

# Investigating Consumer Behavior Changes in Response to Fuel Price Fluctuations Among Employees in Parañaque City, Philippines

*Received 31.01.2023*

*Revised 11.04.2023*

*Accepted 22.04.2023*

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## Abstract

This study was conducted to investigate the factors that affect consumer behavior toward changing fuel prices among employees of Parañaque City. The objectives of the study were to determine the factors that affect their behavior towards changing fuel prices in terms of daily activities, expenses, and mental health, the recommendations, and strategies that can be applied by oil companies and government in addressing these challenges. A quantitative-descriptive research design was utilized. The researchers use convenient random sampling, a non-probability sampling method. The study was conducted among the employees of Parañaque City who use public and private vehicles. In the distribution of the questionnaire to the respondents, the researchers used an online survey for distribution and collection of the data. The analysis and interpretation of the gathered data were carried out using frequency and Percentage, mean and standard deviation, Kruskal Wallis, and the spearman rho correlation using SPSS. It was also used to determine there the significant difference between the demographic profile of the respondents and consumer behavior towards changing in fuel prices. The findings revealed that the majority of the 100 respondents of this study were aged 18 to 25; most of the respondents were female; the majority of the respondents were in rank and file or belonged to clerical positions; the majority of the respondents have 4 to 6 family members; most of the respondents have less than 15,000 monthly income, and the

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majority of respondents are using public transportation. Based on the correlation table, showed that there's a strong positive relationship between the three factors: Daily activity, Expenses, mental health to consumer behavior in relation to changing in fuel prices. The student recommends that the government should improve public transportation systems that are efficient and accessible to commuters and monitor evaluate oil companies' prices impose to its customers to ensure that fair prices were given to motorists.

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**Keywords:** Changing in Fuel prices, consumer behavior, Mental health, Daily Activity, Expenses

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## Introduction

Fuel price fluctuations happened in every country. In the Philippines, this problem is one of the contributors to inflation which affects economic growth. Increase in fuel prices are a very relevant issue in our generation these days. Changing fuel prices have led to a significant increase in cost for employees that use public transportation every day. It created difficulties for all and those who need to leave their homes to work. As time goes by, fuel prices can change rapidly, it's either will increase or decrease.

The result of these can affect consumers' behavior toward their daily activities, expenses, and mental health. Employees are seen to be the number one consumer of transportation, and the fluctuation in fuel prices may cause an additional expense to their daily transportation whether they're using public or private vehicles which takes a bigger bite out of their wages. Transportation has a major significance to people and their way of living.

The researchers aim to identify how the three factors affect consumer behavior toward changing fuel prices among employees of Parañaque City and to know what factors affect the most in terms of consumer behavior toward changing fuel

prices. Moreover, the researchers aim to find out how the consumer behavior of the employees is being affected based on their demographic profile and to know what recommendations may help the consumers.

## Theoretical framework

According to Kramer (2021), the researchers learned about the law of supply and demand theory by Alfred Marshall, being related to the factors that affect consumer behavior toward changing fuel prices among the employees of Parañaque City. It shows the relationship between supply and demand that affects the price of goods and services. When the price increases, the demand will decrease. People will tend to buy less of their necessities if the price of fuel increases which affects their behavior as a consumer, especially those low-income earners.

According to Republic Act NO. 8479, which is an act to Liberalize and Regulate the Downstream Oil Industry, oil companies shall prevent from increasing prices of old stock and need different brands of fuel to raise their minimum inventory to avoid variation in local fuel prices. Also, when it comes to controlling the pricing, importation, and exportation



of fuel products, the Department of Energy (DOE) shall ensure fair prices and facilitate a truly competitive market for the betterment of the country.

With the evidence and theory stated above, the researchers want to investigate how changing in fuel prices affect the behavior of the employees of Parañaque City.

## **Review of related literature**

### **Daily activity**

According to Rohani, M., and Pahazri, N. (2018), because of rising fuel prices in Malaysia, has a huge impact on Malaysians when it comes to their travel patterns because the cost of using a personal vehicle is also increasing. These travel patterns are when they go to work, have a holiday or recreational trip with family or friends, and do personal errands every weekday. Since then, Malaysians who were using a personal vehicles changed their travel patterns to save money on fuel by adjusting to it.

The impact of the increase in oil and gas price could slow down the growth in Southeast Asia, especially the Philippines. Higher fuel prices may affect the household level, such as the increase in the cost of commodities, increase in public transportation fares, and other daily expenses (Business World, 2022).

According to Amir Elyon (2022), the impact of increasing prices on tourism travel, the increase in fuel/gasoline might not only limit the trip of the travelers but also affect the selecting destination of the travelers. Instead of going so far, they choose to stay at home because of the fuel

price. It also affects their spending on souvenirs, food, and accommodations as they travel.

### **Expense**

The changing fuel prices affects the income, budget, and expenses of the consumer; with the increase in fuel price, most consumers would lower their purchasing power and only afford a lesser amount of food and vice versa. The increase in fuel price also means a high cost of commodities and a high cost of living. A study finds that consumer concerns are rising fuel prices, prices of food, transportation fares, and other daily expenses. Also, it affects the income of the consumer. In these circumstances, consumers' income will be more allocated to purchasing fuel expenses (Prakash et al., 2020).

According to Austin, K. (2022), fuel cost-push inflation is a massive problem among goods distributors. Fuel is one of the main needs of distributors to deliver goods to their suppliers through which consumers have access to purchase their needs. Due to the continuous increase in fuel, distributors have no choice but also increase the price of their products. At the same time, the price increases by the suppliers cause an increase in the prices of goods on the market and the problem is only passed on to the consumers, which cost them more to buy their necessities.

### **Mental health**

According to Curl, A., and Kearns, A. (2017), as fuel prices continue to rise and an individual lacks current income, it has a negative impact on their lives, particularly for those living in underprivileged communities. As

individual experiences difficulties paying their fuel expenses, it makes their mental health become worse and more unstable.

According to Zucker (2022), people thinking about finances has a great impact on their mental health. People feel anxious because they are not just struggling financially, but mentally, too since not everyone is being able to pay more for fuel to get to work or school. Also, other daily necessities are getting higher which gives stress on low-income earners.

### Consumer behavior

According to Cua (2022), the pandemic has had a huge impact on consumers,

financially. When the price of goods continues to increase, consumers suddenly changed their lifestyle which affects their behavior to buy and consume. There are a lot of consumers who preferred to buy online to save money on fares and for the sake of their health.

### Hypotheses

Ho1: There is no significant relationship between consumer behavior and changes in fuel prices.

Ho2: There is significant difference between the perception of employees of Parañaque City towards changes in fuel prices when grouped according to demographic profile.

## Conceptual framework

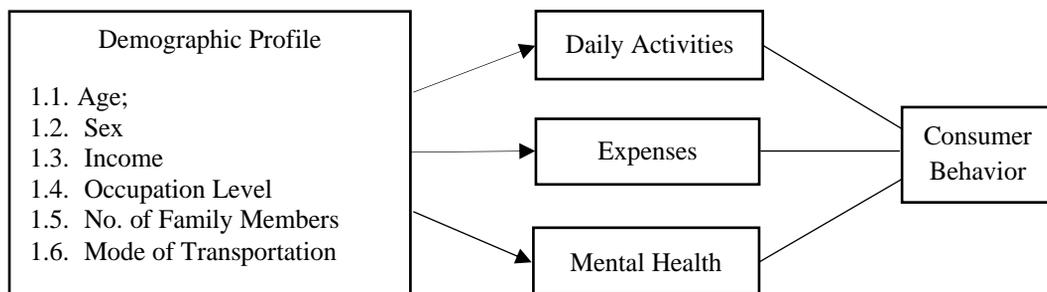


Figure 1 The paradigm of the study

The figure above illustrates the research paradigm that will govern this study. The purpose of the study is to investigate how the change in fuel prices affects consumer behavior through the following factors. Therefore, the independent variable includes the demographic profile in terms

of age, sex, income, occupation, number of family members, and mode of transportation and the factors affecting consumer behavior, namely daily activities, expense, and mental health. The dependent variable is consumer behavior.



# Methodology

## Research design

The study used the descriptive quantitative approach to complete an accurate assessment of the topic at hand and a descriptive research design to determine and analyze how these three factors affect consumer behavior toward changing fuel prices among the employees of Parañaque City. The convenient random sampling method will be used in this study. Convenience sampling, also known as grab sampling, is a non-probability method of survey where the researchers choose their location and their respondents based solely on convenience (J. Simkus, 2022).

## Subject and study site

The researchers use convenience sampling under non-probability sampling methods in which the researchers choose their location and their respondents. The chosen study site is in Parañaque City and the chosen subject is the employees of Parañaque City who use public and private vehicles year 2022.

According to the Philippine Statistics Authority, Parañaque City has a 689,992 population and Parañaque City is the 8<sup>th</sup>

largest city in the country. However, during a typical working day, it is estimated that 262,351 are employed and 30,451 are unemployed labor force. This large population consists of both young and old employees that are most likely to be affected by changes in fuel prices that affect their behavior. The study composed of 100 respondents.

## Research instrument

The researchers used the self-made survey questionnaire using Likert Scale to determine the demographic profile of respondents and how the three factors affect consumers' behavior toward changing fuel prices among the employees of Parañaque City. The survey questionnaire was composed of introductory parts explaining the objectives of the survey tool, the ethical considerations, and general directions.

The researchers instrument were validated by an industry professional and conduct a pilot test to 40 respondents before the actual survey of the study. The Reliability Test will also validate the reliability of the research instrument when used to conduct proper of the study. Cronbach's Alpha, this test assesses reliability. All instruments met the .70 Cronbach's alpha threshold.

**Table 1** Table of Correlation Interpretation

Range of Coefficient		Description
From	To	Very Strong
±0.81	±1.00	Strong
±0.61	±0.80	Moderate
±0.41	±0.60	Weak
±0.21	±0.40	Weak to No Correlation

Source: Hair et al. (2013)



For this study, the researchers adapted the table of correlation interpretation of Hair et al. (2013). From the coefficient above, the higher value indicates a very strong relationship/correlation between the items

on the test, whereas a lower value indicates a weaker to no correlation/relationship between the test items.

**Table 2** Reliability and Validity Test

Variables	Cronbach's Alpha	No. of Items	Results
Daily Activity	.79	4	Reliable
Expense	.83	5	Reliable
Mental Health	.94	5	Reliable
Consumer Behavior	.70	5	Reliable
Changing Fuel prices	.87	6	Reliable
Economic Effect	.83	5	Reliable

The accepted level of Cronbach is .60 up to .70. If the level in the test doesn't reach the level, therefore it is not accepted and if reaches the level of 0.6 therefore it is accepted (Ursachi & et. al., 2015). All categories of the questionnaire passed and were deemed to be reliable.

## Data gathering procedure and ethical consideration

A total of 100 respondents participated in the study. All the questions found on the survey instrument are created by the researchers themselves. This study uses only one method of collecting the data, an online survey. The survey is divided into two parts. The first part of the questionnaire is the demographic profile of the respondents. The second part of the questionnaire is divided into seven categories and every question corresponds to one of the variables. The

collected and gathered data were processed using SPSS software. The quantitative or numerical presentation of the study was computed, interpreted, and analyzed. All information conveyed by the respondents will be treated with full confidentiality and secrecy as per the Data Privacy Act of 2012 to execute this research. With this, the researchers guarantee the importance of the rights and actual consideration of the research respondents. The researchers respect the confidentiality and secrecy of the information conveyed by the respondents, only to be seen by the researchers.

## Data analysis

The data collected were treated and analyzed using the SPSS software, frequency and percentage, mean and standard deviation, Kruskal Wallis test, and t-test, Pearson r Correlation / Spearman rank correlation.



## Results

### Demographic profile of the respondents

The majority of the 100 respondents of this study were aged 18 to 25(87 or 87%) and most of the respondents were female

(55 or 55%). At the occupational level, most of the respondents were in rank or clerical positions (40 or 40%). Most of the respondents have 4 to 6 family members (55 or 55%). For monthly income, most of the respondents have less than 15,000 monthly income (64 or 64%), and most respondents are using public transportation (79 or 79%).

**Table 3** Assessment on Consumer Behavior towards changes in Fuel Prices

Variables	Mean	Std. Deviation	Interpretation
Daily Activity	4.0	1.0	Agree
Expense	4.2	0.8	Strongly Agree
Mental Health	3.4	1.1	Agree

Table 3 shows how changing in fuel prices affect consumer behavior in terms of these variables. Overall, expense had the highest overall mean score of 4.2

(SD=0.8). Daily activity obtained a mean score of 4.0 (SD=1.0). Lastly, mental health obtained a mean score of 3.4 (SD=1.1).

**Table 4** Significant difference between consumer behavior responses when grouped according to their demographic profile

	Daily Activity	Expense	Mental Health
	P-value	P-value	P-value
Age	.22	.09	.17
Sex	.28	.64	.84
Occupational Level	.47	.18	.90
No. of Family Members	.05	.52	.06
Mode of Transportation	.94	.17	.50
Monthly Income	.37	.28	.03

*The significant level is <0 .05*

Table 4 shows that there’s no significant difference between consumer behavior responses when grouped according to their demographic profile: Age, Sex, Occupational level, No. of family members, and Mode of transportation. Therefore, the null hypothesis is accepted.

The researchers concluded that there is a significant relationship between consumer behavior responses when grouped according to their demographic profile, monthly income to Mental health. Therefore, the null hypothesis is rejected.



## Correlation of daily activity, expenses, and mental health towards consumer behavior

**Table 5** Significant relationship between consumer behavior towards daily activity, expenses, and mental health

Variables	Spearman’s Rho	P-value	Interpretation	Decision
Daily Activity	1.00	0.00	Significant	Reject HO
Expenses	0.63	0.00	Significant	Reject HO
Mental Health	0.69	0.00	Significant	Reject HO

*The Significant level is <0.05*

Table 4.16 shows the testing of the significant relationship between Daily activity, Expenses, and Mental health toward consumer behavior. In this table, if the p-value is less than or equal to the  $\alpha$ -level (0.05), therefore, one or more means significantly different/relationship. However, if the p-value is larger than the  $\alpha$ -level (0.05), that means are not significantly different.

### Discussion

#### Daily activity

Overall, the respondents AGREE (3.95) that the changing in fuel prices affects their behavior in terms of daily activities. The result of the study supports Rohani, M., and Pahazri, N. (2018) “Survey on how fluctuating petrol prices are affecting Malaysian large city dwellers in changing their trip patterns”, which indicates it has a huge impact on the consumer when it comes to their travel patterns because the cost of using a personal vehicle is also increasing. It also indicates various methods as an alternative to lessen the burden of the cost of fuel prices. Riding a bicycle as an alternative can also be taken into consideration, people can go by walking or by riding a bicycle. Instead of

going so far, they choose to stay at home because of the fuel price.

#### Expenses

Overall, the respondents Strongly Agree (4.24) that changing in fuel prices affect their behavior in terms of expenses. The result of the study supports Prakash et al., (2020) “Petrol Prices and Subjective Wellbeing”, which indicates the change in fuel prices affects the income, budget, and expenses of the consumer; with the increase in fuel price, most consumers would lower their purchasing power and only afford a lesser amount of food and vice versa. The increase in fuel price also means a high cost of commodities and a high cost of living. Prakash et al., (2020) study find that consumer concerns are rising fuel prices, prices of food, transportation fares, and other daily expenses. Also, it affects the income of the consumer. In these circumstances, consumers’ income will be more allocated to purchasing fuel expenses and transportation fares.

#### Mental health

Overall, the respondents Agree (3.42) that the change in fuel prices affects their



behavior in terms of Mental Health. The result of the study supports Curl, A., and Kearns, A. (2017) "Housing improvements, fuel payment difficulties and mental health in deprived communities", indicates that as fuel prices continue to rise and an individual lacks current income, it has a negative impact on their lives, particularly for those living in underprivileged communities. As individual experiences difficulties paying their fuel expenses, it makes their mental health become worse and more unstable. According to Zucker (2022), People feel anxious because they are not just struggling financially, but mentally, too since not everyone is being able to pay more for fuel or more fares to get to work.

### **Correlation of daily activity, expenses, and mental health towards consumer behavior**

The result of the study supports Elyon's (2019) "Impact of Increasing Gasoline Prices on Tourism Travel", it indicates the impact of increasing prices on tourism travel, the increase in fuel/gasoline might not only limit the trip of the travelers but also affect the selecting destination of the travelers. According to the study by Cua (2022), "How consumer behavior has changed during this pandemic" When the price of goods continues to increase, consumers suddenly changed their lifestyle which affects their behavior to buy and consume – with the increase in fuel prices, most consumers would lower their purchasing power. Higher fuel prices may affect the household level, such as the increase in the cost of commodities, increase in public transportation fares, and other daily expenses (Business World, 2022).

Based on the result all three factors influence consumer behavior toward changing fuel prices and the most factor affecting consumer behavior toward changing fuel prices is Daily Activity and Mental health.

### **Summary**

The respondents agreed that changing in fuel prices affect their behavior when it comes to daily activity and mental health. It affects their motivational level to interact with other people and they feel anxious and stressed especially when it comes to budgeting their money. Also, the respondents strongly agreed that the changing in fuel prices affects their behavior when it comes to expenses, there's a change in how they spend the money on their daily and personal needs. However, the respondents strongly agreed that changing in fuel prices affects their behavior when it comes to expenses when fuel prices increased/decreased there's a change in their purchasing power. Based on the result, there are no significant differences between the consumer behavior responses when grouped according to the demographic profile when it comes to age, sex, occupational level, number of family members, monthly income, and mode of transportation. However, there's a significant difference between consumer behavior responses in terms of mental health when grouped according to the demographic profile when it comes to monthly income since the p-value for mental health is 0.03 and it is less than 0.05, which the researcher's decision is to reject the null hypothesis.

All three factors influence consumer behavior toward changing in fuel prices



and based on the result the most factor affecting consumer behavior toward changing in fuel prices is the Daily activity and Mental health.

## Conclusion

Based on the findings of the study as summarized above, it can be concluded that all three factors, which are daily activities, expenses, and mental health really affected consumer behavior among employees of Parañaque City because of changing in fuel prices. Among the factors, daily activities and mental health are the most factors that affect the consumer behavior of employees, and the least factor that effects is Expenses. The hypothesis of the study stated that “there is no significant differences between the demographic profile of the respondents and consumer behavior towards changing in fuel prices” is retained in terms of age, sex, occupational level, number of family members, and mode of transportation that their responses are the same, similar with the perception of employees of Parañaque City who are using public vehicles and private vehicles. However, the demographic profile of the respondents in terms of monthly income, the researchers concluded that there is a significant relationship between Monthly income and Mental Health, thus the researchers’ decision is to Reject the Null Hypothesis.

## Recommendation

Oil companies should consider a way how to give incentives to all consumers

especially to those who are really affected by the increase in fuel prices including public transportation drivers and who are in blue-collar jobs as public commenters were greatly affected by the sudden increase of oil prices as it also accompanied increase in commodities.

The Government should improve public transportation systems that are efficient and accessible to commuters such as development of railways system, public transportation link that is time and cost efficient to commuters. The government should develop an additional road capacity and improvement of highways to lessen the traffic. Additionally, the government should implement strict enforcement of laws to protect consumer welfare and rationalization of policies governing downstream oil industry. In relation to this, the government should monitor evaluate oil companies’ prices impose to its customers to ensure that fair prices were given to motorists.

This study recommends widening the scope of the study in terms of population, subject of the study, and locale, the study was only conducted in Parañaque City, a recommendation to conduct a study in the sixteen cities in the National Capital Region and as well as the effect of changes in fuel prices in consumer behavior in rural areas of the country. The researcher also recommends to study the effects of fuel process in spending habits and purchase decision among employees in national capital region as the business capital of the country.



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