Evaluating the Impact of Openness to Experience on Digital Transaction Usage: A Quantile Regression Analysis

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ABSTRACT
Digital wallets have become an important part of financial transactions, especially among college students. This study aims to analyze the influence of the personality dimension of Openness to Experience on the use of digital wallets using quantile regression analysis. This approach allows exploration of variations in the influence of Openness to Experience at low, medium, and high levels of transaction intensity. Data were taken from 212 students of Jakarta State University measured through an online survey. The results showed that Openness to Experience had a positive effect on the use of digital wallets, with a stronger effect on the upper quantile. This suggests that individuals with high levels of openness tend to be more enthusiastic in adopting new technologies and exploring digital wallet features.

Keywords: Openness to Experience; digital wallet; quantile regression; financial technology; personality.

INTRODUCTION

Measurement and evaluation with the right research methods will provide accurate results. By employing robust measurement techniques and proper evaluation, researchers can effectively capture the transformative impact of digital technology on financial management practices. Digital technology has brought about major changes in the way people manage their finances, one of which is through the innovation of digital wallets (e-wallets). A digital wallet is defined as a form of electronic money that is stored in an application or electronic system, used for server-based payments, and can be accessed via devices such as smartphones (Bank Indonesia, 2023). Digital wallets such as GoPay, OVO, and ShopeePay facilitate financial transactions ranging from payments to managing expenses.

Based on a report by Bank Indonesia (2023), the value of digital wallet transactions increased by 24% in the first quarter of 2023 compared to the same period the previous year. The increasing use of digital wallets is also supported by the increasing number of sellers using digital transactions as a means of payment. This trend shows the high adoption of financial technology, especially among the younger generation. Research conducted by Husnayetti et al. (2020) revealed that the younger generation finds it easier to transact using non-cash payments because they do not need to carry cash and transactions are faster and more practical.

As an educational institution for the younger generation, Jakarta State University as a state university that has just changed its status to a State University with Legal Entity (PTN-

BH) also appealed for the use of the Quick Response Code Indonesian Standard (QRIS) as a means of payment when making transactions in the canteen since 2023. This aims to ensure that transactions taking place in the canteen can be easily monitored. So as active users of technology, students often use digital wallets for daily needs such as paying for transportation, food, and online shopping.

The problem that occurred at the beginning of the transaction model determination, there was still a positive pattern of adoption changes. However, the use of this transaction began to loosen and was slowly abandoned. In addition to external factors such as promotions and discounts, personality characteristics also influence a person's decision to adopt new technology. This study uses an appropriate quantile regression analysis model, measurements and evaluation of the results are carried out to prove the relationship of variables to the phenomena that occur.

Feist and Feist (2013) state that personality is a relatively fixed trait pattern and unique characteristics that provide uniqueness and consistency to individual behavior. According to Allport, trait is an internal mental structure that maintains the stability of a person's behaviour in different situations, even though external conditions change (King, 2011). Personality can be interpreted as a relatively stable pattern that influences the way individuals think, feel, and act in various situations, with distinctive and consistent tendencies in each individual.

The Big Five Personality Model is the most frequently used and widely recognized personality approach to describe the main dimensions of human personality. Based on Ramdhani's explanation (2012), the Big Five was developed through a lexical approach, namely the grouping of words or terms in everyday life that describe individual characteristics and distinguish them from other individuals.

According to Costa and McCrae, personality in the Big Five Factors of Personality is part of a trait-based personality theory that includes five main dimensions: neuroticism (emotional instability), extraversion, openness to experience, agreeableness, and conscientiousness (King, 2011; Feist & Feist, 2013; Ramdhani, 2012). The Big Five does not indicate that personality consists of only five types, but rather is a grouping of thousands of traits into five large dimensions (Ramdhani, 2012). In addition, each personality dimension is independent, allowing someone to have a unique combination of the five factors (King, 2011; Feist & Feist, 2013). Of the five dimensions of the big five personality, this study will focus on openness to experience. In the Big Five Personality Traits model, Openness to Experience is a dimension that reflects creativity, curiosity, and openness to new experiences. This dimension has several facets that are relevant to the use of technology, including digital wallets. According to Costa and McCrae (1992), several facets of Openness to Experience include: (1) Fantasy: The ability to imagine new things or think creatively; (2) Aesthetics: Openness to beauty and art; (3) Feelings: Sensitivity to emotions and internal experiences; (4) Actions: The desire to try new things; (5) Ideas: Interest in new and intellectual ideas; and (6) Values: Openness to various values, norms, and traditions.

Based on these six facets, Openness to Experience is thought to influence the use of digital wallets through several aspects, such as the desire to try new things (actions), curiosity about innovation (ideas), openness to changes in values (values), and positive emotional responses (feelings). Individuals who are high in openness tend to be more enthusiastic about

adopting and exploring digital wallet features, making them a potential user group for financial technology developers.

However, research that discusses how Openness to Experience influences the use of digital wallets at various levels of transaction intensity is still limited. By using quantile regression analysis, this study aims to explore this relationship in depth. This study attempts to explain how these effects vary across low, medium, and high levels of use intensity. This graph underscores the importance of considering heterogeneity in technology acceptance and tailoring intervention approaches based on segments of the acceptance distribution.

METHOD

The population of the study was students at Jakarta State University who actively use digital wallets. The sample consisted of 212 respondents selected using purposive sampling techniques. Purposive sampling as a sampling technique in scientific research is carried out with certain considerations (Mahdiyah, 2022). Inclusion criteria include: (1) Active students; and (2) Using digital wallets for at least the last six months.

Openness to Experience was measured using the Big Five Inventory (BFI) which has been adapted by Ramdhani (2012), which overall includes 44 Likert scale items (1 = strongly disagree to 5 = strongly agree). However, this study only analyzed the openness to experience item consisting of 10 items. The use of digital wallets uses a questionnaire that has been prepared by Mahdiyah et all (2024) which consists of items that are measured based on transaction frequency, number of transactions, trust in digital wallets and others.

The analysis method of this research uses a quantitative approach with the quantile regression method. Quantile regression is an analytical approach that is often used to overcome the problem of heteroscedasticity in data (Koenker, 2005; McMillen, 2012; Davino et al., 2013; Koenker, Chernozhukov, He, & Peng, 2018; Furno & Vistocco, 2018; Pagano et al., 2022). This technique can assess the correlation of data in several parts and allows the analysis process even though there are differences in estimated values at certain quantiles. In the quantile regression graph, several prediction lines describe different percentiles of the data. Each prediction line has a unique slope that indicates the estimated value at a certain percentile (Koenker, 2005; McMillen, 2012; Davino et al., 2013; Koenker, Chernozhukov, He, & Peng, 2018; Furno & Vistocco, 2018; Pagano et al., 2022). This approach allows the analysis of the influence of Openness to Experience on various quantiles of the distribution of digital wallet usage intensity, providing a more detailed understanding than simple linear regression. The analysis can be performed on quantiles of 10%, 25%, 50%, 75%, and 90% to explore the variation in the influence of Openness to Experience on different levels of usage intensity.

The results of this study were obtained through the estimation of the parameters β_0 and β_1 in the following quantile regression equation model:

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

where $Q (\tau \mid X)$ is the estimate of the τth quantile of the dependent variable (Y) based on the value of the independent variable (X).

RESULTS AND DISCUSSION

Evaluation of the research results using quantile regression analysis shows some interesting findings in the context of the relationship between the personality trait openness to experience and the use of e-wallets in UNJ students. In this discussion, the researcher will describe these findings. A total of 212 respondents received an assessment based on the

personality trait score openness to experience with a mean of 21.14 and a standard deviation of 0.23.

One of the advantages of quantile regression analysis is its ability not to rely on the assumption of a normal distribution, because this method focuses on analysis based on quantile positions. This allows for more stable estimates, even when there is extreme data. The Pseudo R Squared value in Model Quality, as shown in the following table, illustrates the extent to which the quantile regression model is able to explain data variations at various positions in the quantile distribution.

Table 1. Pseudo R Squared Value on Model Quality

Model Quality[a,b,c]

	q=0,1	q=0,25	q=0,5	q=0,75	q=0,9
Pseudo R Squared	.012	.021	.040	.018	.051
Mean Absolute Error (MAE)	15.6415	10.9704	9.4906	12.2776	16.6592

a. Dependent Variable: Digital Transaction

b. Model: (Intercept), Openness

c. Method: Simplex algorithm

The results of the quantile regression analysis at quantile 0.1 (q = 0.1), the model shows that the personality trait openness to experience is able to explain about 1.2% of the variation in student behavior related to the use of digital transactions. A similar pattern is also applied to assess the extent to which variations in the personality trait openness to experience affect student behavior in this context.

At quantile 0.5 (q = 0.5), the model shows the ability to explain up to 4% of the variation in this behavior. Furthermore, at quantile 0.9 (q = 0.9), the model shows an increase in contribution, where the trait openness to experience is able to explain up to 5.1% of the variation in student behavior related to the use of digital transactions.

Parameter Estimates by Different Quantiles analysis provides information on the variation in the regression parameter values (regression coefficients) at each quantile position of the dependent variable distribution. These results indicate that the regression coefficient has a different value at each quantile in the distribution of the dependent variable. The results of parameter estimates at various different quantiles for the personality trait openness to experience are presented in the following table.

Table 2. Parameter Estimates by Different Quantiles

Parameter Estimates by Different Quantiles[a,b]

Parameter	q=0,1	q=0,25	q=0,5	q=0,75	q=0,9
(Intercept)	28.800	40.571	39.545	50.571	51.750
Openness	.800	.571	.909	.857	1.125

a. Dependent Variable: Digital Transaction

b. Model: (Intercept), Openness

The measurement of the results on the Intercept value reflects the estimation of the dependent variable, namely "Student Behaviour in Using Digital Transactions," when the independent variable, namely "Openness to Experience Personality Trait," is zero. Based on the table, at the low quantile (q = 0.1), the predicted value of digital transaction acceptance is 28.8. At the middle quantile (q = 0.5), this value increases to 39.545, and at the high quantile (q = 0.9), the prediction increases again to 51.75. This shows that overall, digital transaction

acceptance is higher in the upper quantile, regardless of the level of openness to experience personality.

The effect of Openness to Experience based on the coefficient at the low quantile (q = 0.1) is 0.8, indicating that this personality makes a small contribution to the use of digital transactions. At the middle quantile (q = 0.5), the effect increases to 0.909, while at the higher quantile (q = 0.9), the effect reaches 1.125. This indicates that in individuals with a high level of acceptance of digital transactions, openness to experience has a more significant influence than in individuals in the low quantile or student groups with low levels of acceptance of digital transactions.

Groups in the Low Quantile (q = 0.1 and q = 0.25): acceptance of digital transactions tends to be low. Although the trait openness to experience has a positive influence, the impact is relatively small (0.8 and 0.571). External factors, such as accessibility or convenience of technology, may be the main obstacles for individuals with low technology acceptance, so openness to experience has a limited influence.

Individuals in the Middle Quantile (q = 0.5): Acceptance of digital transactions in this group is more balanced. The trait openness to experience has a moderate influence (0.909) on increasing digital acceptance. Individuals in this group with a high level of openness to experience tend to be more open to change and are more likely to try new technologies.

High Quantile (q = 0.75 and q = 0.9): Individuals in this group have very high acceptance of digital transactions, and the influence of openness to experience is getting bigger (0.857 and 1.125). Individuals in this quantile are active users of digital technology, who are driven by their openness to experience to explore new technologies and maximize the benefits of digital transactions.
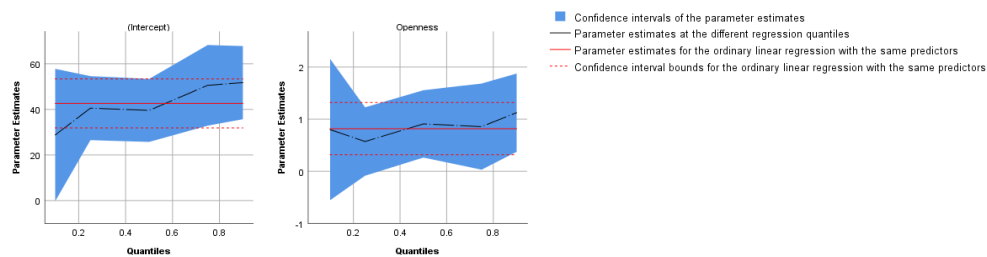

Figure 1. Plot of the Estimated Parameters

Parameter estimation plot graphs are used to visualize the variation of regression coefficient values and confidence intervals at various quantiles of the dependent variable distribution. This graphical analysis helps us understand the characteristics of the sample data while supporting the generalization of research results to the population.

Evaluation of the analysis results based on the intercept graph shows that the initial value of digital transaction acceptance (when openness to experience is zero) experiences a gradual increase from the low quantile to the high quantile. At the low quantile (q = 0.1), the intercept value tends to be smaller than the middle and high quantiles, with a wider confidence interval (shaded area). This indicates that digital transaction acceptance in groups with low levels of acceptance has greater variability. This group tends to be influenced by factors other than openness to experience in determining their acceptance of digital transactions. Conversely, at high quantiles, a more stable intercept value indicates the consistency of digital transaction acceptance among individuals with high levels of acceptance.
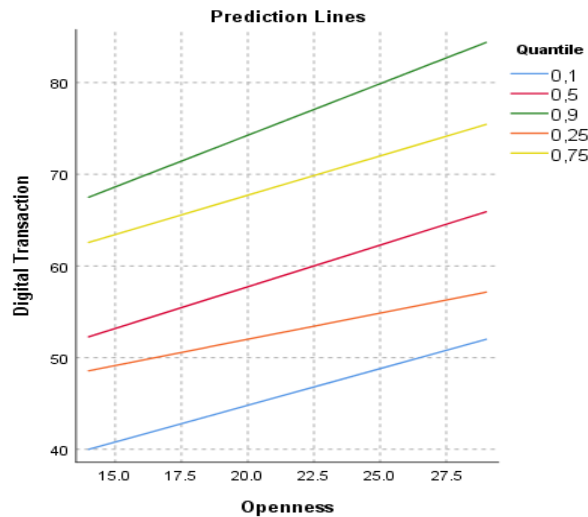
Figure 2. Quantile Regression Graph

This graph shows the variation in the slope of each line according to the percentage of the Openness to Experience quantile. The greater the slope or gradient of the line, the greater the role of Openness to Experience in supporting the acceptance of digital change. Conversely, a smaller slope indicates a lower influence.

Measurement in assessing the results of the study of the relationship between Openness to Experience and acceptance of digital transactions is positive throughout the quantile distribution. However, by using the quantile regression method, it is proven that this relationship is more significant in high quantiles, namely in individuals with a higher level of technology acceptance. In the low quantile, although Openness to Experience still has an impact, acceptance of digital transactions tends to be more influenced by other factors that cause greater variation.

Overall, it can be seen that in individuals in the low quantile position, although openness to experience has a positive effect, its influence is smaller due to the possibility of other obstacles (for example, lack of access to technology or psychological resistance). While in the upper quantile, individuals with higher openness to experience tend to have significant acceptance of digital transactions because they are more open to technological innovation and change.

These results are in line with the research of DeYoung et al. (2010) which found that Openness to Experience contributes to the adoption of innovative technology. The results of this study indicate that openness to experience is a strong predictor of innovative technology adoption, especially in individuals with high scores on the ideas and actions facets. Another study by Wang et al. (2020) also supports that curiosity and exploration drive the use of complex technology. This study found that individuals with high openness are more likely to use technology-based applications, such as digital wallets, because of their curiosity about new features.

If reviewed based on each facet in openness to experience, we can better understand the results of this study. Individuals who are high on the Actions facet (Desire to Try New Things) tend to adopt new technologies more quickly, such as digital wallets, because they are interested in trying new experiences that offer convenience and efficiency. Wang et al. (2020) stated that individuals with high openness are more likely to adopt innovative technologies, including digital payments.

Research by DeYoung et al. (2010) shows that openness to ideas has a positive correlation with the adoption of innovation-based technologies. The Ideas facet (Interest in

Innovation) is related to intellectual interest and curiosity about new technologies. Individuals with a high interest in new ideas are more likely to understand and explore digital wallet features such as spending tracking or data-based promotions.

According to Ramdhani (2012), individuals who are flexible towards social values tend to be more receptive to technology-based innovations. Individuals who are open to various values and norms will more easily accept changes from cash to digital transactions, because they are flexible towards new habits. This is in line with the characteristics of the Values facet (Openness to New Values). Digital wallets often offer interesting user experiences, such as gamification or personalized promotions. Individuals with high sensitivity to emotions tend to enjoy these experiences, encouraging more intensive use, as indicated by the characteristics of the Feelings facet (Emotional Response to Experience). Research by Park et al. (2021) found that positive emotional responses increase the loyalty of financial technology users.

CONCLUSION

Measurement and evaluation of research results using the quantile regression analysis method, has been proven to provide a more accurate and detailed interpretation of research results. Quantile analysis shows that openness to experience has varying impacts on different positions. Openness to Experience plays a positive role in the use of digital wallets. The facets that characterize openness to experience also contribute to the background of individual behaviour in using digital wallets. Individuals who have a high level of openness to experience tend to adopt new technologies more quickly, such as digital wallets, because they are interested in trying new experiences that offer convenience and efficiency.

Based on the results of this study, the strategy that can be suggested for individuals who are included in the low quantile is to focus on overcoming external barriers, such as technology education, trust in digital systems, or skills training. While the strategy that can be suggested for high quantiles is to offer innovative features or personalization that utilize the Openness to Experience trait, such as exploring new experiences in digital technology.

Based on the results of the evaluation related to personality traits for digital transactions, merchants can take advantage of the explorative nature of individuals with Openness to Experience by providing special discounts or cashback for payments using digital wallets. In addition, merchants or entrepreneurs can also launch exclusive promos for customers who try new payment methods or utilize certain digital transaction features. Data from buyers' digital transactions can also be used to offer product recommendations that match their purchase history, such as providing discount coupons or special offers based on customer shopping habits.

In addition, suggestions that can be given to digital wallet application developers are to create interactive features that support exploration, such as gamification or transaction personalization analysis. And launch new features regularly to attract users who are open to new experiences.

Suggestions that can be made by further researchers are to examine the interaction of Openness to Experience with other factors such as technology education or social influence. And expand the study population to include various age groups and cultural backgrounds.

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