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CONSUMER DECISION DYNAMICS IN THE LUBRICANT MARKET: AN INTEGRATED ANALYSIS OF BEHAVIOR, BRAND IMAGE, KNOWLEDGE, AND PRICE IN THE LUBRICANT OF SURABAYA AND SIDOARJO

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ABSTRACT

This study investigates the determinants of lubricant purchase intention in Surabaya and Sidoarjo by examining the influence of customer behavior, brand image, customer knowledge, and product price within a market increasingly challenged by the circulation of counterfeit lubricants. A quantitative approach was employed, involving 300 lubricant consumers and 100 lubricant repair shop owners from Surabaya and Sidoarjo. Logistic regression analysis was used to assess predictors of purchase intention among individual lubricant users, while log-linear modeling tested categorical relationships among repair shop owners regarding product selection and authenticity verification practices. The findings indicate that customer behavior, brand image, and customer knowledge significantly and positively influence purchase intention, with customer behavior emerging as the strongest predictor. Additionally, price perception contributes by enhancing perceptions of value and authenticity. These results underscore the importance of improving consumer education, strengthening brand credibility, and optimizing pricing strategies to mitigate the risk of counterfeiting. The

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study offers practical implications for lubricant manufacturers, distributors, and policymakers aiming to improve consumer decision-making and safeguard the lubricant market.

INTRODUCTION

In recent years, the automotive market in Indonesia has experienced rapid growth, driven by an increasing number of motor vehicles and a rising demand for higher-quality engine maintenance services. This expansion has led to greater demand for lubricant products, which not only support engine performance but also play a crucial role in vehicle efficiency, safety, and longevity. As consumer needs become more complex, purchasing behavior for technical products like lubricants is influenced by a variety of cognitive, emotional, and situational factors. Understanding how consumers make both rational and emotional purchasing decisions is essential, particularly in diverse and dynamic urban areas such as Surabaya and Sidoarjo.

Consumer purchasing behavior is a critical aspect of marketing strategies, particularly for technical products that require a high level of trust, such as lubricants. In the automotive industry, decisions to purchase lubricants are influenced not only by functional requirements but also by perceptions of quality, prior experiences, and information obtained from various sources. Factors such as customer knowledge, brand image, price perception, and quality expectations play a central role in shaping purchase intentions, which are the primary predictors of actual purchasing behavior (Fishbein & Ajzen, 1975; Solomon, 2017). Therefore, understanding the determinants of consumer behavior is increasingly important for explaining the decision-making patterns behind lubricant purchases, especially in densely populated urban areas like Surabaya and Sidoarjo.Brand image is one of the key factors that affect purchase intent. Brands with a strong reputation are perceived to provide quality assurance and safety, so that they can increase consumer confidence in choosing lubricant products (Keller, 1993). In the lubricant industry, where quality is a key determinant of engine performance, brand image plays a strategic role in building consumer preferences. On the other hand, the brand image is prone to degradation if there is a rampant circulation of counterfeit products that resemble the original brand, making it difficult for consumers to distinguish the authenticity of the product.

In addition to brand image, customer knowledge also affects consumers' ability to evaluate and distinguish genuine products from counterfeit products. Consumers with a higher level of technical literacy tend to be able to understand functions, viscosity, certification standards, and other technical parameters so that they can make more rational purchasing decisions (Zeithaml, 1988). This condition seems relevant in Surabaya and Sidoarjo, areas that have varying levels of consumer knowledge in both private vehicle owners and small workshop owners.

Other factors such as product prices are also important determinants in the purchase process. Price perception, price fairness, and price-quality inference are evaluative indicators that determine whether a product is considered worth buying (Hoseason, 2003). In the context of lubricants, the price disparity between genuine and counterfeit products is often used by counterfeiters to attract price-sensitive consumers.

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The urgency of this research is increasing with the existence of empirical phenomena related to the rampant circulation of counterfeit lubricants in the East Java region, including Gresik, Sidoarjo, and Surabaya. Based on Detik.com report, the National Police Criminal Investigation Branch dismantled an oil counterfeiting syndicate operating in nine different locations, with a production capacity of 312,000 bottles per day and a monthly turnover of Rp 20 billion. The counterfeiting mode is carried out by imitating the packaging and seals of various well-known brands such as Pertamina, Yamaha, and Honda, making it very difficult for consumers and workshop owners to distinguish between consumers and workshop owners. These findings indicate that the circulation of counterfeit lubricants is not just a local issue, but a systemic problem that has a direct impact on consumer safety and the stability of the lubricant market.

In addition, the Antara News report stated that Pertamina Lubricants responded to the rampant incident by improving packaging safety features through QR codes, holograms, unique batch numbers, and strengthening public education on the importance of buying lubricants on official distribution channels. These efforts show that the phenomenon of counterfeit lubricants not only impacts consumers, but also demands strategic steps from manufacturers to maintain brand integrity and product safety.

This widespread counterfeiting phenomenon has a significant impact on the behavior of consumers and workshop owners in Surabaya and Sidoarjo. The inability of consumers to distinguish between genuine and counterfeit products increases the risk of machine damage and lowers the level of trust in the official brand. This condition reinforces the relevance of research related to consumer behavior determinants, brand image, customer knowledge, and price perception in shaping lubricant purchase intentions.

Although a number of previous studies have examined the factors that influence purchase intent in various products, studies that comprehensively integrate consumer behavior variables, brand image, customer knowledge, and product prices in the context of the lubricant market affected by counterfeiting are still limited. Therefore, this study aims to fill this gap by analyzing the influence of these factors on the intention to purchase lubricants in the Surabaya and Sidoarjo areas. The results of the research are expected to make a theoretical contribution to the development of marketing literature as well as practical contributions for lubricant manufacturers, workshop owners, and policymakers in formulating strategies to prevent the circulation of counterfeit lubricants and strengthen consumer confidence.

The Introduction explains the phenomenon being studied, the relationship between the phenomenon and existing theories, gaps in research, both theoretical, empirical and methodological, and explains the objectives and contributions of the research.

LITERATURE REVIEW

Customer Behavior and Purchase Intention

Customer behavior reflects the cognitive, affective, and behavioral processes through which consumers evaluate alternatives and make purchasing decisions (Solomon, 2017). Purchase intention is shaped by internal factors such as attitudes, motivations, and prior experience, as well as external influences including social norms and marketing stimuli (Fishbein & Ajzen, 1975). In product categories with technical specifications—

such as automotive lubricants—consumer behavior becomes increasingly complex because decisions must integrate functional needs, product reliability, and perceived risk. Prior studies demonstrate that positive consumer attitudes and prior satisfactory experiences significantly enhance purchase intention. Thus, favorable consumer behavior patterns provide a strong foundation for higher purchasing likelihood.

H1. Customer behavior has a positive and significant effect on purchase intention.

Brand Image and Purchase Intention

Brand image serves as a mental representation of brand attributes, associations, and perceived credibility (Keller, 1993). A favorable brand image acts as a heuristic cue that reduces evaluation effort, increases confidence, and enhances the perceived value of a product (Ghorbanzadeh &Sharbatiyan, 2024). In contexts where product authenticity and quality are essential—such as the lubricant market—brand image becomes a key mechanism through which consumers assess product reliability. Empirical evidence consistently highlights that a strong brand image enhances purchase intention by improving consumers' trust and reducing perceived risk (Jalilvand & Samiei, 2012).

H2. Brand image has a positive and significant effect on purchase intention.

Customer Knowledge and Purchase Intention

Customer knowledge includes familiarity with product features, performance criteria, and quality indicators (Brucks, 1985). Higher product knowledge reduces uncertainty, increases the ability to discern authentic products, and supports more rational purchasing decisions. In high-risk markets—especially those affected by counterfeit goods—customer knowledge influences the degree of confidence consumers place in their choices (Hoque et al., 2021). Consumers with sufficient technical understanding of lubricants (e.g., viscosity, certification standards) are more likely to form strong purchase intentions toward verified brands.

H3. Customer knowledge has a positive and significant effect on purchase intention

Product Price and Purchase Intention

Price is one of the most salient evaluative cues in consumer decision-making and often serves as a proxy for product quality and value (Hoseason, 2003). Price fairness and affordability shape consumers' perceptions of whether a product offers a reasonable cost–benefit trade-off (Konuk, 2019). In markets saturated with counterfeit products, price may also act as a warning signal, where excessively low prices generate suspicion while fair, consistent pricing strengthens confidence in authenticity (Lichtenstein, Ridgway & Netemeyer, 1993). Prior research confirms that positive price perceptions significantly enhance purchase intention across product categories.

H4. Product price perception has a positive and significant effect on purchase intention.

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RESEARCH METHOD

Design and Participants

This research is quantitative. The population of this study was conducted on consumers who use lubricants and owners of lubricant workshops in the Surabaya and Sidoarjo areas. This study uses a sampling technique in this study is Non-probability Sampling using the purposive sampling method. Primary and secondary data are used. Primary data was obtained from online questionnaires using Google Forms, while secondary data was obtained from scientific articles, books, and other sources. This method is considered appropriate because it suits the needs of the research based on certain elements, as well as the population being studied (Malhotra et al. 2012). The sample of this study is 300 consumers who use lubricant products in the Surabaya and Sidoarjo areas. As well as samples at the workshop amounted to 100 lubricant workshop owners in the Surabaya and Sidoarjo areas.

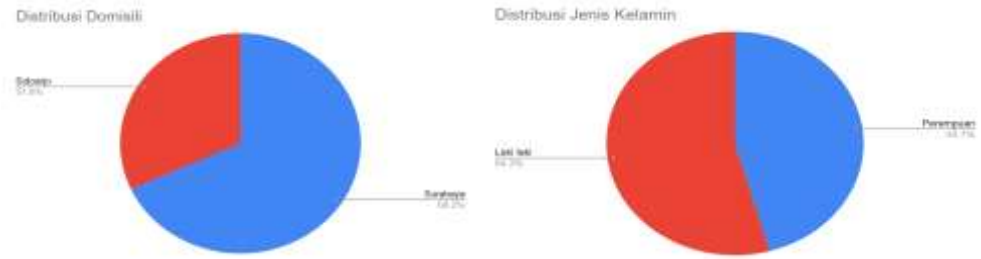
Measures and Data Analysis

In this study, all items were assessed using a 5-point Likert scale (1: strongly disagree and 5: strongly agree), with respondents stating whether they agreed or disagreed with each statement (Sekaran and Bougie 2016, p. 215). The analysis technique of this study uses logistic regression analysis to analyze lubricant users and linear log model analysis for workshop owners in the Surabaya and Sidoarjo areas.

Binary logistic regression analysis is a data analysis method used to find the relationship between the binary response variable (y) and the predictor variable (x) (Hosmer and Lemeshow, 2000) using the SPSS 23 application. This test aims to predict the relationship between dependent variables and independent variables. Log-linear model analysis is a statistical approach used to identify and evaluate the pattern of relationships between categorical variables in a contingency. In this study, the analysis was carried out using the backward elimination method, which is a model selection procedure that gradually eliminates insignificant effects or interactions to obtain the most parsimonious model but still optimally describes the data relationship.

RESEARCH RESULTS AND DISCUSSION

Characteristics and Demographics of Respondents



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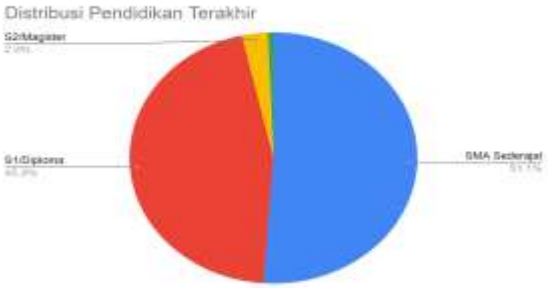

Figure 1. Characteristics Responden

The majority of respondents came from Surabaya (68.2%) with a gender proportion that was not far apart, 54.3% male and 45.7% female, with the 2 most educational statuses in high school as much as 51.1% and S1/Diploma as much as 45.3%.

Proportion of respondents using Pertamina and non-Pertamina lubricants

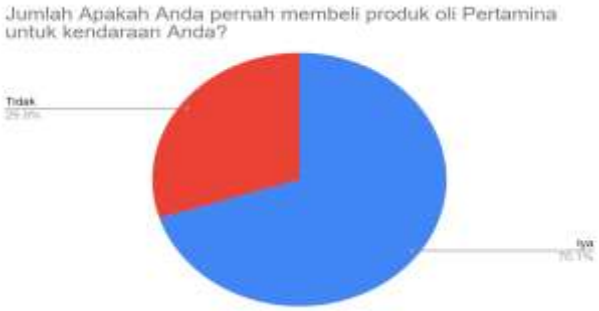

Figure 2. Proportion of respondents using Pertamina and non-Pertamina lubricants

The proportion of Pertamina users in the survey response covers the majority, which is 70.2%, while the remaining 29.8% are non-Pertamina users.

Lubricant Safety Features: Awareness and Preference

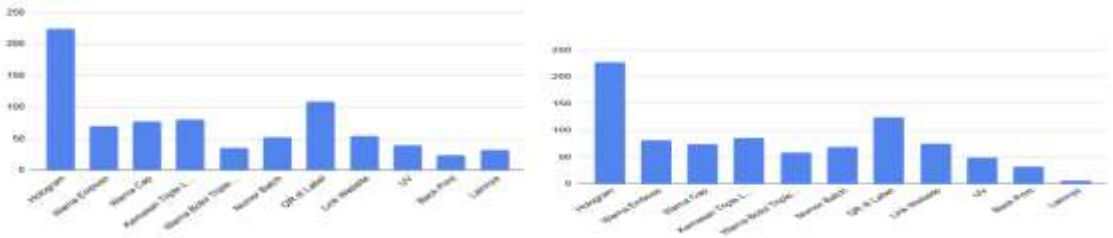

Figure 3. *Lubricant Safety Features: Awareness and Preference*

In the analysis of security features, it can be seen that awareness and preference show that the most widely known and desired feature is holograms

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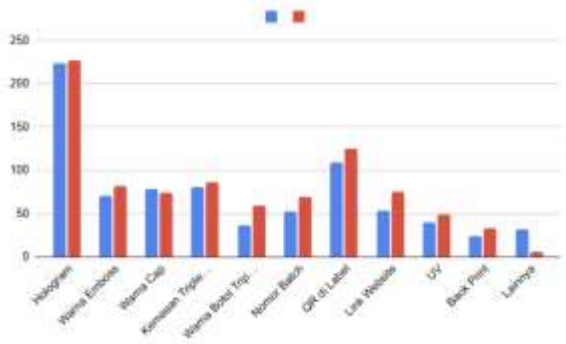

Figure 4. Analysis Of Security Features

When compared, in lubricant safety features, user awareness and preferences tend to be the same, which indicates that they like the security features they already know, and although there are many other safety features that they also know besides the general main features, they tend to like the security features that are already commonly known.

Consumer Behavior in the Selection of Real and Fake Oil

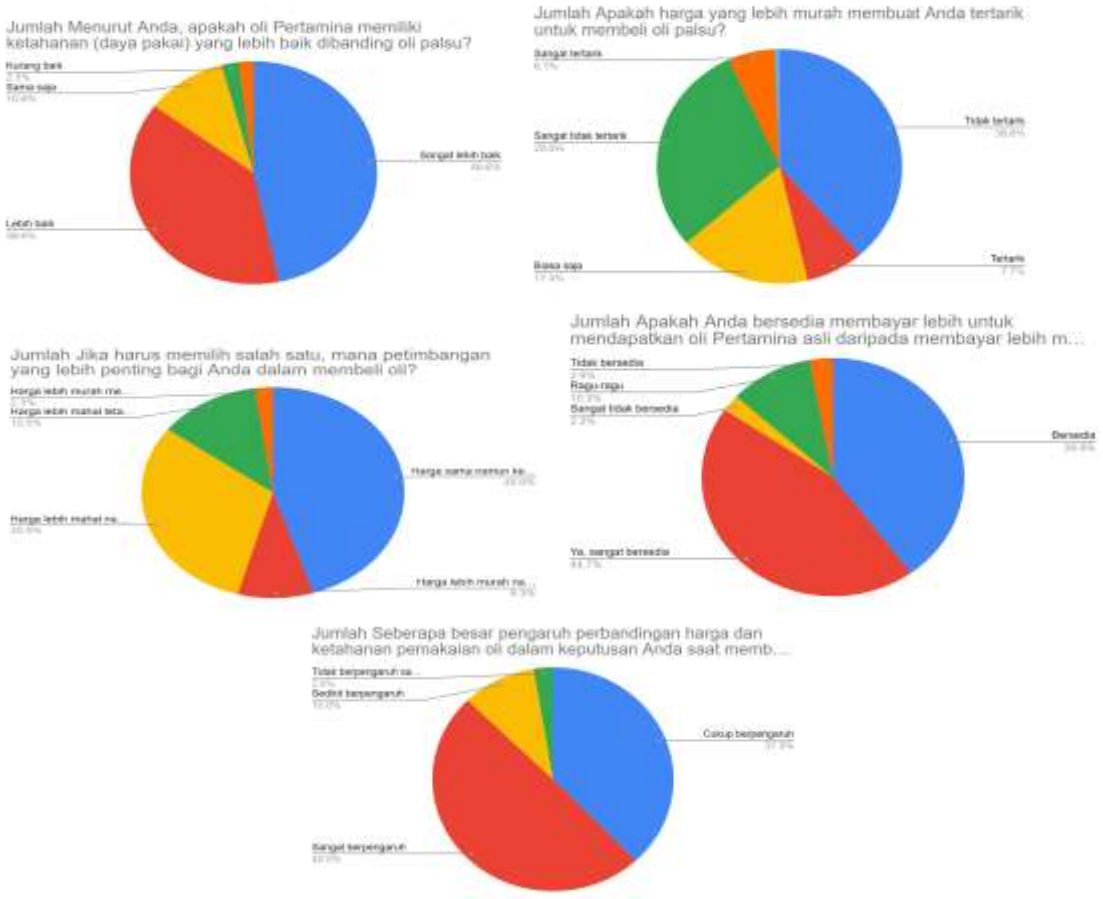

Figure 5. Consumer Behavior in the Selection of Real and Fake Oil

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Most consumers (85.2%) agree that Pertamina has better durability than counterfeit oil, with 84.6% willing or very willing to pay more to avoid counterfeit oil. In oil purchase decisions, respondents tend to prefer to prioritize durability in both price increase and equal price schemes, representing 75.9% of respondents. In price sensitivity, only 13.8% are likely to be interested in buying fake oil if the price is cheaper. And on the value-to-price aspect, 49.5% of respondents agreed that this aspect is very important and only '2.6% have no effect on their decision to buy oil.

Statistical Summary

Variable	Mean	Variance	Minimum	Q1	Median	Q3	Maximum	Range
Customer Behavior	13,678	15,709	4	12	14	17	20	16
Brand Image	14,826	15,112	4	12	16	18	20	16
Customer Knowledge	50,531	181,347	140	42	52	61	70	56
Product Pricing	14,955	13,566	40	13	15	18	20	16
Product Quality	26,328	45,699	7	22	28	31	35	28
Purchase Intention	11,222	8,141	3	9	12	13	15	12

From the table, it can be seen that *Customer Behavior* has an average of 13.68 with a value range of 4-20. This means that most of the respondents showed a positive level of customer behavior towards Pertamina's oil products. *Brand Image* also has a similar pattern with an average of 14.83, indicating that Pertamina's brand image is considered positive by consumers.

At *Customer Knowledge*, the average is much larger, which is 50.53 because this variable has more question indicators. This shows that the respondents have quite good knowledge of Pertamina's oil products.

Product prices have an average of 14.96 which is close to Q3, indicating that most respondents consider Pertamina's oil price to be at an affordable price. Product Quality shows average 26.33 with more spreads. This means that perceptions of product quality are more diverse among respondents.

Last *Purchase Intention* has an average of 11.22 out of a maximum of 15 which shows that Pertamina's oil purchase intention tends to be high among respondents. Overall, this data shows that respondents have a positive perception of purchasing behavior, brand image, knowledge, price, quality, and buying interest.

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Deskriptif: User Only Review

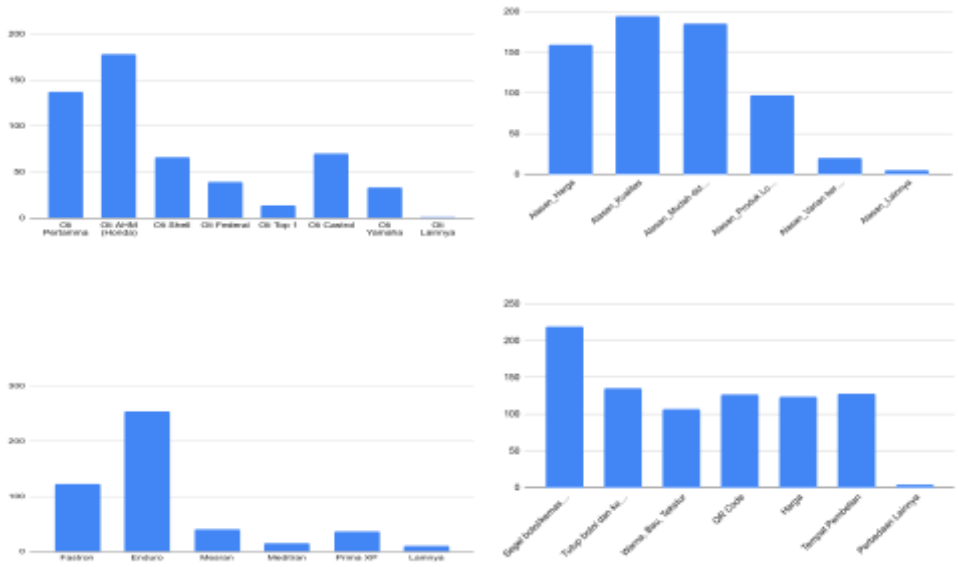

Figure 6. Deskriptif: User Only Review

The most used oil brand by Pertamina users is AHM (Honda) oil followed by Pertamina, where the most used type of oil is the Enduro type followed by the Fastron type. The most common reason why buy Pertamina oil is because of its quality and also easy to get. The most common security feature used as a reference in buying to distinguish from counterfeit oil is bottle or packaging seals.

Security Feature Awareness

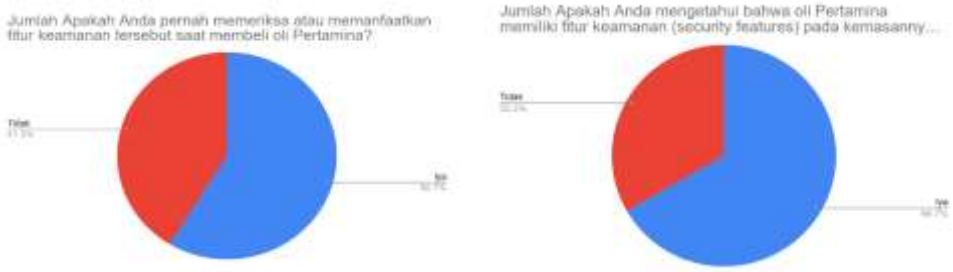

Figure 7. Security Feature Awareness

In terms of security features, 2 out of 3 respondents knew that Pertamina had security features on its packaging, showing that there are still many who do not know the security features that Pertamina has (around 33%). Meanwhile, in its implementation, only around 58% of people have ever taken advantage of the security feature when buying Pertamina oil.

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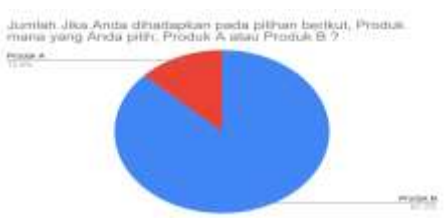
Product Characteristics Preferences



Produk A	Produk B
Harga lebih murah (Rp30.000)	Harga lebih mahal (Rp50.000)
ketahanan pemakaian 2.000–3.000 km	Ketahanan Pemakaian 5.000–6.000 km
Penggantian oli 1-2 bulan	Penggantian oli 3-4 bulan
Kualitas baik	Kualitas baik

Figure 8. Product Characteristics Preferences

Users tend to choose product B (87.2%) with characteristics of longer durability up to 2 times even though it has a more expensive price of around 66% than product A

Best Channel

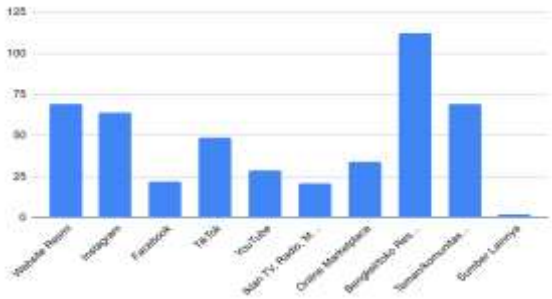


Figure 9. Best Channel

From the overall response, respondents tended to obtain information about the characteristics of real and fake Pertamina oil from official workshops or stores, followed by the community and official websites. This shows that social media platforms have not optimally become a means or media for the dissemination of related information.

Education

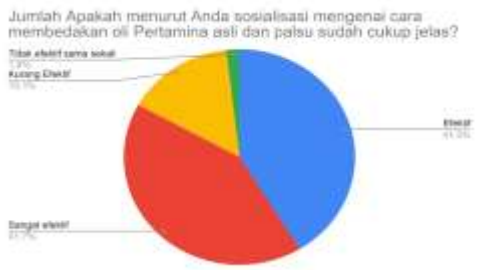


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Figure 10. Education

In terms of education or socialization, at least around 83% of respondents agreed that socialization on how to distinguish between real and fake pertamina oil has been effective, and 47.2% said that they felt that the material or content on how to distinguish it was clear enough, while 82% of respondents felt that they tended to be easy to understand. In the assessment of how important socialization like this is carried out, 56.9% of Pertamina user respondents considered this to be very important and 30.3% considered it important.

Destiptif: Non-User Only

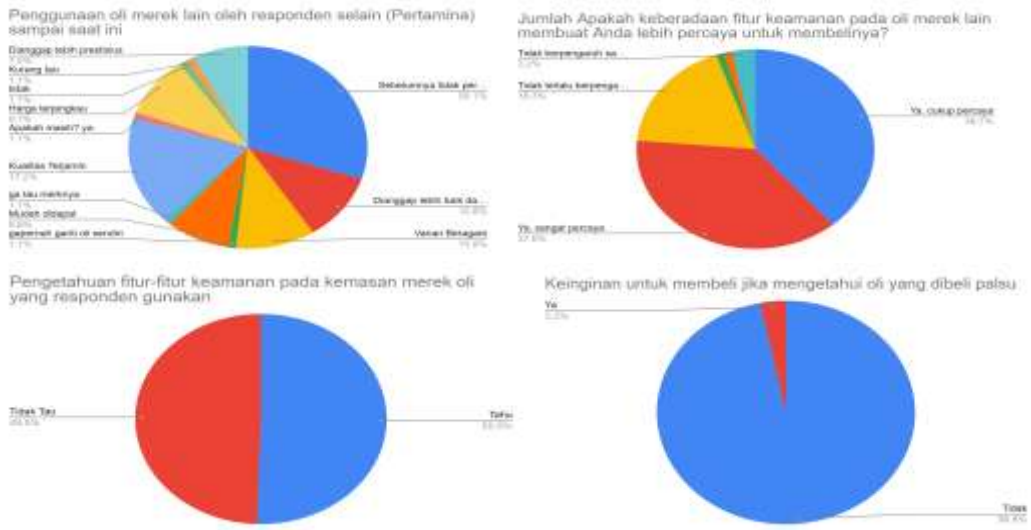

Figure 11. Destiptif: Non-User Only

In the descriptive analysis for *non-Pertamina User questions,* it can be seen that the reasons for using other brands are very diverse, where the most reasons depart from quality, product variants, and indeed have never tried Pertamina oil before. Regarding safety features, only about 50% know about the safety features in non-Pertamina brand oils that they use, which in the next question indicates that the majority of users of other brands of oil believe in oil when they know about the existence of safety features. About

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96.8% of respondents do not want to buy oil if they know that the oil they buy is a fake product.

Komposis Customer Behavior

All categories of consumer behavior show the perception that Pertamina's oil service is considered better, even very better, compared to counterfeit oil. This reflects that consumers have a high level of trust in the quality and reliability of Pertamina's oil products.

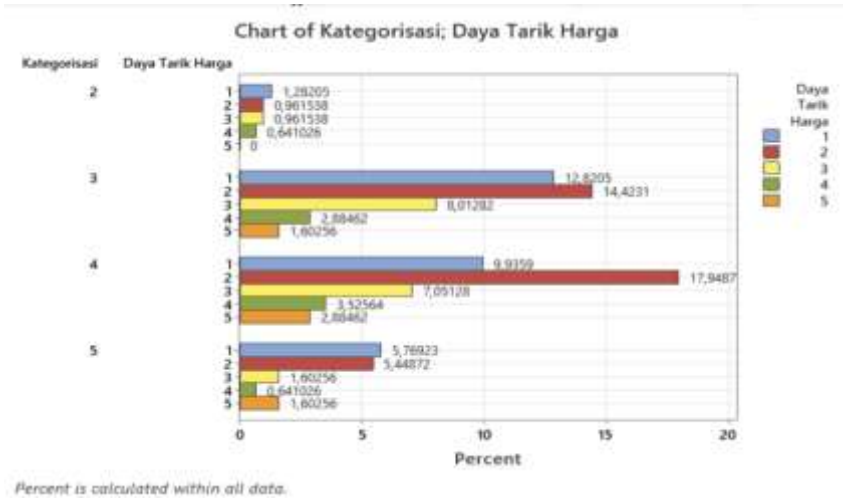

Figure 12. Price Attraction

All categories of consumer behavior agree that the cheaper price of counterfeit oil is not a factor in attracting attention. In other words, consumers are less likely to be tempted by price differences and still consider aspects of product quality and authenticity in their purchasing decisions.

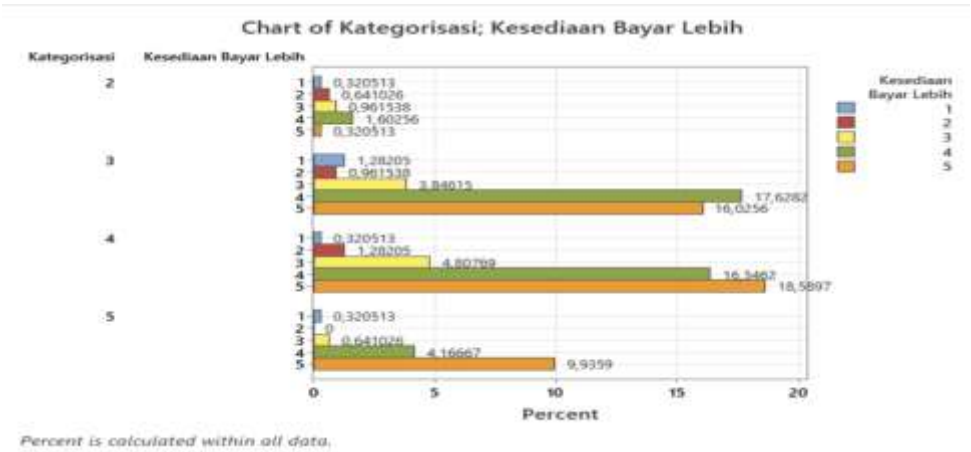

Figure 13. Willingness to Pay More

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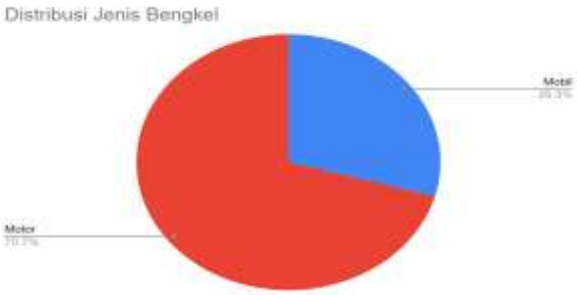
Based on the results in the Figure, all categories of consumer behavior show a willingness to pay more for the sake of obtaining genuine oil. If it is associated with the findings on the variable of the attractiveness of the price of fake oil, it can be concluded that consumers tend to prioritize the quality and authenticity of the product compared to the cheaper price. This reflects that consumers have a high level of awareness of the importance of oil quality and authenticity in maintaining vehicle performance.

Characteristics and Demographics of Workshop Owner Respondents



Fiigure 14. Type of Workshop

The distribution of workshops according to their type in this analysis is divided into 2 types, namely motorcycle and car workshops, with the following distribution where the majority of respondents are motorcycle workshop owners with a proportion of around 70%

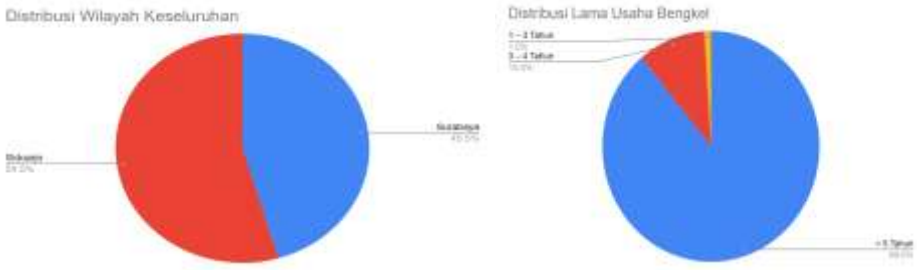


Figure 15. Overall Area Distribution and Length of Workshop Business

Based on the distribution of the region, overall, respondents' workshops are slightly more spread in Sidoarjo with a percentage of around 54.5% compared to Surabaya at 45.5%. The distribution of the majority of respondents' workshop business is more than 5 years old with a percentage of 89%

Workshop Owner's Awareness of Safety Features in Oil

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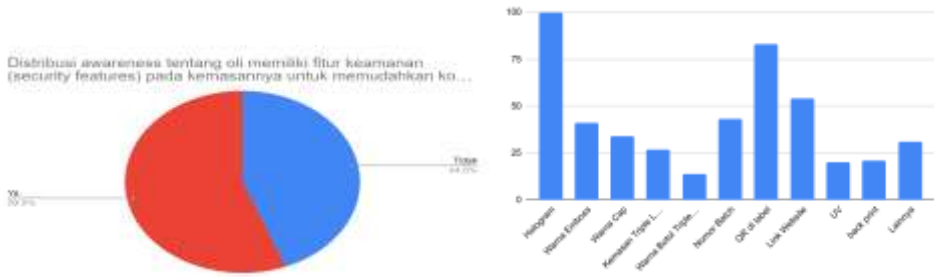


Figure 16. Workshop Owner's Awareness of Safety Features in Oil

The distribution of knowledge or workshop awareness regarding the safety features of the original oil is still relatively low where only about 56% of the workshop knows about the safety features of the oil on the packaging. For the knowledge of the safety factor itself, the most widely known feature of the workshop in distinguishing real and fake oil is the hologram feature.

Category Analysis at the Workshop

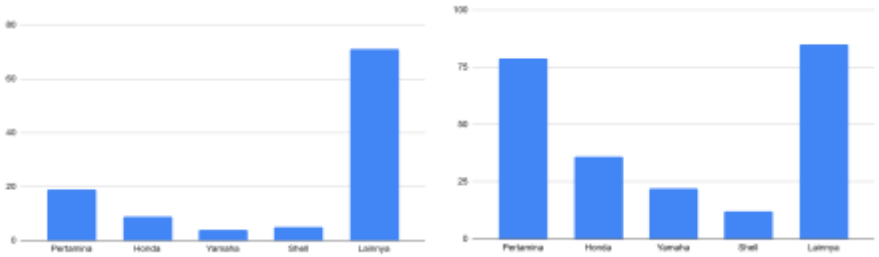
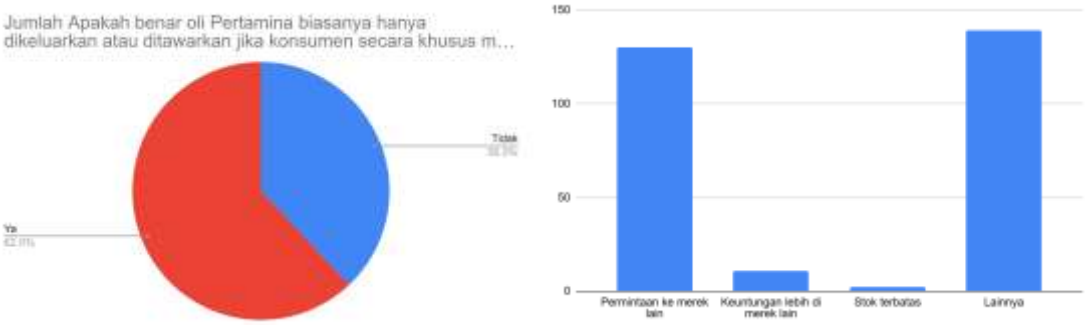


Figure 17. Category Analysis at the Workshop

In the analysis of the most frequently offered brands (left chart) and the most frequently displayed products (right chart), it can be seen that in both brands other than the popular main brands, they are actually more displayed and offered. As for the gap analysis itself, it can be seen that although in the oil brand recommendations there is a very long gap between well-known branded oils and other brands, in the product display, it can be seen that the gap is not too far and even Pertamina has become a significant brand much more often and is close to the frequency of displaying other brand products.

Analysis of the Workshop's Attitude to the Pertamina Brand



Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

Figure 18. Analysis of the Workshop's Attitude to the Pertamina Brand

In the analysis of the attitude of workshops towards Pertamina brand oil, it can be seen that 62% of workshops still only offer or dispense Pertamina brand oil if consumers specifically ask or ask, this condition is influenced by various factors where the most dominant or most common factor exists as the reason for the workshop to do so is due to consumer demand for other brands and other reasons that are diverse and outside the main choice factors.

Analysis of Workshop Attitudes Towards Fake Oil

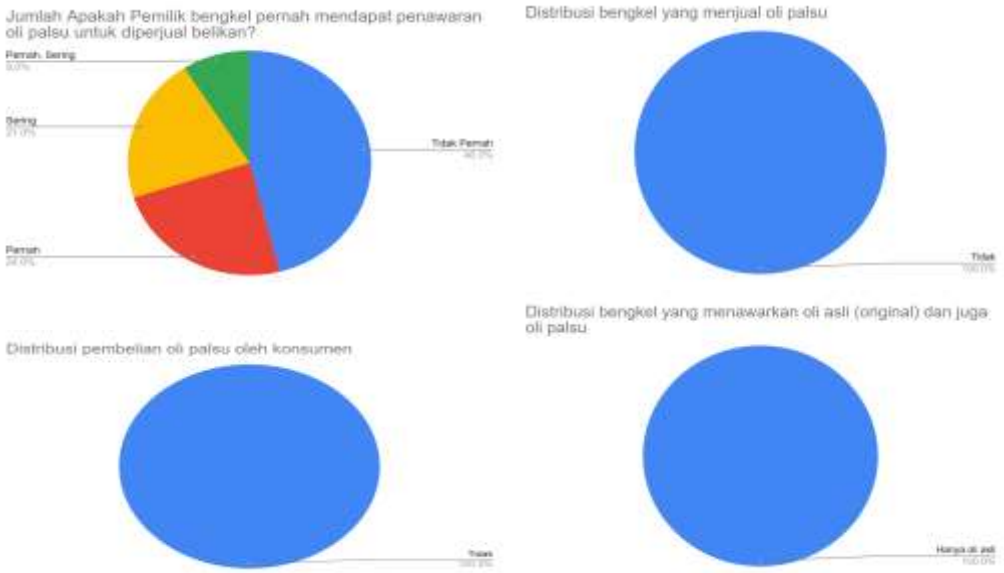


Figure 19. Analysis of Workshop Attitudes Towards Fake Oil

In the analysis of the workshop's attitude towards counterfeit oil, field conditions showed that 100% of the workshop did not sell counterfeit oil, so there were no counterfeit oil transactions by customers in the respondent's workshop. Around 54% of workshop respondents have at least once or even often received promotions or offers to sell fake oil. The survey also showed that most counterfeit oils were never purchased by consumers.

T-Test Dan Anova

The t-test and ANOVA test were used to determine the difference in the average value of numerical variables between groups of respondents. This test helps to see if the differences that emerge are statistically significant. In this case, the t-test or ANOVA can be used to analyze the difference in the average brand trust score based on the age category or education level of the respondent. The results of this test can show whether demographic factors such as age or last education affect the level of consumer confidence in Pertamina oil.

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

Table 1. T-Test Dan Anova

No.	Testing	T or F Statistics	*p-value*
1.	Test T Brand Trust with Age	-1,569	0,118
2.	ANOVA Brand Trust with Ultimate Education	1,733	0,160

Based on the results of the t-test, a *t-statistical* value of -1.569 with *a p-value* of 0.118 was obtained. Because the *p-value is* greater than the significance level of 0.05, it can be concluded that there is no significant difference in the average Brand Trust score between the respondents' age groups.

Variable Independence Test

Table 2. Variable Independence Test

Observed Variables		Chi-Square	df	P-value
Have you ever bought a S&P (S&O)	Origin of Domicile (X1)	3.084	1	0.079
Have you ever bought a S&P (S&O)	Gender (X2)	0.018	1	0.894
Have you ever bought a S&P (S&O)	Final Education (X3)	1.631	1	0.202

Recoding was carried out on the last education variable. Originally 4 categories (Junior High School Equivalent, High School Equivalent, S1/Diploma, and S2/Master) became 2 categories (Secondary School and College). This was done to meet the requirements of the Chi-Square independence test, which is an expected value of < 5 not exceeding 20% of the number of cells.

Based on the results of the Chi-Square independence test with a significance value of 0.1, only the type of domicile variable (X1) has a relationship with the variable of someone who has bought Pertamina oil.

Goodness-of-Fit Test Model with Forward Elimination

Model suitability testing is carried out to ensure that the model is in accordance with the data (*fitted value*). In addition, *the Forward Elimination* method is used for modeling with significant variables only. This method works by starting a model without variables and then adding variables one by one. The results of the model fit test with the Hosmer & Lemeshow test can be seen in the following table.

Table 3. Goodness-of-Fit Test

Chi-Square	df	Chi-Square Table	P-value
11.190	8	13.362	0.152

Based on the table above, it was found that the P-value in the conformity test of the Hosmer & Lemeshow Test method showed a number of 0.152 which means that it is greater than the significance level of 0.1 with the decision to fail to reject H0 which

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

explains that the model is suitable so that it is able to explain the data.

Best Model of Binary Logistics Regression

Table 4. Best Model of Binary Logistics Regression

Variabel	B	S.E.	Forest	df	itself	Exp(B)
Customer Behavior (X4)	0.165	0.050	10.791	1	0.001	1.179
Brand Image (X5)	0.134	0.055	5.860	1	0.015	1.144
Customer Knowledge (X6)	0.047	0.017	7.625	1	0.006	1.048
Constant	-5.537	0.848	42.642	1	<0.001	0.004

Based on the results of the binary logistics regression analysis in the table above, it can be concluded that the three independent variables, namely *Customer Behavior (X4), Brand Image (X5),* and *Customer Knowledge (X6),* have a positive and significant effect on respondents' decision to buy Pertamina oil. This is shown by the *p-value* of each variable which is all smaller than 0.1, namely 0.001 for *Customer Behavior*, 0.015 for *Brand Image*, and 0.006 for *Customer Knowledge*.

A positive regression coefficient value (B) indicates that an increase in these three variables will increase respondents' chances of buying Pertamina oil. The value *of the odds ratio* (*Exp(B)*) provides an overview of the magnitude of the influence of each variable on the opportunity to buy. The *Customer Behavior variable with an* Exp(B) *value* of 1,179 has the greatest influence, which means that every one unit increase in customer behavior will increase respondents' chances of buying Pertamina oil by 17.9%. Furthermore, *Brand Image* with *an Exp(B)* value of 1,144 shows that an increase of one unit in brand image increases the chances of purchase by 14.4%, while *Customer Knowledge* with *an Exp(B)* value of 1,048 increases the chances of purchase by 4.8%. The constant value of -5,537 with *an Exp(B)* of 0.004 indicates that when all independent variables are zero, the probability of respondents buying Pertamina oil is very low.

Overall, this model shows that these three independent variables play a significant role in influencing Pertamina's oil purchase decisions, with *Customer Behavior* being the most dominant factor.

Pearson, Spearman Correlation Test And Mann-Whitney Test

To find out and deepen knowledge about the perception of consumer interest in buying Pertamina oil, it is necessary to conduct a correlation test regarding consumer perception with Purchase Intention (*Purchase Intention*), knowledge of safety features and the purchase of fake oil, a comparative test of the level of consumer confidence in Surabaya and Sidoarjo.

Testing consumer perception and purchase intent can use Pearson's correlation test which reviews correlation relationships based on correlation coefficients and finds out the significance of results based on *p-value* compared to the value of *alpha* by 0.05. The results of the Pearson correlation test have been summarized in the following table.

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

Table 5. Person Correlation Test

No.	Variabel 1	Variabel 2	Correlation Coefficients	p-value
1.	*Purchase Intention*	Product Quality	0.649	0.000
2.	*Purchase Intention*	Product Pricing	0.804	0.000
3.	*Purchase Intention*	*Customer Knowledge*	0.722	0.000
4.	*Purchase Intention*	*Brand Image*	0.762	0.000

Based on the results of the Pearson correlation test, it is known that there is a strong and significant relationship between *Purchase Intention* (purchase intent) with all variables tested. The value of the correlation coefficient between *Purchase Intention* and Product Quality of 0.649, which shows that the higher the respondents' perception of the quality of Pertamina's oil products, the higher their intention to buy. The strongest relationship can be seen in the Product Price variable (r = 0.804), which means that price is a factor that greatly affects consumers' decision to buy Pertamina oil. Meanwhile, *Customer Knowledge* has a correlation of 0.722, indicating that the higher the consumer's knowledge of the product, the more inclined they are to buy. Variable *Brand Image* also showed a high correlation of 0.762, which shows that Pertamina's positive brand image is able to encourage consumer purchase intention. All relationships have value *p-value* by 0.000 (<0.05), so it can be concluded that the four relationships are statistically significant.

Furthermore, the correlation test of knowledge of safety features and the purchase of counterfeit oil was carried out with the Spearman correlation test with the following results.

Table 6. Spearman correlation

No.	Variabel 1	Variabel 2	Correlation Coefficients	p-value
1.	Knowledge of security features	Purchase of fake oil	0.052	0.621

Based on the results of the Spearman correlation test between Knowledge of Safety Features and Counterfeit Oil Purchase, a correlation coefficient of 0.052 with *a p-value* of 0.621 was obtained. The very small coefficient value shows that the relationship between the level of consumer knowledge of the safety features on Pertamina's oil packaging and their tendency to buy counterfeit oil is very weak or almost unrelated. In addition, *a p-value* greater than 0.05 indicates that the relationship is not statistically significant. Thus, it can be concluded that the level of consumer knowledge about safety features has not directly affected purchasing behavior towards counterfeit oil.

The Mann–Whitney test was used to determine the difference in the median level of consumer confidence in Pertamina oil between respondents in Surabaya and Sidoarjo. This test is suitable for ordinal-scale data and is not normally distributed. The test results were assessed based on *a p-value* compared to *an alpha* of 0.05; if *the p-value* < 0.05 there was a significant difference between regions, while if the *p-value* was ≥ 0.05 there

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

was no significant difference.The following is a table of results from the Mann–Whitney test

Table 7. Mann–Whitney test

Surabaya	Number of Respondents	212
	Median (Middle Value)	4,0
	Red (Average)	3,58
Sidoarjo	Number of Respondents	99
	Median (Middle Value)	4,0
	Red (Average)	3,929
Testing	*U-Statistic*	8578,5
	Z-score	-2,593
	r	-0,147
	p-value	0,007

Based on the results of the Mann–Whitney test, it is known that the *p-value* 0.007 (< 0.05), which means that there is a significant difference in the level of consumer confidence in Pertamina oil between respondents in Surabaya and Sidoarjo. Although the median of the two regions is both 4.0, the average score in Sidoarjo (3.929) is slightly higher than in Surabaya (3.58). This shows that consumers in Sidoarjo tend to have a higher level of trust in Pertamina oil compared to consumers in Surabaya. Value *r* -0.147 indicates weak relationship strength, but still shows a statistically significant difference.

Linear Log Model Analysis

These results indicate that the level of workshop knowledge regarding oil safety features differs between regions. This difference is the main source of the dependency detected in previous independence tests. The *cross tabulation* for region variables and knowledge of security features is as follows.

Table 8. Linear Log Model Analysis

Table *Crosstabulation*		**Territory**		
		Surabaya	Sidoarjo	Total
Know the security features	Ya	30	25	55
	No	15	29	44
Total		45	54	99

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

The table above shows that the majority of workshops in Surabaya and Sidoarjo have known the oil safety features, with the highest number being in Surabaya. However, there are also quite a lot of workshops that do not know the safety features, especially in Sidoarjo. This data reinforces the results of previous analyses that knowledge of security features differs between regions. This is the main source of dependence between regional variables and knowledge of safety features in oil packaging.

Pertamina Oil Chi-Square Test And Demographics

Furthermore, the Chi-Square Test is carried out to find out whether there is a relationship or dependence between the observed categorical variables. In this study, the Chi-Square test was used on two pairs of variables.

The first test is to test whether the oil that is most often displayed in the storefront is Pertamina oil, it will have a relationship with Pertamina as the first oil brand offered to consumers, so that it can illustrate the tendency of workshops to prioritize products that they consider the most superior or have high trust from consumers. The following is a table of contingencies and Chi-Square test results.

Table 9. contingencies and Chi-Square test results.

Is Pertamina oil the most commonly lengthened?	Is Pertamina oil an oil that is usually offered to consumers?	
	No	Ya
No	54	5
Ya	27	14

The results of the Chi-Square test showed a statistical value of 8.758 with a free degree = 1 and a *p-value* = 0.0031. Since *the p-value* is smaller than the significance level of 0.05, the decision and conclusion that can be drawn is that there is a significant relationship between the oil that is most often displayed and the oil that is first offered to consumers.

This interpretation shows that workshops that display Pertamina oil in storefronts tend to also offer the Pertamina brand as the first choice to consumers more often. In other words, the placement of products in the storefront affects the preferences and behavior of the brand's offerings by the workshop.

In addition, the Chi-Square test can also be carried out to assess whether there is a relationship between the workshop area (e.g. Surabaya and Sidoarjo) and the workshop owner's level of knowledge of safety features in the form of holograms on oil packaging, which can reflect the extent to which information and education about product safety is spread across various regions. The following is a table of contingencies and Chi-Square test results.

Table 10. contingencies and Chi-Square test results.

Workshop Area	Is the workshop aware of Hologram's security features?	
	Not	Yes
Sidoarjo	27	27
Surabaya	21	24

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

Based on the table of contingencies between regions and the presence of hologram security features on products, it can be seen that in both Sidoarjo and Surabaya, the distribution between products with and without holograms is relatively balanced.

The results of the Chi-Square test produced a statistical value of 0.0165 with a free degree of 1 and a p-value of 0.8977. Because *the p-value* is much greater than the significance level ($\alpha = 0.05$), the decision and conclusions taken are that there is no significant relationship between the region and the presence of hologram features on the product. In other words, the proportion of products that have hologram security features does not differ significantly between the Sidoarjo and Surabaya regions, so that regional factors do not affect the implementation of these security features.

Consumer Perspectives: Perceptions of Product Quality and Oil Safety Knowledge

Based on the results of the descriptive analysis, the majority of consumers have a positive perception of the quality of Pertamina's oil products, with an average score of 26.33 (maximum scale of 35), which shows that consumers consider Pertamina oil to have good engine performance, high durability, and stable quality. This finding is strengthened by the results of the Pearson correlation test which shows a strong relationship between product quality and purchase intention of $r = 0.649$ ($p < 0.001$), indicating that the higher the consumer perception of Pertamina's oil quality, the greater their desire to buy.

The quality factor is the main differentiator that keeps consumers loyal to Pertamina products, even though there are price variations in the market. Around 85.2% of consumers stated that Pertamina oil has better durability than counterfeit oil, and 84.6% are willing to pay more to obtain the original product. This result indicates a strong value perception, where quality is prioritized over price.

However, even though the perception of quality is high, consumer knowledge of product safety features is still not optimal. Based on the survey results, only 58% of consumers have used safety features to ensure the authenticity of products, while 33% do not know that Pertamina oil has safety features on its packaging, such as holograms, QR codes, bottle cap embossing, or UV link seals. In addition, the results of the Spearman correlation test showed a weak and insignificant relationship between knowledge of safety features and the tendency to buy counterfeit oil ($r = 0.052$; $p = 0.621$).

This condition indicates that product knowledge has not been fully internalized in consumer purchasing behavior. Most customers recognize Pertamina because of its brand reputation and engine quality, not because of its detailed knowledge of its product safety systems. Thus, the effectiveness of socialization regarding safety features still needs to be strengthened so that consumers are better able to distinguish between real and fake products independently. In this context, even though consumers are aware of the security features, they have not felt the need to verify the product every time they buy because they still trust the workshop as the main source of product authenticity.

Workshop Owner's Perspective: Product Safety Knowledge and View of Pertamina's Oil Quality

From the side of workshop owners, the results of the study show that workshops have a strategic role in the distribution chain and consumer perception of product

Jurnal Akuntansi, Manajemen Dan Ekonomi Islam (JAM-EKIS)
Vol. 9, No. 1 / Jan 2026
Online ISSN: 2655-6359, Print ISSN: 2656-436X
DOI: https://doi.org/10.36085/jam-ekis

authenticity. However, the level of workshop knowledge about Pertamina's original oil safety features is still relatively low, with only 56% of workshops aware of the existence of safety features on the packaging, and most are new to the hologram feature as a marker of authenticity.

The chi-square independence test ($\chi^2 = 11.304$; $p = 0.023$) showed a significant relationship between the area and the length of the workshop business and the level of knowledge of safety features, where the workshop in the Surabaya area had a higher level of knowledge than in Sidoarjo. This indicates that the distribution of information and education from Pertamina is not geographically evenly distributed, so there is still a gap in product literacy between regions.

Even so, the results of interviews show that 100% of workshops do not sell fake oil, and most workshops (62%) will only offer Pertamina oil if consumers specifically ask for it. The main reasons for the workshop not actively offering Pertamina oil include higher consumer demand for other brands, as well as the lack of promotional incentives from Pertamina. This condition shows that although the workshop has a positive perception of the quality of Pertamina's products, they are not fully involved in strengthening the distribution and education of product authenticity.

The quality of Pertamina's oil itself is recognized by most workshop owners as a durable and easy to obtain product, with the perception that Pertamina has performance equal to or even better than foreign brands. It is necessary that long-term collaboration between the company and distribution partners (workshops) can increase brand trust and customer satisfaction through a mutually beneficial relationship.

CONCLUSION

This study concludes that consumer behavior, brand image, customer knowledge, and price perception are the main determinants that shape the intention to purchase lubricants in consumers in the Surabaya and Sidoarjo areas. The results of the analysis showed that consumer behavior had the strongest influence on purchasing decisions, confirming the important role of previous experience, personal preferences, and cognitive evaluation in the lubricant product selection process. In addition, a positive brand image contributes significantly to increasing consumer confidence in product quality and authenticity, while customer knowledge strengthens consumers' ability to assess technical attributes as well as distinguish genuine and counterfeit products. The perception of prices that are considered reasonable has also been shown to increase purchasing tendencies, especially in technical product categories that have high functional risks.

Overall, the findings of this study contribute to an empirical understanding of the formation of purchase intentions in the lubricant market that faces the issue of counterfeiting. The results of the study indicate the need for a marketing strategy that emphasizes more consumer education about security features, strengthening brand positioning, and optimizing prices as a quality signal. In addition, the involvement of workshops as important actors in the distribution chain needs to be improved through the provision of more comprehensive information regarding product authenticity standards. Further research is recommended to explore additional variables such as brand trust or perceived risk as mediating and moderation factors to strengthen the conceptual model and provide a more holistic picture of the dynamics of consumer behavior in the lubricant

industry.

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