or large effect minimum value is 0.35 (Cohen, 1988). The result of the test show, the three exogenous variables have a large relationship with purchase decision which show on Table 8. Hypothesis test Figure 3 to see whether the relationship of the variables is significant or not by looking at the t-statistics and p-value. According to Garson (2016), that said to be significant the result of the test must be t-statistics > 1.96 and p-value ≤ 0.5 . The test can be seen in Table 9 and Figure 2.

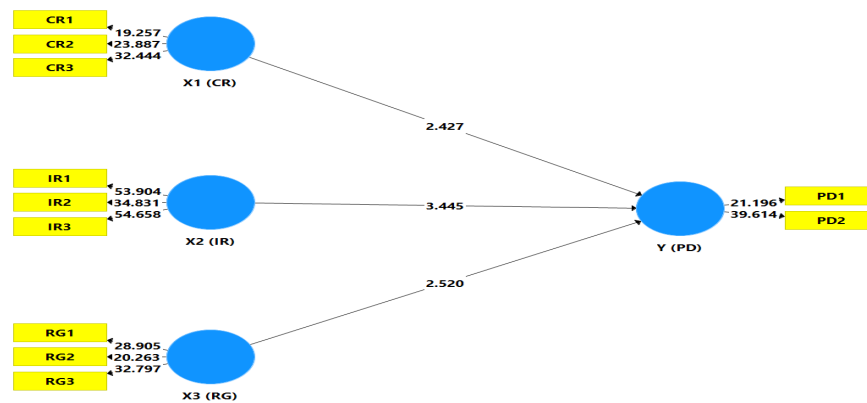


Figure 2 Hypothesis test

6. Conclusion

This research focuses on analyzing the influence of the relationship between customer reviews and ratings, influencer reviews and reference groups on purchasing decisions in purchasing frozen food products online. This research focuses on domiciles in the Jakarta, Bogor, Depok, Tangerang, and Bekasi areas, both male and female, who are at least 20 years old. The results in this research:

1. Customer reviews and ratings have a positive and significant influence on purchasing decisions. Based on data processing from this research, the results show that reviews and customer stars who have already purchased listed on online platforms and social media can be an impetus for someone to make buying and selling transactions. So, the entrepreneur in the food and beverage industry, especially frozen food, should pay more attention to their reviews and business stars, both e-commerce and social media related to their products. Paying attention to the satisfaction of customers who have transacted can also be done to avoid bad reviews and stars by conducting an online customer satisfaction survey containing criticism and suggestions. In addition, for businesses that are just starting, to convince people to want to make transactions, entrepreneur must provide evidence of product quality by encouraging customers to provide reviews and stars by providing incentives to customers on online platforms.
- 2.
3. Influencer reviews have a positive and significant influence on purchasing decisions. Based on data processing from this research, the results show that reviews from influencers related to a product are able to encourage someone to

make buying and selling transactions. So, the entrepreneur in the food and beverage industry, especially frozen food, can use marketing techniques by involving several influencers, both celebrities, vloggers, bloggers or someone who has an influence on the right target market. Influencers are able to become role models related to one's lifestyle so that many people follow what an influencer does.

4.

5. Reference group has a positive and significant influence on purchasing decisions. Based on data processing from this research, the results show that references from friends, relatives, or family related to a product can be an encouragement for someone to make buying and selling transactions. So, the entrepreneur must maintain relationships with their customers because product purchase references from friends, family, or relatives can encourage someone to make buying and selling transactions. It is not infrequently someone recommends buying something and, in this research, it can be a trigger for a purchase decision.

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