JISAE
Journal of Indonesian Student Assessment and Evaluation

https://doi.org/10.21009/JISAE

JISAE (Journal of Indonesian Student Assessment and Evaluation)
ISSN : P-ISSN: 2442-4919 | E-ISSN: 2597-8934
Website : http://journal.unj.ac.id/unj/index.php/jisae

Vol 10 No 1 (2024)

Consumptive Behavior Of Students Examined From The Perspective Of E-Wallet Application Usage (Quantile Regression Analysis Method)

Mahdiyah[1],
Faculty of Engineering, Universitas Negeri Jakarta, Jakarta, Indonesia

Fildzah Rudyah Putri[2]
Faculty of Psychology, Universitas Negeri Jakarta, Jakarta, Indonesia

Mutiara Dahlia[3],
Faculty of Engineering, Universitas Negeri Jakarta, Jakarta, Indonesia

Address for Correspondence:
1 mahdiyah@unj.ac.id
2 fildzahrudyah@unj.ac.id
3 mdahlia@unj.ac.id

ABSTRACT
The purpose of this research is to identify the consumptive behaviour of students from the perspective of e-wallet application usage. The research data is analyzed using the quantile regression method, which is a more specific regression method that can provide different estimator values at various quantile positions of the data. The respondents used in this study were 212 students. The results of the research show that the use of e-wallet applications is positively correlated with the consumptive behaviour of students. The relationship between the effect of using e-wallets and the consumptive behaviour of students varies at different quantile distribution levels. A larger regression coefficient value indicates a greater role of e-wallet usage in students' consumptive behaviour. The most significant role of e-wallet usage is seen at the 0.25, 0.75, 0.10, 0.50, and 0.90 quantiles in the distribution of students' consumptive behaviour. The variation in the results of this analysis demonstrates the flexibility of quantile regression and makes it more complex.

Keywords: Consumptive Behaviour; E-Wallet; College Students; Quantile Regression

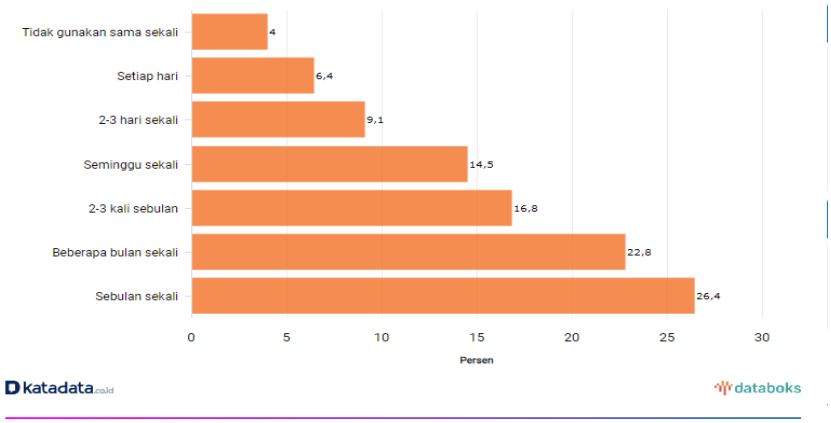
INTRODUCTION

The development of technology in the current digital era has facilitated various aspects of human life using technological applications. This progress aligns with the global advancement of technology and has an impact on various fields and sectors. The advancement and development of technology are inevitable as they progress in line with the advancement of knowledge.

The advancement of information technology has already provided many benefits, including the ability to conduct transactions using applications or e-Wallets. An e-wallet is an electronic wallet application or service designed to make transactions between users more easily accessible to the public. Transactions that can be performed using e-wallets include sending money to friends or people nearby, paying for goods and services with limitations on the amount of money available in the user's application. E-wallet is one of the digital wallets that emphasize quick and convenient transaction usage. Through the use of e-wallets or digital wallets, users such as students can make online transactions using only their mobile devices, without the need for physical cards or cash.

The Ministry of Communication and Information Technology (Kominfo), in collaboration with Katadata Insight Center (KIC), reveals that as many as 65.4% of respondents regularly utilize digital wallet services (Vania, 2022). According to a survey involving 10,000 participants aged 13-70, it was found that 16.8% of the overall respondents use digital wallets 2-3 times a month. Only 4% of them reported not using digital wallets at

all. The data on the frequency of digital wallet usage is further explained through the graph below.



Graph 1. Frequency of Digital Wallet Usage in 1 Month (Source: Katadata.com)

The above chart illustrates the current trend of Indonesian society embracing digital wallets or e-wallets. With the advancement of technology, the payment transaction process has shifted towards the digital realm. The widespread use of digital applications, particularly e-wallets, has led to a high dependency on these tools in daily life. The ease of using e-wallet applications has led to high dependence among students in their daily lives. E-wallets offer various facilities that can benefit the public, such as providing cashback, free shipping, promotional discounts, and more when making payments using e-wallets. This has become one of the driving factors for students to make unplanned or impulsive purchases (Halim, 2020). Unconsciously, they lose control over their usage, resulting in excessive behavior in every transaction, such as buying items based on trends and desires rather than needs.

Such purchases are considered consumptive behavior that is prevalent in society, mainly due to the lack of public knowledge about self-control and prioritization when buying goods. Consumptive behavior involves excessive shopping for the sake of pleasure. Currently, consumptive behavior in society is increasing, particularly among students who are a tech-savvy generation. Because various needs can be easily fulfilled, users become highly dependent on these applications.

Consumptive behavior is a tendency to engage in excessive shopping with the intention of fulfilling desires and satisfying personal cravings, rather than meeting essential needs, which can lead to wastefulness (Gumulya, 2013). This attitude may arise in individuals due to a lack of understanding in self-management, resulting in uncontrolled actions. Rosandi (2015) states that consumptive behavior is an action carried out with the goal of purchasing goods without rational and comprehensive consideration, but rather driven by desires that have reached an irrational level.

According to the report by Halim et al. (2020), the use of E-Wallets has a positive and significant impact on consumptive behavior. This research finding is also supported by Dewi (2021), who states that the convenience provided by debit cards, as part of the electronic payment system or E-Wallet, has a positive and significant influence on consumptive behavior. From the results of the study conducted by Nawawi (2020), it is known that students choose to use E-Wallets as a payment method due to the available promotions, convenience in transactions, and ease of operation.

The aim of this research is to understand changes in students' consumptive behavior from the perspective of e-wallet application usage. This research will use quantile regression analysis, which is a regression method used to address heteroscedasticity issues. Quantile regression involves dividing or separating data into two or more parts to observe differences in estimator values at specific quantiles. Furthermore, the results of this research can serve

as a basis for the formulation of a policy for the use of e-wallets at UNJ (University Negeri Jakarta).

METHOD

The sampling technique was carried out randomly by distributing questionnaires through Google Forms, which were freely filled out by students of Universitas Negeri Jakarta. The number of respondents analyzed for this research was 212 students. This study employed a correlational method aimed at proving the existence of a correlation and understanding the nature of the relationship between two variables (Mahdiyah, 2014). The analysis process conducted to determine the equation obtained in this research, regarding the perspective of e-wallet application usage and students' consumptive behavior, utilized statistical quantile regression analysis.

Quantile regression is one of the regression methods used to address heteroscedasticity issues (Koenker, 2005; McMillen, 2012; Davino et al, 2013; Koenker, Chernozhukov, He, & Peng, 2018; Furno & Vistocco, 2018; Pagano et al, 2022). Quantile regression involves dividing or separating data into two or more parts, and it can be used even when there are differences in estimator values at specific quantiles. In quantile regression graphs, there are several prediction lines representing various percentiles of the data. Each prediction line will have a different slope, and each line represents the estimated value at a specific percentile (Koenker, 2005; McMillen, 2012; Davino et al, 2013; Koenker, Chernozhukov, He, & Peng, 2018; Furno & Vistocco, 2018; Pagano et al, 2022).

In accordance with the theoretical basis outlined in the previous section, researchers feel it is important and appropriate to use Quantile Regression Analysis to prove the relationship between the intensity of e-wallet use and the consumptive behaviour of UNJ students. The value of the research results is obtained by estimating the values of β_0 and β_1 in the following quantile regression equation:

$Q(\tau \mid X) = \beta_0 + \beta_1 * X$

where $Q(\tau \mid X)$ is the estimated τ-th quantile of the dependent variable Y with the values of the independent variable X.

RESULTS AND DISCUSSION

The results of the research using quantile regression analysis indicate several interesting findings in the context of the relationship between the role of e-wallet usage intensity and students' consumptive behavior. In this discussion, the researcher will elaborate on these findings. A total of 212 respondents received assessments based on consumptive behavior scores with a mean of 76.91 and a standard deviation of 15.56. Meanwhile, the score assessments for e-wallet usage had a mean of 61.62 with a standard deviation of 12.40.

The distribution of normality test values for student's consumptive behavior data, as shown in the following table, indicates that the data is normally distributed.

Table 1. Table of Consumptive Behaviour Normality

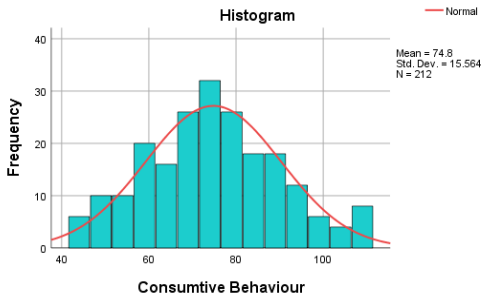
Tests of Normality

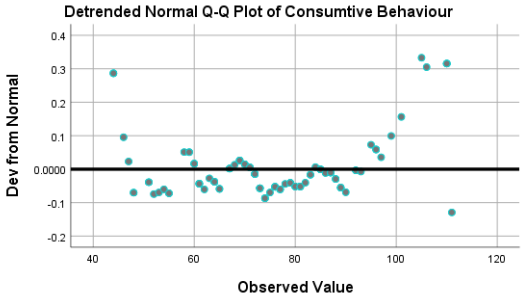
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Consumptive Behaviour	.049	212	.200*	.985	212	.021

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The results of the normal distribution analysis of the consumptive behavior data are also more clearly visible in the histogram and Q-Q Plot graphs in Graph 1 below:





Graph 1. Histogram of Consumptive Behaviour

The data for e-wallet usage intensity indicates analysis results that are not normally distributed, as seen in the following table:

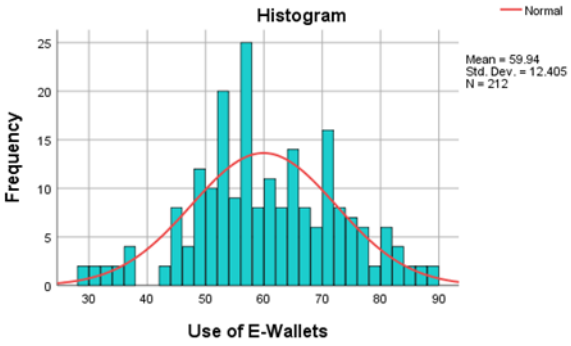
Table 2. Table of E-Wallet Usage Normality

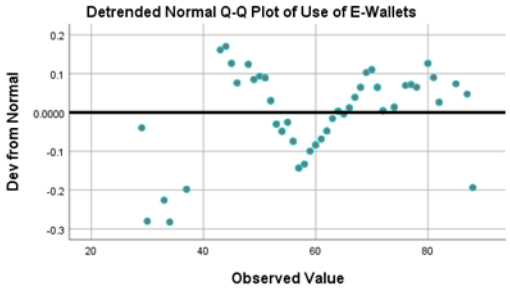
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Use of E-Wallets	.075	212	.006	.987	212	.050

a. Lilliefors Significance Correction

The analysis of the non-normally distributed data for e-wallet usage intensity is also more clearly depicted in the histogram and Q-Q Plot graphs in Graph 2 below:





Graph 2. Use of E-Wallet Histogram

As one of the advantages of quantile regression analysis, it does not require normally distributed data because this method focuses on assessing quantile positions, allowing for more stable estimates even in the presence of extreme data. The Pseudo R Squared values in the Model Quality Table 3.3 indicate the extent to which the quantile regression model can explain the variation in the data analysis at various quantile distribution positions.

Model Quality[a,b,c]

	q=0,1	q=0,25	q=0,5	q=0,75	q=0,9
Pseudo R Squared	.110	.066	.029	.028	.102
Mean Absolute Error (MAE)	19.7226	14.1712	11.9755	14.6887	20.8351

a. Dependent Variable: Consumtive Behaviour
b. Model: (Intercept), Use of E-Wallets
c. Method: Simplex algorithm

At the 0.1 quantile position (q = 0.1), the model indicates that e-wallet usage intensity can explain approximately 11% of the variation in students' consumptive behavior. Similarly, models of assessment like this apply to explain the variation in the values of students' consumptive behavior at several other quantile distributions.

The analysis on Parameter Estimates by Different Quantiles provides information on how the regression parameter values (regression coefficients) differ at various quantile positions of the distribution of the dependent variable. This indicates that the regression parameter values (coefficients) vary across different quantiles of the dependent distribution.

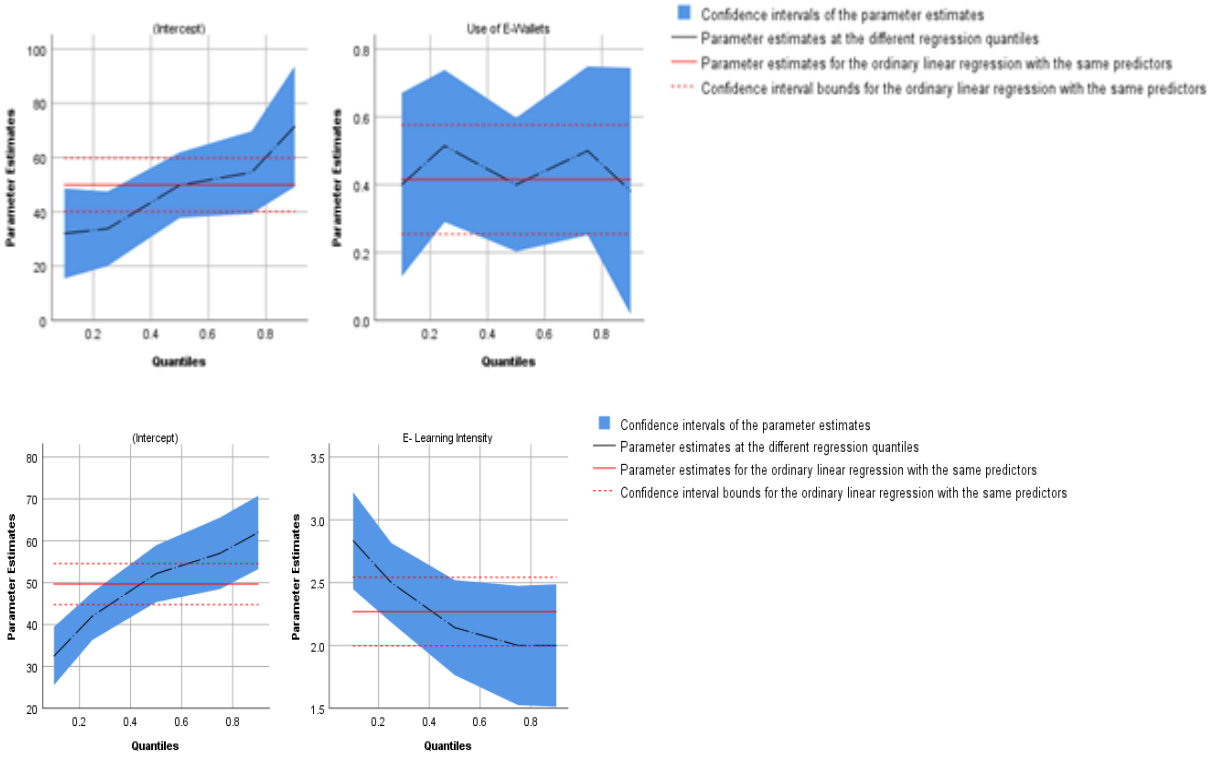
The results of the parameter estimation analysis at various quantiles in this study are presented in the following table.

Table 3 Parameter Estimates by Different Quantiles[a,b]

Parameter	q=0,1	q=0,25	q=0,5	q=0,75	q=0,9
(Intercept)	32.000	33.743	49.800	54.500	71.476
Use of E-Wallets	.400	.514	.400	.500	.381

a. Dependent Variable: Consumptive Behaviour
b. Model: (Intercept), Use of E-Wallets

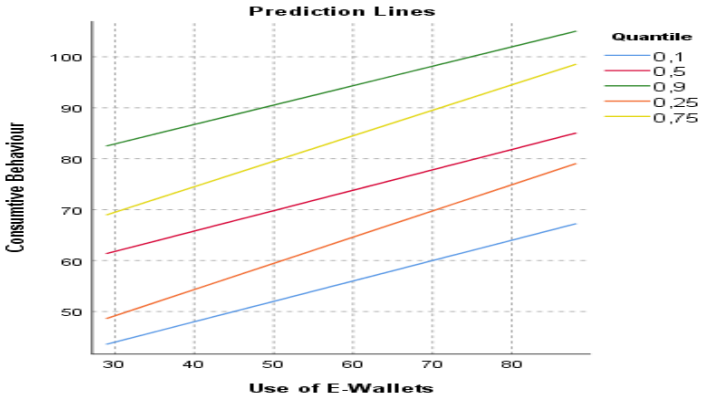
The Intercept value is the estimated value of the dependent variable "Consumptive Behavior" of students when the independent variable, in this case, the value of "E-Wallet Intensity," is zero. Interpreting the results from the table, at the 10th percentile of the lowest data (q=0.1), the intercept is 32,000, indicating that at this percentile, the estimated value of Consumptive Behavior is 32,000 when e-wallet usage is zero. Similarly, the estimated value of students' consumptive behavior at various quantile positions when the e-wallet usage is zero. The intercept value varies at each quantile distribution, and a clearer picture of each quantile condition is also depicted in the Plot of the Estimated Parameters graph below.



Graph 3. Plot of the Estimated Parameters

The plot of the parameter estimates is used to visualize how the values of regression coefficient parameters and confidence intervals vary at different quantiles of the distribution of the dependent variable. Evaluation of this plot assists us in understanding and identifying the conditions of the sample data we are analyzing while conveying the generalization of the results for the research population. This plot helps us understand how the relationship between the independent variable, e-wallet usage intensity, and the dependent variable, students' consumptive behaviour, changes at various positions in the distribution.

The Quantile Regression graph, known as the prediction line, is depicted in the following section, and it will clarify how the relationship between e-wallet usage intensity and students' consumptive behaviour unfolds.



Graph 4. Prediction: Use of E-Wallets

The prediction lines in this study illustrate that the value of e-wallet usage or intensity varies for each quantile distribution, indicating differences in the intercept values (intersection of the graph with the Y-axis) at various points in the distribution of the dependent variable, namely consumptive behaviour. The quantile regression coefficients, depicted by the slopes or gradients of each line varying at every quantile of the consumptive behaviour distribution, indicate that the effect of e-wallet usage intensity differs at various levels of distribution. A higher regression coefficient value indicates a greater role of e-wallet usage intensity in students' consumptive behaviour.

The research results provide an overview that at the initial or bottom quantile at 25%, it represents the quantile where the largest effect of e-wallet intensity (0.514) on students' consumptive behaviour compared to other quantiles. This coefficient figure means that if e-wallet usage intensity increases by one unit, the estimated consumptive behaviour will increase by 0.514 points at the 25th percentile. The varying regression coefficients show a decreasing role at the 10th, 50th, and finally at the 90th percentile. At the 10th and 50th percentiles, these coefficient figures are the same, namely at the value of 0.4. This overview proves that the flexibility of quantile regression analysis allows researchers to examine various quantile levels, providing an understanding of how the relationship between the independent variable, e-wallet usage intensity, and the dependent variable, students' consumptive behaviour, changes in different parts of the data distribution.

These results enable us to gain a richer understanding of the relationship and can be very useful for more in-depth analysis. The quantile regression method is also better at handling heteroscedasticity, which is the difference in variability across the range of predictor values. This is because the method does not require the homoscedasticity assumption needed by ordinary least squares (OLS) regression.

CONCLUSION

The correlation or relationship between the independent variable, e-wallet usage intensity, and the dependent variable, students' consumptive behavior, using quantile regression analysis, generally indicates a significant positive correlation at the 0.05 alpha level. The values generated show variations and differences at various quantile distribution positions. The results of quantile regression analysis indicate that the model with the e-wallet intensity variable is capable of predicting students' consumptive behavior. Particularly at the 0.25 or 25% quantile and the 75% quantile, the quantile regression coefficient values reach higher levels. The analysis results also demonstrate sequentially decreasing regression coefficient values at the 10%, 50%, and finally at the 90% quantile, indicating a diminishing role of e-wallet usage intensity in shaping students' consumptive behavior. Thus, at the 0.9 or 9% quantile, the role of e-wallet usage intensity in shaping students' consumptive behavior becomes smaller.

The use of quantile regression analysis provides a more comprehensive understanding, requiring a slightly deeper statistical understanding than the usual simple regression. However, the interpretation of the results has the advantage of offering a more complete meaning as it provides information at various positions in the distribution.

REFERENCE

Davino, C., Furno, M., & Vistocco, D. (2013). *Quantile regression: theory and applications* (Vol. 988). John Wiley & Sons.

Engel, J.F., Blackwell, R.D., & Miniard, P.W. (2015). *Perilaku Konsumen*. Jakarta: Binarupa Aksara.

Furno, M., & Vistocco, D. (2018). *Quantile regression: estimation and simulation, Volume 2* (Vol. 216). John Wiley & Sons.

Gumulya, J. (2018). Pengaruh Konsep Diri terhadap Perilaku Konsumtif Mahasiswa Universitas Esa Unggul. *Jurnal Psikologi Esa Unggul*, 50-65.

Koenker, R. (2005). *Quantile Regression*. New York: Cambridge University Press.

Koenker, R., Chernozhukov, V., He, X., & Peng, L. (2018). *Handbook of Quantile Regression*. CRC Press, Taylor & Francis Group.

Mahdiyah. (2014). *Statistik Pendidikan*. PT Remaja Rosdakarya, Bandung.

McMillen, D. P. (2012). *Quantile regression for spatial data*. Springer Science & Business Media.

Pagano, M., Gauvreau, K., & Mattie, H. (2022). *Principles of Biostatistics (3rd ed.)*. Chapman and Hall/CRC. https://doi.org/10.1201/9780429340512

Vania, Hanna Farah. (2022). "Frekuensi Penggunaan Dompet Digital Di Indonesia." Databoks Katadata. 2022. https://databoks.katadata.co.id/datapublish/2022/07/29/frekuensipengguna-dompet-digital-di-Indonesia.