



Explaining Financial Technology Adoption Among Micro-Businesses: Evidence from An Integrated TAM-TPB Framework

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Article History

Received : 2026-03-14

Revised : 2026-05-02

Accepted : 2026-05-11

Published : 2026-06-14

Keywords:

Ease of Use; Effectiveness; Risk;
Financial Technology; Micro
Enterprises

DOI:

<https://doi.org/10.54045/Mutanaqishah.v6i1.3506>

JEL Classification:

G21, G32, Z12, Q14

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Paper type:

Research paper

Abstract

Purpose – This Study aims to explain financial technology adoption among microbusinesses in Gorontalo City: evidence from an integrated TAM-TPB framework.

Methodology – The sampling technique in this study uses the Slovin formula. The data collection technique in this study is primary data collection. The population in this study comprises 11,806 micro-business actors in Gorontalo City, with a total sample of 99 respondents. The analysis is performed using SPSS 23.

Findings – Partial tests (t-test) show that perceived ease of use and effectiveness positively and significantly influence Financial Technology usage, while risk has no significant effect. Simultaneously (F-test), all variables significantly influence FinTech use. The coefficient of determination (R^2) is 0.481 (48.1%), indicating that 51.9% of FinTech usage is explained by other factors not examined in this study.

Implications– The study confirms the applicability of integrating TAM and TPB in the context of micro-enterprises. Practically, it highlights the critical need for FinTech developers and policymakers to prioritise risk-mitigation strategies, enhance security features, and foster digital financial literacy to build trust and accelerate digital adoption among micro-business actors.

Originality– This study showed a comprehensive framework that bridges TAM and TPB, uniquely demonstrating how perceived risk interacts with usability and effectiveness to shape the digital financial behaviours of micro-business actors.

Cite this article:

Saidia, M. F. B., Dama, H., & Rasjid, H. (2026). Explaining Financial Technology Adoption Among Micro-Business: Evidence from Integrated TAM-TPB Framework. *Mutanaqishah: Journal of Islamic Banking*, 6(1), 88–100. <https://doi.org/10.54045/Mutanaqishah.v6i1.3506>



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1. Introduction

The rapid advancement of financial technology (fintech) has significantly transformed the financial services landscape, particularly in developing countries such as Indonesia. Fintech innovations such as digital payments, peer-to-peer lending, and mobile financial services have enhanced financial inclusion, reduced transaction costs, and improved efficiency for businesses (da Silva et al., 2026; Goswami et al., 2025). In recent years, fintech has become a critical driver of digital economic transformation, especially in emerging economies where access to traditional financial services remains limited (Al-Sharafi et al., 2025; Papanikolaou et al., 2025).

Micro-businesses represent a vital segment of Indonesia's economy, contributing significantly to employment and local income generation. However, these enterprises often face structural challenges, including limited access to capital, low financial literacy, and inefficient financial management systems. Fintech solutions provide alternative mechanisms to overcome these barriers by offering accessible, flexible, and cost-effective financial services (Goswami et al., 2025; Kartini et al., 2024). Despite these benefits, fintech adoption among micro-businesses remains uneven, particularly in smaller cities and less developed regions.

In the context of Gorontalo City, micro-businesses operate under unique socio-economic conditions, including limited digital infrastructure and lower levels of technological readiness. These conditions may influence how micro-entrepreneurs perceive and adopt fintech services. Previous studies indicate that adoption in such regions is often influenced by trust, perceived risk, and limited awareness of fintech benefits (da Silva et al., 2026; Papanikolaou et al., 2025). Therefore, understanding fintech adoption in this specific local context is essential for promoting inclusive digital transformation.

A growing body of literature has examined fintech adoption using established theoretical frameworks. The Technology Acceptance Model (TAM) is one of the most widely used models, emphasising perceived usefulness and perceived ease of use as key determinants of technology adoption (Arta & Azizah, 2020; da Silva et al., 2026). Empirical studies consistently show that users are more likely to adopt fintech when they perceive it as beneficial and easy to use (Al-Sharafi et al., 2025; Kartini et al., 2024). In addition, the Theory of Planned Behaviour (TPB) has been widely applied to explain fintech adoption behaviour. TPB highlights the importance of attitude, subjective norms, and perceived behavioural control in shaping behavioural intentions (Irimia-Diéguez et al., 2023). Research findings confirm that social influence and perceived control significantly affect individuals' intention to use fintech services (Marco & Arifin, 2024).

Recent studies have emphasised the importance of integrating multiple theoretical frameworks to better explain fintech adoption. Combining TAM and TPB enables researchers to capture both technological and behavioural-social factors influencing adoption decisions (Al-Sharafi et al., 2025; Papanikolaou et al., 2025). Moreover, systematic reviews indicate that additional factors such as trust, perceived risk, financial literacy, and facilitating conditions also play important roles in fintech adoption (Al-Sharafi et al., 2025; da Silva et al., 2026). Furthermore, fintech adoption has been linked to financial inclusion and digital transformation, particularly in the post-pandemic era. Studies show that fintech plays a crucial role in expanding financial access for underserved populations and supporting small business development (Goswami et al., 2025). However, most empirical studies focus on urban populations or general consumers, with limited attention given to micro-businesses in smaller cities.

Despite the growing literature, several important gaps remain. First, there is a lack of studies focusing on micro-businesses in less-developed regions such as Gorontalo City. Most existing research has concentrated on major urban areas, which may not reflect the unique challenges faced by micro-entrepreneurs in smaller cities (Al-Sharafi et al., 2025; da Silva et al., 2026). Second, many previous studies rely on a single theoretical framework, which limits the ability to fully explain fintech adoption behaviour. While TAM explains technological perceptions, it does not fully capture social and behavioural influences. Conversely, TPB explains behavioural aspects but may overlook technological characteristics. Recent literature highlights the need for integrated models to address this limitation (da Silva et al., 2026; Papanikolaou et al., 2025). Third, there is limited empirical research that simultaneously examines both the intention and the actual use of fintech

among micro-businesses. Although intention is a key predictor of behaviour, it does not always translate into actual adoption due to contextual barriers such as limited infrastructure and low digital literacy (Kartini et al., 2024; Marco & Arifin, 2024).

Based on the identified gaps, this study aims to explain the adoption of financial technology among micro-businesses in Gorontalo City by applying an integrated TAM–TPB framework. Specifically, this research examines how perceived ease of use and perceived usefulness (TAM), along with attitude, subjective norms, and perceived behavioural control (TPB), influence both the intention to use fintech and its actual adoption. By integrating TAM and TPB, this study provides a more comprehensive framework that captures both technological and behavioural dimensions of fintech adoption. This approach is expected to enhance the explanatory power of fintech adoption models and provide deeper insights into user behaviour. Furthermore, this study contributes to the literature by focusing on a less-explored regional context. The findings are expected to offer practical implications for policymakers, fintech providers, and local governments in designing strategies to promote fintech adoption, enhance financial inclusion, and support sustainable economic development.

2. Literature Review

2.1 Financial Technology Adoption in Micro-Businesses

Financial technology (fintech) adoption has been widely recognised as a key driver of financial inclusion and operational efficiency, particularly for micro-businesses. Prior studies indicate that fintech enables micro-enterprises to access financial services more easily, improve transaction efficiency, and expand their market reach (Demir et al., 2022; Goswami et al., 2025). However, a closer examination of the literature reveals that most of these studies adopt a macro-level perspective, focusing on national or urban datasets, thereby overlooking the heterogeneous conditions faced by micro-businesses at the local level.

Existing research tends to generalise fintech adoption behaviour without sufficiently accounting for regional disparities. Micro-businesses in smaller cities, such as Gorontalo, often operate under different conditions compared to those in metropolitan areas. These include limited digital infrastructure, lower financial and technological literacy, and stronger reliance on informal financial practices. As a result, findings from prior studies may not be fully applicable to these contexts. Furthermore, although fintech is often promoted as a solution to financial exclusion, empirical evidence suggests that adoption among micro-businesses remains constrained by factors such as lack of trust, perceived risk, and limited awareness (da Silva et al., 2026; Ha et al., 2025). These issues are frequently mentioned but not deeply analysed, indicating a gap in understanding how such barriers operate in specific regional settings.

2.2 Technology Acceptance Model (TAM) in Fintech Context

The Technology Acceptance Model (TAM) has been widely used to explain fintech adoption, particularly with respect to perceived usefulness and perceived ease of use. Empirical studies consistently show that these two factors play a significant role in shaping users' attitudes and intentions toward fintech services (Al-Sharafi et al., 2025; Kartini et al., 2024). In many fintech studies, TAM is used to assess how users evaluate the functional benefits and usability of digital financial services.

However, despite its widespread application, TAM-based studies in the fintech context often exhibit several limitations. First, they tend to emphasise technological perceptions while underestimating the influence of external and social factors. This is particularly problematic in the context of micro-businesses, where decision-making is not purely based on perceived efficiency but is also shaped by environmental constraints and social influences. Second, many TAM studies are conducted on relatively homogeneous samples, such as students or urban users, limiting their generalizability to micro-entrepreneurs in less-developed regions. Moreover, TAM does not explicitly incorporate variables such as trust and perceived risk, which are critical in financial decision-making. While some studies attempt to extend TAM by including these variables, they are often treated as supplementary rather than central constructs. This suggests that TAM alone may

not be sufficient to explain fintech adoption among micro-businesses, especially in contexts where uncertainty and perceived risk play a dominant role.

2.3 Theory of Planned Behaviour (TPB) in Fintech Adoption

The Theory of Planned Behaviour (TPB) provides a broader framework by incorporating behavioural and social dimensions, including attitude, subjective norms, and perceived behavioural control (Irimia-Díéguez et al., 2023). In the fintech context, TPB has been used to explain how social influence and perceived control affect individuals' intention to adopt digital financial services (Marco & Arifin, 2024). This makes TPB particularly relevant for studying micro-businesses, where decisions are often influenced by peer networks and perceived capability to use technology. Nevertheless, TPB-based studies also face limitations when applied to fintech adoption. While TPB effectively captures behavioural intention, it does not explicitly address technological attributes such as system usability and perceived benefits. As a result, TPB may overlook key drivers of adoption that are central to fintech services. Additionally, as in TAM-based research, many TPB studies focus on general populations rather than micro-business actors, thereby limiting their contextual relevance. Another critical limitation is that TPB studies often assume a certain level of behavioural control and access to resources, which may not hold true for micro-businesses in less-developed regions. In areas like Gorontalo, limited access to infrastructure and digital tools may significantly constrain perceived behavioural control, thereby affecting adoption decisions. However, this contextual variation is rarely explored in depth in existing studies.

2.4 Integration of TAM and TPB

To address the limitations of individual models, recent studies have proposed integrating TAM and TPB to provide a more comprehensive explanation of fintech adoption (Papanikolaou et al., 2025). This integrated framework combines technological perceptions (perceived usefulness and ease of use) with behavioural and social factors (attitude, subjective norms, and perceived behavioural control), thereby offering a more holistic understanding of user behaviour. Empirical findings suggest that integrating TAM and TPB improves explanatory power compared with using either model independently. For example, perceived usefulness and ease of use influence attitudes, which subsequently shape behavioural intention, while subjective norms and perceived behavioural control capture social and contextual influences (Al-Sharafi et al., 2025). Despite their theoretical advantages, the application of integrated TAM–TPB models in fintech research remains limited, particularly in the context of micro-businesses.

Most existing studies using integrated models are still conducted in urban settings or focus on general consumers, with limited attention to regional differences and micro-enterprise characteristics. In addition, although some studies acknowledge the importance of perceived risk and trust, these variables are often not fully integrated into the analytical framework. This indicates that current models may still fall short in capturing the complexity of fintech adoption in real-world contexts. Therefore, this study contributes to the literature by applying an integrated TAM–TPB framework in a specific regional context, namely Gorontalo City, while emphasising the role of contextual factors such as perceived risk, trust, and local business conditions. By doing so, this research addresses the limitations of previous studies and provides a more nuanced understanding of fintech adoption among micro-businesses.

2.5 Hypotheses

2.5.1 Perceived Ease of Use and Fintech Adoption

Perceived ease of use refers to the degree to which an individual believes that using a system would be free of effort. In the context of fintech, micro-business owners are more likely to adopt financial technology when the system is simple, user-friendly, and does not require advanced technical skills. This is particularly important in regions with relatively low digital literacy, as complex systems may discourage adoption (Wilson et al., 2021). Previous studies consistently demonstrate that ease of use positively influences the adoption of digital financial services. When users perceive fintech applications as easy to learn and use, they are more likely to develop a

favourable impression and subsequently adopt the technology. In micro-business contexts, where time and resources are limited, ease of use becomes a critical factor in reducing resistance to new technology.

H₁: Perceived ease of use has a positive effect on fintech adoption

2.5.2 Effectiveness and Fintech Adoption

Effectiveness refers to the extent to which fintech services are perceived to improve business performance, efficiency, and productivity. For micro-businesses, fintech adoption is often driven by practical considerations, such as faster transactions, better financial record management, and improved access to financial resources. Empirical evidence suggests that perceived effectiveness significantly influences technology adoption decisions, particularly in business environments. Micro-entrepreneurs are more likely to adopt fintech when they perceive clear and tangible benefits that directly enhance their operations. However, if fintech services do not demonstrate measurable improvements in efficiency or profitability, adoption rates may remain low. In regions like Gorontalo, where businesses often operate with limited margins, the perceived effectiveness of fintech plays a crucial role in determining whether entrepreneurs are willing to adopt new technologies.

H₂: Effectiveness has a positive effect on fintech adoption

2.5.3 Perceived Risk and Fintech Adoption

Perceived risk refers to the potential negative consequences associated with using fintech services, including financial loss, data security concerns, and privacy issues. In the context of digital financial services, risk perception is a critical factor that may hinder adoption, especially among micro-businesses that are less familiar with technology. Previous studies indicate that perceived risk negatively influences fintech adoption. Concerns about security, fraud, and system reliability often reduce users' trust and willingness to adopt digital financial services. This issue is particularly significant in less-developed regions, where awareness and understanding of fintech systems may be limited. Moreover, micro-business owners tend to be more risk-averse due to their limited financial capacity. As a result, even if fintech offers potential benefits, high perceived risk may discourage adoption. Therefore, reducing perceived risk is essential to increasing fintech usage among micro-enterprises.

H₃: Perceived risk has a negative effect on fintech adoption

3. Research Methods

3.1 Data

This study employs a quantitative research approach to examine the relationships among perceived ease of use, effectiveness, perceived risk, and the use of financial technology among micro-businesses in Gorontalo City. The population of this study consists of all registered micro-enterprises in Gorontalo City, totalling 11,806 units in 2023. To determine the sample size, this study uses the Slovin formula, which is commonly used when the population size is known but population variability is uncertain. By applying a margin of error of 10%, the calculation resulted in a sample size of 99 respondents. The use of the Slovin formula is appropriate in this context because the population is relatively homogeneous in business scale and characteristics, allowing for a smaller yet statistically representative sample.

Furthermore, the selected sample size is deemed adequate for quantitative analysis, particularly for multiple regression, as it meets the minimum requirement for estimating relationships among variables. The sample also provides sufficient statistical power to detect significant effects. To ensure representativeness, respondents were selected through purposive sampling, targeting micro-business owners with experience or exposure to fintech services. This criterion ensures that the collected data is relevant to the research objectives and reflects actual user perspectives in the local context.

3.2 Variable measurement

The data were collected using a structured questionnaire adapted from previous empirical studies grounded in the Technology Acceptance Model (TAM) and fintech adoption literature. All variables were measured using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each variable was operationalised using several indicators presented in Table 1.

Table 1. Variable Measurement

Variable	Indicator
Ease of use	<ol style="list-style-type: none"> 1. Ease of learning, 2. Easily do what users want, 3. Convenience that can increase user desire, 4. Ease of operation.
Effectiveness	<ol style="list-style-type: none"> 1. Program understanding. 2. Right on target. 3. On time. 4. Achievement of goals. 5. Real change.
Risk	<ol style="list-style-type: none"> 1. Psychological Risks, 2. Financial Risks, 3. Performance Risk. 4. Physical Risks, 5. Social Risk. 6. Psychological Risks, 7. Financial Risks, 8. Performance Risk. 9. Physical Risks, 10. Social Risk.
Use of Fintech	<ol style="list-style-type: none"> 1. Quick. 2. Efficient. 3. Easy to access. 4. Safe to use (Prastika, 2019)

To ensure measurement validity, the questionnaire items were first reviewed by experts in finance and information systems to assess content validity and relevance to the research context. In addition, a pilot test was conducted on a small group of respondents to evaluate clarity, wording, and consistency of the items. Construct validity was further assessed using correlation analysis, while reliability was evaluated using Cronbach's alpha, with a threshold value of 0.70 indicating acceptable internal consistency.

3.3 Estimation strategy

To test the proposed hypotheses, this study employs multiple linear regression analysis. This method is selected because it allows examination of the simultaneous effects of multiple independent variables—perceived ease of use, effectiveness, and perceived risk—on the dependent variable, namely, the use of fintech. Prior to hypothesis testing, classical assumption tests were conducted, including tests for normality, multicollinearity, and heteroscedasticity, to ensure the validity of the regression model. The significance of individual variables was assessed using T-tests, while the overall model fit was evaluated using the F-test. Additionally, the coefficient of determination (R^2) was used to assess the model's explanatory power in explaining variation in fintech usage. The use of multiple regression analysis is appropriate for this study as it aligns with the research objective of identifying the magnitude and direction of relationships between variables. This approach also allows for a clear evaluation of each hypothesis (H1–H3) and provides empirical evidence on the key determinants of fintech adoption among micro-businesses in Gorontalo City.

4. Results and Discussion

4.1. Results

4.1.1 Gender

The results show that the total number of respondents in this study is 99 micro-business actors. Of these, 35 respondents (35%) are male and 64 (65%) are female (Table 2). This indicates that the sample is dominated by female respondents, reflecting the actual condition in Gorontalo City, where a significant proportion of micro-enterprise activities are managed by women.

Table 2. Number and Percentage of Respondents by Gender

Gender	Sum	%
Male	35	35%
Woman	64	65%
Total	99	100%

Source: Processed data (2025)

4.1.2 Age of Business Actors

The results in Table 3 indicate that, out of 99 respondents, 53 (54%) are aged between 20 and 30 years, while 46 (46%) are over 30 years old. This suggests that most micro-business actors in this study fall within the younger age group (20–30 years), indicating relatively higher participation by young entrepreneurs in micro-enterprise activities in Gorontalo City.

Table 3. Number of Respondents by Age

Age	Sum	Percentage (%)
20-30 Years	53	54%
> 30 Years	46	46%
Total	99	100%

Source: Processed data (2025)

4.1.3 Business Domicile

Gorontalo City comprises nine sub-districts, and the respondents in this study are distributed across all of them. The results show that 19 micro-businesses are in Kota Selatan, followed by 14 in Middle City. Meanwhile, North City, West City, East City, and Hulonthalangi each have 9 respondents (see Table 4). In addition, Dumbo Raya and Duingingi each contribute 10 respondents, while Sipatana has the smallest number with 8 micro-businesses. This distribution indicates that the sample adequately represents micro-business actors across all sub-districts in Gorontalo City.

Table 4. Number of Respondents by Business Domicile

Domicile	Sum	Percentage (%)
Kota Utara	9	9%
Kota Tengah	14	14%
Kota Selatan	19	19%
Kota Barat	9	9%
Kota Timur	9	9%
Hulonthalangi	9	9%
Dumbo Raya	10	10%
Duingingi	10	10%
Sipatana	8	8%
Total	99	100%

Source: Processed data (2025)

4.1.4 Businesses that either utilise or do not utilise Fintech services

The results indicate that 57 micro-businesses (58%) have used fintech services, while 42 businesses (42%) have not yet adopted fintech (see Table 5). This finding shows that the number of micro-businesses utilising fintech services is relatively higher than those that do not, suggesting a growing level of fintech adoption among micro-enterprises in Gorontalo City.

Table 5. Number of Respondents

Using Fintech Services	Sum	Percentage (%)
Yes	57	58%
No	42	42%
Total	99	100%

Source: Processed data (2025)

4.1.5 Validity Testing

This study examines four variables, each measured using several questionnaire items (Table 6). On average, each variable consists of five items, except for the perceived risk variable, which is measured using four items. The results of the validity test indicate that all questionnaire items, both for independent and dependent variables, have correlation coefficients (r -calculated) greater than the critical value (r -table). Therefore, all items are considered valid, and the data collected from the field are deemed appropriate for further analysis.

Table 6. Validity Test Results

Statement Items	r-count	R-Table	Information
<i>Perception of Ease</i>			
Statement 1: I don't feel like it takes a lot of effort to understand fintech applications	0.611	0.1975	Valid
Statement 2: I find fintech apps not difficult to learn	0.522	0.1975	Valid
Statement 3: I find it easy to operate a fintech payment system according to what I want to do and need	0.596	0.1975	Valid
Statement 4: I feel that the payment system through fintech applications is easy to use	0.613	0.1975	Valid
Statement 5: I find the fintech application payment system very clear and easy to understand	0.555	0.1975	Valid
<i>Effectiveness</i>			
Statement 6: I feel that using fintech services can make it easier and more effective for my business	0.386	0.1975	Valid
Statement 7: I feel that fintech services help me achieve my targeted financial goals	0.443	0.1975	Valid
Statement 8: I feel that I can complete transactions using fintech quickly and efficiently	0.426	0.1975	Valid
Statement 9: Fintech makes it easier for me to manage my finances according to my plan	0.501	0.1975	Valid
Statement 10: I feel that using fintech services has made a positive change in terms of finances for my business	0.484	0.1975	Valid
<i>Risk</i>			
Statement 11: I feel anxious when using fintech services because I am worried about transaction errors	0.610	0.1975	Valid
Statement 12: I am worried that I will lose money if there is a mistake in the transaction through fintech	0.383	0.1975	Valid
Statement 13: I feel not sure that fintech can always deliver the services promised	0.443	0.1975	Valid
Statement 14: I am worried about the potential theft of personal data or financial information when using fintech services	0.661	0.1975	Valid
Statement 15: I feel that the use of fintech can reduce the social interaction that usually occurs when making traditional financial transactions	0.516	0.1975	Valid

Use of Fintech

Statement 16: I think using fintech services can help speed up work	0.526	0.1975	Valid
Statement 17: I feel that the use of fintech helps ease work	0.531	0.1975	Valid
Statement 18: I feel that fintech services help work be more efficient	0.486	0.1975	Valid
Statement 19: I think fintech services are easily accessible through any platform	0.564	0.1975	Valid
Statement 20: I can use fintech services anytime as per my needs	0.474	0.1975	Valid

Source: Processed data (2025)

4.1.6 Reliability Testing

A reality test is a questionnaire used to measure an indicator of a variable or construct. A questionnaire is said to be reliable if a person's answers to a statement are consistent or stable over time. A variable is considered reliable if it has a Cronbach's alpha > 0.60, as shown in Table 7.

Table 7. Reliability Test Results

Variable	Cronbach Alpha	Role of Thumb	Information
Facilities	0.774	0.6	Reliable
Effectiveness	0.772	0.6	Reliable
Risk	0.607	0.6	Reliable
Usage	0.735	0.6	Reliable

Source: Processed data (2025)

4.1.7 Regression Result

Table 8 shows that the calculated t value for the convenience variable is 2.804, with a p-value of 0.006. The results of the analysis of t calculation 2.804 are greater than t table 1.98525 or sig. 0.006 is smaller than 0.05, meaning that individually the convenience variable has a significant effect on the use of fintech. The calculated t-value for the effectiveness variable was 3.719, with a p-value of 0.000. The results of the analysis t = 3.719) are greater than the t-table value (1.98525), or sig. 0.000 is smaller than 0.05, meaning that individually the effectiveness variable has a significant effect on the use of fintech. The calculated t-value for the risk variable is 1.598, with a p-value of 0.113. The results of the analysis of t (1.598) are smaller than the t table (1.98525) or sig. 0.113 is greater than 0.05, meaning that individually the risk variables do not have a significant effect on fintech use.

Table 8. Regression Results

Type	Sig.
Usefulness	.006
Effectiveness	.000
Risk	.113

Source: Processed data (2025)

4.2 Discussion

The respondents in this study consisted of 99 micro-business actors in Gorontalo City, distributed across nine sub-districts. The sample is dominated by female entrepreneurs (65%), with the majority aged between 20 and 30 years. This demographic composition reflects the growing role of young and female entrepreneurs in micro-enterprise activities. Additionally, 58% of respondents have already adopted fintech services, indicating a relatively moderate level of digital financial adoption in the region. This variation provides a relevant basis for examining how perceived ease of use, effectiveness, and risk influence fintech usage.

4.2.1 The Influence of Perceived Ease of Use on FinTech Usage

The results show that perceived ease of use has a positive and significant effect on fintech usage. This finding indicates that the simpler and more user-friendly fintech platforms are, the more likely micro-business actors are to adopt and continuously use them. In practical terms, ease of use reduces cognitive and operational barriers, which is particularly important for micro-entrepreneurs with limited digital literacy (Okky & Rini, 2021). This result is consistent with prior studies that identify ease of use as a key determinant of fintech adoption, especially among MSMEs and users in developing regions (Noviyanti, A., & Erawati, 2021). However, compared with studies conducted in more digitally advanced urban areas, where ease of use is sometimes less significant, this study highlights that ease of use remains a critical factor in regions like Gorontalo. This suggests that the importance of ease of use is context-dependent, becoming more influential in environments with lower technological exposure. From a theoretical perspective, this finding supports the Technology Acceptance Model (TAM), which posits that perceived ease of use directly influences user acceptance. In the case of micro-businesses, ease of use not only facilitates initial adoption but also encourages sustained usage, as entrepreneurs prefer technologies that do not require extensive training or technical expertise.

4.2.2 The Influence of Effectiveness on FinTech Usage

The findings also indicate that effectiveness has a positive and significant effect on fintech usage, with the largest standardised coefficient among all variables. This suggests that effectiveness is the most dominant factor influencing fintech adoption among micro-businesses in Gorontalo City. This result implies that micro-business actors prioritise tangible and outcome-oriented benefits when deciding to adopt fintech. Technologies that enable faster transactions, improve financial record-keeping, and expand customer reach are perceived as highly valuable. This aligns with previous research emphasising that perceived usefulness or performance benefits are the strongest drivers of technology adoption (Kartini et al., 2024). Interestingly, the emphasis on effectiveness over ease of use suggests that micro-businesses are concerned not only with how easy a system is to operate but also with how much value it delivers. This finding extends prior studies by showing that in resource-constrained environments, the practical impact of technology may outweigh usability considerations. In other words, even if some technical difficulties exist, micro-entrepreneurs are willing to adopt fintech if it significantly improves their business performance.

4.2.3 The Influence of Perceived Risk on FinTech Usage

In contrast, the results reveal that perceived risk does not have a significant effect on fintech usage. This finding suggests that concerns related to security, privacy, or potential financial loss do not significantly influence the adoption decisions of micro-business actors in Gorontalo City. This result differs from several prior studies that identify perceived risk as a major barrier to fintech adoption. However, it is consistent with other findings in contexts where fintech usage has become more familiar and normalised (Putri, 2022). One possible explanation is that micro-business actors in Gorontalo have developed sufficient trust in fintech platforms, supported by increased exposure, government regulations, and the widespread use of services such as mobile payments and QR-based transactions. Another explanation is that micro-entrepreneurs may adopt a pragmatic approach in which the perceived benefits of fintech outweigh potential risks. In this case, factors such as convenience and effectiveness become more salient, while risk is considered a secondary concern. This reflects a shift from risk-averse behaviour to benefit-oriented decision-making, particularly in environments where fintech provides clear economic advantages. From a theoretical perspective, this finding suggests that the role of perceived risk may be context-dependent and moderated by factors such as trust, experience, and familiarity. As users become more accustomed to fintech services, the perceived uncertainty decreases, reducing its influence on adoption behaviour.

5. Conclusion

This study concludes that perceived ease of use and effectiveness have a positive and significant influence on fintech usage among micro-businesses in Gorontalo City, while perceived risk does not have a significant effect. These findings highlight that micro-entrepreneurs are primarily driven by practical considerations, namely the system's simplicity and the tangible benefits it provides for their business operations. From a theoretical perspective, this study contributes to the existing body of knowledge on fintech adoption by reinforcing the applicability of the Technology Acceptance Model (TAM) in micro-enterprise contexts, particularly in less-developed regions. The results demonstrate that perceived usefulness (represented by effectiveness) and perceived ease of use remain central determinants of adoption behaviour. At the same time, the insignificant effect of perceived risk suggests a contextual shift in user behaviour, where familiarity, trust, and repeated exposure to fintech services may reduce the perceived importance of risk. This finding adds nuance to previous studies that emphasise risk as a major barrier, indicating that its role may diminish in environments where fintech adoption has reached a certain level of maturity.

From a policy perspective, these findings suggest that local governments should prioritise strategies that enhance usability and demonstrate the real benefits of fintech for micro-businesses. This can be achieved through improving digital infrastructure, expanding digital literacy and training programs, and fostering partnerships between fintech providers and MSME development institutions. By focusing on user-friendly systems and outcome-oriented solutions, policymakers can accelerate fintech adoption and promote financial inclusion at the regional level. In terms of practical implications, micro-business actors are encouraged to adopt fintech solutions that offer clear operational advantages, such as efficient payment systems and better financial management tools. Fintech providers, on the other hand, should focus on designing simple, intuitive platforms tailored to micro-enterprises' needs, while also providing ongoing user support and education. Although perceived risk was not significant, maintaining strong security systems and transparent data protection policies remains essential to sustain long-term user trust and prevent future concerns.

Despite its contributions, this study has several limitations. First, the research is limited to micro-businesses in Gorontalo City, which may restrict the generalizability of the findings to other regions with different levels of economic development, digital infrastructure, and cultural characteristics. For instance, fintech adoption behaviour in larger urban areas or more developed regions may be influenced by different factors, such as higher technological readiness or more intense market competition. Second, the focus on micro-enterprises excludes other types of businesses, such as small and medium enterprises (SMEs) or larger firms, which may exhibit different adoption patterns and decision-making processes. Third, the use of cross-sectional and self-reported questionnaire data may introduce response bias and limit the ability to capture changes in behaviour over time.

Future research is therefore recommended to expand the scope of analysis by including multiple regions with varying levels of digital maturity and different categories of businesses to improve the generalizability of the findings. Longitudinal studies could also be conducted to examine how fintech adoption evolves over time and how user perceptions change with increased experience. In addition, future studies should consider incorporating additional variables such as trust, digital literacy, financial knowledge, and regulatory awareness to provide a more comprehensive understanding of fintech adoption behaviour. Exploring the moderating role of contextual factors, such as infrastructure readiness or government support, would also offer valuable insights into how fintech adoption can be effectively promoted across different environments.

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References

- Al-Sharafi, M. A., Muhammed, I., Alzaeemi, S., Albashrawi, M. A., Chae, I., & Dwivedi, Y. K. (2025). Factors shaping FinTech adoption: a systematic review, key determinants, theoretical insights, conceptual framework and future research directions. *Information Discovery and Delivery, May 2025*. <https://doi.org/10.1108/IDD-04-2025-0098>
- Arta, T. L. F., & Azizah, S. N. (2020). Pengaruh Perceived Usefulness, Perceived Ease Of Use dan E-Service Quality Terhadap Keputusan Menggunakan Fitur Go-Food dalam Aplikasi Gojek. *Jurnal Ilmiah Mahasiswa Manajemen, Bisnis Dan Akuntansi (JIMMBA)*, 2(2), 291–303. <https://doi.org/10.32639/jimmba.v2i2.478>
- Da Silva, S. R. T., de Matos Coelho, A. F., & Proença, C. A. N. (2026). Drivers of FinTech adoption: a bibliometric approach. *Financial Innovation*, 12(1), 83. <https://doi.org/10.1186/s40854-025-00855-z>
- Demir, A., Pesqué-Cela, V., Altunbas, Y., & Murinde, V. (2022). Fintech, financial inclusion and income inequality: a quantile regression approach. *The European Journal of Finance*, 28(1), 86–107. <https://doi.org/10.1080/1351847X.2020.1772335>
- Goswami, S., Chouhan, V., & Saraswat, P. (2025). FinTech adoption: driving financial inclusion at the bottom of pyramid. *Future Business Journal*, 11(1), 150. <https://doi.org/10.1186/s43093-025-00570-2>
- Ha, D., Le, P., & Nguyen, D. K. (2025). Financial inclusion and fintech: a state-of-the-art systematic literature review. *Financial Innovation*, 11(1), 69. <https://doi.org/10.1186/s40854-024-00741-0>
- Irimia-Diéguez, A., Velicia-Martín, F., & Aguayo-Camacho, M. (2023). Predicting Fintech Innovation Adoption: the Mediator Role of Social Norms and Attitudes. *Financial Innovation*, 9(1), 36. <https://doi.org/10.1186/s40854-022-00434-6>
- Kartini, T., Sugeng, B., Wahyono, H., & Wardoyo, C. (2024). Determinants of Financial Technology (Fintech) Adoption Behavior in personal financial management among economics education students in east Java. *Jurnal Ekonomi Pendidikan dan Kewirausahaan*, 13(1), 21–58. <https://doi.org/10.26740/jepk.v13n1.p21-58>
- Marco, M., & Arifin, A. Z. (2024). Perceived Benefits And Perceived Behavioral Control Toward Fintech Adoption Intention In Banking Products. *JPS (Jurnal Perbankan Syariah)*, 5(2), 229–246. <https://doi.org/10.46367/jps.v5i2.1794>
- Noviyanti, A., & Erawati, T. (2021). Pengaruh Persepsi Kemudahan, Kepercayaan dan Efektivitas terhadap Minat Menggunakan Financial Technology (Fintech)(Studi Kasus: UMKM di Kabupaten Bantul). *Jurnal Ilmiah Akuntansi Dan Finansial Indonesia*, 4(2), 65–74. <https://doi.org/https://doi.org/10.31629/jiafi.v4i2.3253>
- Okky, N., & Rini, T. (2021). The Effect Of Perception Of Trust, Perception Of Ease Of Use, Perception Of Benefits, Perception Of Risk And Perception Of Service Quality On Interest In Using Mobile Banking Bank Independent In Bekasi City. *International Journal of Science, Technology & Management*, 2(5), 1722–1730. <https://doi.org/10.46729/ijstm.v2i5.344>
- Papanikolaou, N., Boufounou, P., & Eriotis, N. (2025). Determinants of Fintech Adoption: A

- Systematic Review Integrating Trust, Security, and User Perceptions within Technology Acceptance Frameworks. In *Cryptocurrencies - Innovations, Challenges, and Future Prospects*. IntechOpen. <https://doi.org/10.5772/intechopen.1011799>
- Prastika, Y. (2019). *Pengaruh Financial Technology (Fintech) terhadap Profitabilitas perbankan syariah*. [Universitas Islam Negeri Raden Intan Lampung]. <http://repository.radenintan.ac.id/7911/1/SKRIPSI YULIA.pdf>
- Putri, S. K. (2022). Pengaruh Persepsi Kemudahan, Manfaat dan Risiko terhadap Minat Menggunakan Financial Technology pada Masyarakat Kota Banda Aceh. *Repository Ar-Raniry*, 1–153. <https://repository.ar-raniry.ac.id/id/eprint/25838>
- Wilson, N., Keni, K., & Tan, P. H. P. (2021). The role of perceived usefulness and perceived ease-of-use toward satisfaction and trust which influence computer consumers' loyalty in china. *Gadjah Mada International Journal of Business*, 23(3), 262–294. <https://doi.org/10.22146/gamaijb.32106>