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EFFECTS OF PERCEIVED EASE OF USE, SECURITY, AND BENEFITS ON E-MONEY USAGE PREFERENCES AT RUM FERRY PORT

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Abstract

Digital payment adoption in ferry transport depends on users' perceptions of the payment system. This study examines the individual and joint effects of perceived ease of use, security, and benefits on e-money usage preferences at Rum Ferry Port, North Tidore District, Tidore Islands City. A quantitative survey included 150 respondents selected through saturated sampling. Data were collected through questionnaires, observation, and documentation and analyzed using descriptive statistics and multiple linear regression in SPSS. Perceived ease of use ($B = 0.257$, $\beta = 0.278$, $t = 3.330$, $p = 0.001$), perceived security ($B = 0.461$, $\beta = 0.429$, $t = 5.245$, $p < 0.001$), and perceived benefits ($B = 0.220$, $\beta = 0.216$, $t = 3.070$, $p = 0.003$) each had a positive, statistically significant association with usage preferences. The predictors were jointly significant ($F = 139.810$, $p < 0.001$), with an adjusted R^2 of 0.736. Perceived security had the largest standardized coefficient. The findings support prioritizing transaction security while maintaining ease of use and practical benefits in ferry payment services.

Keywords: e-money; perceived benefits; perceived ease of use; perceived security; usage preferences

INTRODUCTION

Developments in information technology have changed the way people conduct transactions, including their use of electronic payment instruments such as e-money. Digital payments can support practical and efficient transactions in transport services. However, users' decisions to adopt e-money may depend on how they evaluate its ease of use, transaction security, and perceived benefits.

The Technology Acceptance Model (TAM) identifies perceived ease of use and perceived usefulness as central beliefs associated with technology acceptance (Davis, 1989). In digital payment services, users also consider risk and security because they evaluate potential losses alongside the benefits of using a system (Featherman & Pavlou, 2003; Oliveira et al., 2016). These considerations provide a conceptual basis for examining payment preferences in a ferry transport setting.

In the transport sector, Rizkyntania et al. (2025) examined commuter rail ticket payments through GoTransit and found that relative advantage, complexity, and perceived security were significantly associated with intention to use the service. Their study provides a relevant comparison, although the transport mode and payment technology differ from the e-money services used at Rum Ferry Port.

Rum Ferry Port, located in North Tidore District, Tidore Islands City, is a transport facility where passengers undertake payment transactions. Understanding their preferences for e-money is relevant because the acceptance of digital payments depends on users' experiences and perceptions as well as the availability of the technology.

Research in Tidore Islands City has also identified digital transformation as an important issue in local economic activities. Ruray et al. (2025) examined the digital transformation of businesses operated by coastal women; Muhlis et al. (2025) investigated digital literacy and social media in relation to household business income; and Rosdiana et al. (2025) discussed strengthening digital distribution for spice-based micro, small, and medium enterprises. These studies describe the development of digital technology in an island setting, but they do not directly examine port users' e-money preferences.

As part of the wider local economic context, Putri (2021) analyzed the fiscal independence and effectiveness ratios of locally generated revenue in Tidore Islands City. That study did not assess digital payments. Its relevance

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here is limited to the local economic context, rather than empirical evidence linking ease of use, security, and benefits to e-money preferences.

This study focuses on three factors: perceived ease of use, perceived security, and perceived benefits. Ease of use concerns how readily users can understand and operate the payment system. Security concerns confidence in the protection of transactions and information, while benefits concern the usefulness of e-money in payment activities. The objective is to examine the individual and joint effects of these factors on e-money usage preferences at Rum Ferry Port.

LITERATURE REVIEW

Theoretical foundations

Perceived ease of use refers to the belief that using a system requires relatively little effort, whereas perceived usefulness reflects the belief that technology improves the effectiveness of users' activities (Davis, 1989). In the e-money context, these concepts may be reflected in understandable payment procedures, shorter transaction processes, and the practical value of cashless payments. In this study, the term perceived benefits is used for the construct related to users' assessments of this practical value. Ruslan et al. (2023), studying BRImo users in Tidore Islands City, found a positive and significant relationship between perceived ease of use and intention to use the application, providing a local comparison for the ease-of-use dimension.

Perceived security concerns users' assessments of fund protection, information confidentiality, transaction reliability, and the risk of misuse. Featherman and Pavlou (2003) explained that perceived risk can hinder the adoption of electronic services, while Oliveira et al. (2016) included security as an important element in their analysis of mobile payment adoption. Conceptually, stronger perceptions of security may increase users' willingness to select a digital payment instrument.

Usage preference is understood here as the tendency to choose e-money over the available payment alternatives. Preference is distinct from behavioral intention and actual use. Because several comparative studies investigate intention to use a service, their findings are treated as conceptual support, without assuming that preference, intention, and actual behavior are identical constructs.

Previous research and the research gap

Aprianti et al. (2023) examined ease of use and security in customers' decisions to use QRIS through Livin' by Mandiri. Hutahayan et al. (2024) found positive effects of ease of use and benefits on the intention to use QRIS, alongside a negative effect of risk. Anam et al. (2025) reported that security had a positive and significant effect on e-wallet usage intention among the students in their sample, whereas ease of use and benefits had positive but statistically insignificant effects.

Evidence from digital payment research is not uniform. Zuniatami and Mahardhika (2025) found significant relationships between ease of use, benefits, and intention to use e-wallets, but the relationship involving security was not significant. Bahtiar et al. (2025) likewise reported an insignificant security effect on intention to use LinkAja Syariah. In contrast, Al Munir and Gunawati (2026) found positive effects of ease of use and security on intention to use QRIS, but a negative effect of perceived benefits. These differences indicate the value of examining the three factors across different user groups and transaction settings.

Unlike studies of university students, banking customers, e-wallet users, and urban transport passengers, the present study specifically examines e-money usage preferences among passengers at Rum Ferry Port in Tidore Islands City. Its empirical focus is the setting of inter-island travel, payment processes at the port, and users' assessments of transaction security, ease of use, and benefits. Differences between this setting and those of earlier studies provide the rationale for testing the proposed relationships locally.

Research hypotheses

H1: Perceived ease of use has a positive and significant effect on e-money usage preferences.
H2: Perceived security has a positive and significant effect on e-money usage preferences.
H3: Perceived benefits have a positive and significant effect on e-money usage preferences.
H4: Perceived ease of use, perceived security, and perceived benefits jointly have a significant effect on e-money usage preferences.

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METHOD

This study employed a quantitative survey approach at Rum Ferry Port, Rum Village, North Tidore District, Tidore Islands City. The study population was defined as e-money users of the Rum–Bastiong ferry service during December 2025 to February 2026 and was estimated at 150 people. Saturated sampling was used to include all 150 members of the defined study population, resulting in a sample of 150 respondents.

Data were collected through questionnaires, observation, and documentation. The independent variables were perceived ease of use (X_1), perceived security (X_2), and perceived benefits (X_3). The dependent variable was e-money usage preference (Y). Descriptive statistics and multiple linear regression were conducted using SPSS. The analysis included individual t tests, an overall F test, and the coefficient of determination. Statistical significance was evaluated at the 0.05 level.

The multiple linear regression model examined the relationship between usage preference and the three predictors, as expressed in Equation (1). The coefficients represent the contribution of each predictor while holding the other predictors constant.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \varepsilon \quad (1)$$

RESULTS AND DISCUSSION

Regression estimates and individual hypothesis tests

Table 1 presents the reported regression coefficients and individual significance tests. All three predictors had positive coefficients and were statistically significant at the 0.05 level. Perceived security had the largest standardized coefficient, followed by perceived ease of use and perceived benefits.

Table 1. Multiple regression coefficients and individual significance tests

Predictor	B	Standardized β	t	p
Perceived ease of use (X_1)	0.257	0.278	3.330	0.001
Perceived security (X_2)	0.461	0.429	5.245	< 0.001
Perceived benefits (X_3)	0.220	0.216	3.070	0.003

Note. B = unstandardized regression coefficient; β = standardized regression coefficient. Values displayed as 0.000 in SPSS are reported as $p < 0.001$. Source: SPSS output reported in the research thesis.

Using the reported constant of 0.938, the estimated coefficients yield the fitted equation shown in Equation (2).

$$\hat{Y} = 0.938 + 0.257X_1 + 0.461X_2 + 0.220X_3 \quad (2)$$

Perceived ease of use

Perceived ease of use had a positive unstandardized coefficient of 0.257, with $t = 3.330$ and $p = 0.001$. The result supports H1 and indicates that higher perceived ease of use was associated with stronger preferences for e-money when the other predictors were held constant. In practical terms, users who considered e-money easier to understand and use were more likely to prefer it as a payment instrument.

The direction of this finding is consistent with Ruslan et al. (2023), who examined the BRImo application in Tidore, and Hutahayan et al. (2024), who investigated QRIS payments. Both studies identified ease of use as relevant to digital payment acceptance. Nevertheless, the comparative studies considered intention or decisions to use a service, whereas the present study measured e-money usage preference.

Perceived security

Perceived security had a positive coefficient of 0.461, with $t = 5.245$ and $p < 0.001$, supporting H2. This finding indicates that stronger perceptions of security were associated with stronger e-money usage preferences. Users need confidence that their transactions and funds are protected. The standardized coefficient of 0.429 was the highest among the three predictors, making security the strongest predictor in the estimated model on this criterion.

The prominence of security in the Rum Ferry Port sample is consistent with the importance of security reported by Anam et al. (2025) and Rizkyntania et al. (2025). However, Bahtiar et al. (2025) and Zuniatami and Mahardhika (2025) found that the security relationship was not always statistically significant. Differences in sample characteristics, payment instruments, and transaction settings may help explain these findings. This explanation is an interpretation of the comparisons, rather than the result of a moderator analysis in the present study.

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Perceived benefits

Perceived benefits had a positive coefficient of 0.220, with t = 3.070 and p = 0.003. The result supports H3 and indicates a positive, statistically significant relationship with e-money usage preferences. The perceived practical value of e-money in payment activities may increase users' tendency to select this payment method.

This finding is consistent with the conceptual basis of TAM (Davis, 1989) and the results of Hutahayan et al. (2024). It differs from Al Munir and Gunawati (2026), who found a negative effect of perceived benefits in the context of QRIS use among culinary micro, small, and medium enterprises. Perceived benefits should therefore be interpreted in relation to ferry passengers' transaction needs, with caution when extending the findings to other digital payment settings.

Joint significance and explanatory power

The overall F test produced a value of 139.810 with $p < 0.001$, indicating that perceived ease of use, perceived security, and perceived benefits were jointly significant in explaining e-money usage preferences. This result supports H4. Table 2 summarizes the reported model fit statistics.

Table 2. Overall model significance and explanatory power

Respondents (n)	F statistic	p	R^2	Adjusted R^2
150	139.810	< 0.001	0.742	0.736

Source: SPSS results reported in the research thesis.

The reported R^2 was 0.742, while adjusted R^2 was 0.736. After adjustment for the number of predictors, the model accounted for 73.6% of the variation in e-money usage preferences. The remaining 26.4% was not explained by the model and may reflect omitted factors and unexplained variability. The explanatory power of the model applies to the study sample and does not by itself establish causal relationships.

Practical implications

Because security had the largest standardized coefficient, digital payment providers and relevant stakeholders should prioritize data protection, transaction security, clear information about problem resolution, and guidance on safe use. Ease of use and practical benefits also require attention. Port managers may consider providing understandable payment instructions, adequate network support, and user outreach. These recommendations follow from the observed relationships and do not represent direct measurements of port management performance.

Digital literacy may form part of this educational approach, including guidance on transaction procedures, checking payment amounts, confirming successful payments, and accessing complaint channels. Muhlis et al. (2025), Ruray et al. (2025), and Rosdiana et al. (2025) discuss the use of digital technology in Tidore's economic activities. Their studies do not measure the effectiveness of e-money education at Rum Ferry Port, so the effectiveness of such initiatives would need to be evaluated separately.

CONCLUSION

Perceived ease of use, perceived security, and perceived benefits each had a positive and statistically significant relationship with e-money usage preferences at Rum Ferry Port. The three predictors were also jointly significant. The adjusted R^2 of 0.736 indicates that the model accounted for 73.6% of the variation in usage preferences after adjustment. Perceived security had the largest standardized coefficient, $\beta = 0.429$. The findings support prioritizing transaction security while maintaining the ease of use and practical benefits of digital payment services.

The study was limited to a single location and the defined sample of 150 respondents. Its findings should therefore be interpreted within this research setting. Future research could examine additional variables, such as trust, promotion, service quality, user satisfaction, and social influence, and include a wider range of locations.

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