




The Effect of QRIS Usage and Transaction Convenience on Increasing MSME Sales in Surabaya Through Transaction Volume as an Intervening Variable

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ARTICLE INFO	ABSTRACT
<p><i>Keywords:</i> QRIS, Transaction Convenience, Transaction Volume, Sales Increase, MSMEs.</p> <p><i>Received :</i> 20 February <i>Revised :</i> 20 April <i>Accepted:</i> 22 May</p> <p>©2026 Pratiwi, Muslimin: This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International license.</p> 	<p>This research aims to analyze the influence of Quick Response Code Indonesian Standard (QRIS) usage and transaction convenience on the sales increase of Micro, Small, and Medium Enterprises (MSMEs) in Surabaya, with transaction volume as an intervening variable. Along with the acceleration of digital transformation driven by Bank Indonesia policies, QRIS has become an important instrument in digital financial inclusion. Research data were collected through questionnaires distributed to MSME actors in Surabaya who had adopted QRIS. Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach with SmartPLS 4.</p> <p>The results show that QRIS usage and transaction convenience have a positive and significant effect on transaction volume. In addition, transaction volume significantly mediates the relationship between QRIS usage, transaction convenience, and the increase in MSME sales. These findings indicate that payment digitalization not only simplifies transaction processes but also improves business financial performance through higher transaction intensity.</p>

INTRODUCTION

Digital transformation in Indonesia's payment system has developed very rapidly in recent years, along with changes in consumer behavior that increasingly rely on technology as the basis of daily activities. This phenomenon has been driven by accelerated adoption of the digital economy, triggered by the need for safer, faster, and more efficient transactions amid increasingly competitive market dynamics that demand high adaptability. Bank Indonesia, as the monetary authority, has launched the *Quick Response Code Indonesian Standard*, better known as *QRIS*, as a universal national standard for digital payments (Bank Indonesia, 2020).

The presence of *QRIS* aims to integrate various types of non-cash payment methods from different Payment System Service Providers (*PJSP*) into a single code that can be scanned by all applications. In a major city such as Surabaya, *QRIS* adoption is highly relevant given the city's position as one of the largest centers of economic and trade growth in East Java (Bank Indonesia, 2025b). Micro, Small, and Medium Enterprises (*MSMEs*) have a strategic role as the backbone of the regional economy and require technological support to survive in an increasingly digital era of globalization. The implementation of *QRIS* in the *MSME* sector is expected to have a direct positive impact on operational efficiency and financial transparency, which have long been classic obstacles for business actors. Therefore, this study considers it necessary to examine in depth how the use of this technology can influence the sales performance of business actors through the mechanism of daily transaction volume.

In the broader context of national policy, Bank Indonesia continues to encourage the use of *QRIS* as the main entry point for small business actors to enter the formal digital economic ecosystem (Rizka Khaerunnisa, 2025). *QRIS* makes it easier for *MSMEs* to record every incoming transaction automatically without having to provide change or face the risk of receiving counterfeit money that may cause losses.

Theoretically, the convenience offered by digital payment technology should be directly proportional to higher interest and usage levels among the wider community across various social groups. This is in line with the principle of ease of use, which is one of the main pillars in the acceptance of new technology by individuals and small-scale business entities (Hadi & Bhilawa, 2025). Surabaya, with its dynamic and innovation-oriented society, is an ideal laboratory for observing the extent to which *QRIS* is effective in changing conventional transaction patterns. However, challenges such as digital literacy and trust in system security remain crucial issues that must be addressed through continuous education. Legal certainty and clear standardization through Bank Indonesia regulations provide a strong foundation for *MSME* actors in Surabaya to fully transition to *QRIS*. The expected increase in sales is not merely numerical growth on paper, but also includes expansion of market share and a broader new customer base. Through the increase in daily transaction volume, business actors can now observe their business growth patterns more measurably through stored digital data traces.

The use of *QRIS* is also believed to increase the attractiveness of business units in the eyes of customers, who currently prefer the practicality of making payments using their smartphones. Customers no longer need to worry if they do not carry large amounts of cash when visiting *MSME* stalls or outlets that already provide *QRIS* payment facilities (Annida et al., 2024).

In Surabaya itself, many city government programs require merchants in culinary tourism centers to use digital payment methods as part of the modernization of public services. This is consistent with findings that perceived usefulness and ease of use are the main drivers for individuals to continue using digital payment systems in their activities (Azisma & Farida, 2024).

The growth of digital transaction volume in East Java, particularly in Surabaya, shows a steadily increasing trend each quarter along with the growing number of registered *QRIS* merchants. Data from Bank Indonesia indicate that the public has become increasingly accustomed to using contactless payments as part of a healthy and modern lifestyle after the pandemic period (Bank Indonesia, 2024b). This transformation has not only changed how people pay, but also how *MSME* actors view the importance of transaction data management for future business planning. The influence of convenience, lifestyle, and trust has proven to be inseparable from interest in using *QRIS* across various layers of society (Sari et al., 2024).

Several previous studies have discussed the influence of *QRIS* adoption, transaction convenience, and digital payment systems on consumer behavior and business performance. However, the findings remain inconsistent. Some studies emphasize that *QRIS* significantly improves transaction efficiency and customer satisfaction, while other studies show that the increase in sales performance is not always directly influenced by digital payment adoption alone. Most previous research also focused only on the direct relationship between *QRIS* usage and sales improvement without examining the mediating role of transaction volume in greater depth. In addition, studies specifically discussing *MSMEs* in Surabaya are still limited, even though Surabaya is one of the largest digital economic centers in Indonesia with rapid *QRIS* merchant growth.

Based on these conditions, this study offers novelty by placing transaction volume as an intervening variable in analyzing the relationship between *QRIS* usage, transaction convenience, and sales increase among *MSMEs* in Surabaya. This research not only examines the direct impact of digital payment adoption, but also explains the mechanism through which transaction intensity can influence business sales performance. Therefore, this study is expected to enrich the literature related to digital payment systems, technology acceptance, and *MSME* financial performance in the context of developing economies.

MSME actors who are able to adapt to this trend tend to have better business resilience than those who ignore developments in financial technology. Increased transaction volume is the earliest indicator that can be easily observed before it is eventually reflected in larger annual sales figures. As a trade center, Surabaya requires a strong digital ecosystem to support the rapid and large circulation of money that occurs every day. Without an integrated payment system such as *QRIS*, mass transactions at the retail level would face many

obstacles, such as inefficient transaction times. Therefore, this study seeks to statistically prove whether transaction volume truly becomes a key intervening variable in the relationship between technological influence and profitability.

Overall, the relationship among *QRIS* usage, transaction convenience, transaction volume, and sales increase forms a modern and resilient model of microeconomic growth. Future economic challenges that are increasingly uncertain require small business actors to be ready to adapt to every market change. Digitalization is no longer an optional choice for business actors, but a survival strategy amid intense global market competition. The increase in digital transaction volume reflects the public's trust, which is increasingly recovering and strengthening, in the technology-based national financial system (Meisya Novra Gusma, 2025). Through this study, concrete recommendations are expected to emerge for *MSME* actors and banking institutions to continue improving the quality of their digital services. Continuous innovation in payment systems will ensure that *MSMEs* remain resilient engines of economic growth and are always adaptive to the times. The results of this study will also enrich the literature on consumer behavior and technology acceptance in the context of a developing economy in Indonesia, particularly in Surabaya. Thus, strengthening the *MSME* sector through *QRIS* optimization is a strategic step toward realizing Indonesia's vision as a leading digital economic center.

LITERATURE REVIEW

Quick Response Code Indonesian Standard (QRIS)

QRIS is a national QR code standard developed by *Bank Indonesia* to facilitate efficient, secure, and seamless non-cash payment transactions. *QRIS* is designed to be inclusive, so that one QR code can be used by all payment applications from various officially licensed financial service providers. This system accelerates the transaction process because it no longer requires the exchange of physical money and reduces the risk of disease transmission or the circulation of counterfeit money (Bank Indonesia, 2020).

From the perspective of technology acceptance theory, the use of *QRIS* reflects the principle of perceived ease of use and perceived usefulness, where users tend to adopt technology that is considered practical, efficient, and beneficial in supporting business activities. For *MSME* actors, *QRIS* not only functions as a payment tool but also as a strategy to improve operational efficiency, financial transparency, and customer convenience. The easier and more flexible the payment system is, the greater the opportunity for consumers to conduct transactions repeatedly, which can ultimately contribute to increasing business sales performance.

Transaction Volume as an Intervening Variable

Transaction volume refers to the frequency and total value of transactions that occur within a certain period in a business unit after using a digital payment system. In this study, transaction volume is positioned as an intervening variable that bridges the relationship between payment technology and final sales performance among *MSME* actors. An increase in transaction volume indicates

that digital payment systems can encourage consumer spending intensity because the process is fast and practical for both parties (Yasik et al., 2025).

The relationship between transaction convenience and sales volume is often mediated by how often customers make small transactions that accumulate into a large amount each day. QRIS enables transactions in even the smallest denominations without the obstacle of providing change, which is often a major barrier in conventional cash transactions. As a result, customers' daily shopping frequency tends to increase, which is then reflected in more stable overall business transaction volume growth (Putri Sahya Fadiyah et al., 2024).

Conceptually, transaction volume plays an important role in connecting digital payment adoption with sales growth. The easier consumers make transactions through QRIS, the higher the possibility of repeated purchases and transaction intensity. This condition shows that transaction volume does not only represent the number of transactions, but also reflects changes in consumer behavior toward more practical and cashless transactions. Therefore, transaction volume becomes a strategic indicator in explaining how payment digitalization can indirectly improve MSME business performance.

MSME Sales Increase

Sales increase is a key indicator of business success, marked by growth in revenue, profit, and the number of customers within a certain period. In the digital economy era, sales growth is strongly influenced by the ability of MSMEs to integrate various payment platforms and promotional strategies that are relevant to current market trends. Financial technology use has been proven to have a significant impact on profitability growth for small business actors who can adapt quickly (Alifiyah & Purwanti, 2024).

The relationship among QRIS usage, transaction convenience, transaction volume, and sales increase illustrates an integrated digital business ecosystem. The implementation of digital payment systems not only simplifies transaction mechanisms, but also creates opportunities for MSMEs to expand their market reach and improve customer loyalty. In this context, transaction volume acts as a connecting mechanism that strengthens the influence of payment technology on sales growth. Thus, the synthesis of these variables confirms that the success of payment digitalization is not only measured by technology adoption itself, but also by its ability to encourage sustainable business transaction activities and improve financial performance.

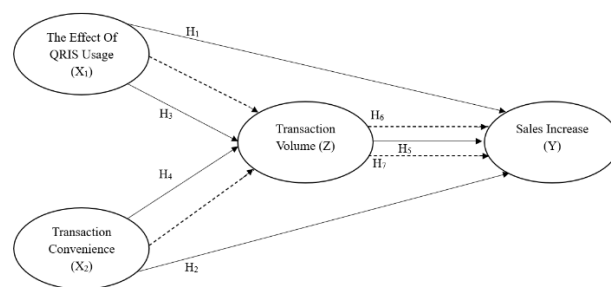


Figure 1. Conceptual Framework

- H1 : QRIS usage affects sales increase
- H2 : Transaction convenience affects sales increase
- H3 : QRIS usage affects transaction volume
- H4 : Transaction convenience affects transaction volume
- H5 : Transaction volume affects sales increase
- H6 : Transaction volume can mediate the effect of QRIS usage on sales increase
- H7 : Transaction volume can mediate the effect of transaction convenience on sales increase.

METHODOLOGY

This study uses a quantitative approach with a correlational design to test the hypotheses proposed based on the formulated research model. The population in this study consists of all MSME actors in Surabaya who have used QRIS as a payment method for at least the last six months to ensure consistency of use. The sampling technique was carried out using purposive sampling to ensure that selected respondents had sufficient experience in using the technology (Campbell et al., 2020). Based on the research criteria, a valid sample of 126 respondents was collected for analysis in accordance with the minimum sample size requirements (Sofyani, 2023).

RESEARCH RESULT

This study uses two independent variables, namely QRIS usage and transaction convenience. In addition, this study uses transaction volume as an intervening variable and sales increase as the dependent variable. The data used in this study were obtained from questionnaires distributed to Micro, Small, and Medium Enterprise (MSME) actors in Surabaya who have used QRIS as a digital payment system. The research object is focused on MSMEs registered as E-PEKEN Surabaya partners, because business actors in this program have implemented QRIS in their daily transaction activities.

Table 1 Results of Discriminant Validity Test Estimation (AVE)

Variable	Average variance extracted (AVE)	Conclusion
Transaction Convenience (X2)	0.630	≥ 0.50 (Valid)
QRIS Usage (X1)	0.628	≥ 0.50 (Valid)
Sales Increase (Y)	0.633	≥ 0.50 (Valid)
Transaction Volume (Z)	0.704	≥ 0.50 (Valid)

Based on the Average Variance Extracted (AVE) values in Table 1 above, it can be concluded that all variables in this study have AVE values above 0.50. This indicates that each construct is able to explain more than 50% of the variance of its indicators, thereby meeting the criteria for convergent validity. Thus, all variables are declared valid, have good measurement quality, and are appropriate for use in subsequent analysis.

Table 2 Results of Discriminant Validity Test Estimation (AVE Square Root)

Variable	(X2)	(X1)	(Z)	(Z)
Transaction Convenience (X2)	0.794			

QRIS Usage (X1)	-0.015	0.793		
Sales Increase (Y)	0.449	0.553	0.796	
Transaction Volume (Z)	0.432	0.465	0.662	0.839

Source: Data processed by the researcher (2026)

Based on the results of testing the Fornell-Larcker criterion in Table 4.8 above, it can be concluded that the AVE square root values for each construct, namely Transaction Convenience (X2) at 0.794, QRIS Usage (X1) at 0.793, Sales Increase (Z) at 0.796, and Transaction Volume (Z) at 0.839, are all higher than the correlations among other constructs. This indicates that each construct has a better ability to explain its own indicators than other constructs. Thus, it can be stated that this research model has met the discriminant validity criteria based on the Fornell-Larcker approach, so there is no measurement overlap among the variables and the constructs used have clear distinctions.

Table 3 Results of Reliability Test Estimation (Cronbach's Alpha)

Variable	Cronbach's alpha	Conclusion
QRIS Usage (X1)	0.881	≥ 0.70 (Reliable)
Transaction Convenience (X2)	0.853	≥ 0.70 (Reliable)
Transaction Volume (Z)	0.789	≥ 0.70 (Reliable)
Sales Increase (Y)	0.807	≥ 0.70 (Reliable)

Based on Table 3 above, it can be seen that all variables in this study have Cronbach's Alpha values of at least 0.70, namely QRIS Usage (X1) at 0.881, Transaction Convenience (X2) at 0.853, Transaction Volume (Z) at 0.789, and Sales Increase (Y) at 0.807. This indicates that each construct has a good level of internal consistency, so the indicators within it are able to measure the same concept in a stable manner. Thus, all variables are declared reliable and suitable for further analysis.

Table 4 Results of Reliability Test Estimation (Rho_A)

Variable	rho_a	Conclusion
QRIS Usage (X1)	0.891	≥ 0.70 (Reliable)
Transaction Convenience (X2)	0.855	≥ 0.70 (Reliable)
Transaction Volume (Z)	0.792	≥ 0.70 (Reliable)
Sales Increase (Y)	0.819	≥ 0.70 (Reliable)

Based on Table 4 above, it can be seen that all variables in this study have Rho_A values of at least 0.70, namely QRIS Usage (X1) at 0.891, Transaction Convenience (X2) at 0.855, Transaction Volume (Z) at 0.792, and Sales Increase (Y) at 0.819. This indicates that each construct has an adequate and stable level of internal consistency. Thus, all variables are declared reliable and have met the reliability test criteria based on Rho_A, making them suitable for further analysis.

Table 5 Results of Reliability Test Estimation (Composite Reliability)

Variable	Composite reliability (rho_c)	Conclusion
QRIS Usage (X1)	0.910	0.628
Transaction Convenience (X2)	0.895	0.630
Transaction Volume (Z)	0.877	0.704
Sales Increase (Y)	0.873	0.633

Based on the Composite Reliability values in Table 5 above, it can be seen that all variables in this study have Composite Reliability values above 0.70. This indicates that each construct has a high level of reliability, so the indicators used are able to measure the latent construct consistently and dependably. Thus, all variables are declared reliable and meet the reliability testing criteria in the PLS-SEM model, making them suitable for subsequent analysis.

Table 6 Results of R-Square Test Estimation

	<i>R-square</i>	<i>R-square adjusted</i>
Sales Increase (Y)	0.585	0.575
Transaction Volume (Z)	0.410	0.400

Based on Table 6 above, it can be seen that the R-Square value for the Sales Increase variable (Y) is 0.585, which falls into the moderate category. This means that 58.5% of the variance in Sales Increase can be explained by the independent variables in the model, while the remaining 41.5% is influenced by other factors outside the research model. Meanwhile, the R-Square value for Transaction Volume (Z) is 0.410, which also falls into the moderate category, indicating that 41% of the variance in Transaction Volume can be explained by the independent variables, while the remaining 59% is influenced by other variables not examined. Thus, it can be concluded that the research model has a fairly good explanatory ability in explaining the endogenous variables studied.

Table 7 Results of F-Square Test Estimation

Variable	Sales Increase (Y)	Transaction Volume (Z)
Transaction Convenience (X2)	0.169	0.327
QRIS Usage (X1)	0.275	0.377
Transaction Volume (Z)	0.170	

Based on Table 4.13 above, it can be seen that the magnitude of the influence of each exogenous variable on the endogenous variable varies. For the Sales Increase variable (Y), Transaction Convenience (X2) has an f-square value of 0.169, which is in the moderate category, while QRIS Usage (X1) has an f-square value of 0.275, which is also in the moderate category. This indicates that both variables provide a meaningful contribution to increasing sales.

Meanwhile, for the Transaction Volume variable (Z), Transaction Convenience (X2) has an f-square value of 0.327, which is in the moderate category approaching large, while QRIS Usage (X1) has an f-square value of 0.377, which is in the large category. This indicates that QRIS Usage has a very strong influence on increasing transaction volume compared with the other variables. In addition, Sales Increase (Y) on Transaction Volume (Z) has an f-square value of 0.170, which is in the moderate category, meaning that this variable also provides a fairly significant contribution.

Thus, it can be concluded that QRIS Usage (X1) is the most dominant variable in influencing Transaction Volume (Z), while all exogenous variables in the model have moderate to large effects on the endogenous variables. Therefore, the research model has a fairly strong contribution in explaining the relationships among variables.

Hypothesis testing was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) data analysis technique, processed with the assistance of SmartPLS version 4.1.1.8. This method was selected because it is able to analyze relationships among latent variables simultaneously, both direct and indirect effects, and is suitable for predictive and complex research models. In this study, several hypotheses were tested, including direct effects among variables and indirect effects (mediation) involving the intervening variable. The following presents the results of testing relationships among variables in the research model after data processing using SmartPLS:

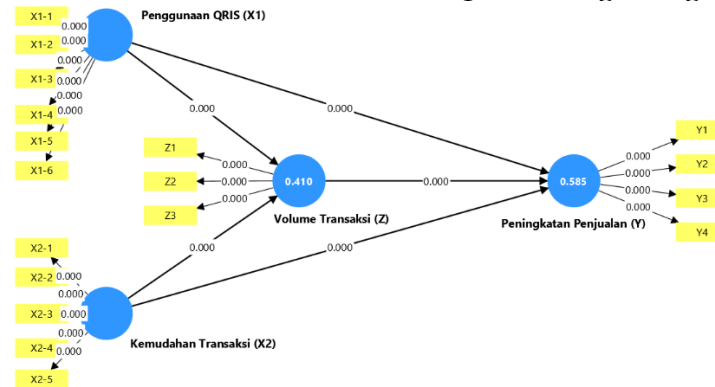


Figure 2. Hypothesis Testing Diagram

DISCUSSION

The Effect of QRIS Usage on MSME Sales Increase in Surabaya

This study shows that the first hypothesis, namely that QRIS Usage affects MSME sales increase in Surabaya, is supported. Based on the results of hypothesis testing, QRIS Usage has a significant effect on sales increase, so the first hypothesis in this study is accepted. This indicates that the use of QRIS can encourage sales growth in MSMEs.

A positive path coefficient indicates that the relationship between QRIS Usage and sales increase is unidirectional. This means that the higher the level of QRIS usage by MSME actors, the greater the sales obtained. This indicates that QRIS makes a real contribution in supporting business transaction activities.

The use of the Quick Response Code Indonesian Standard (QRIS) affects MSME sales increase because it can broaden transaction access and encourage purchases in a more practical way. QRIS enables MSME actors to accept non-cash payments through one code integrated with various digital payment applications. This convenience reduces obstacles in the transaction process, especially for consumers who are accustomed to using digital payments, thereby increasing the opportunity for transactions to occur. With more payment options available, the potential for increasing the number of transactions and the sales value of MSMEs also becomes higher.

In addition to broadening payment access, QRIS usage also contributes to business operational efficiency. Faster transactions with fewer recording errors enable MSME actors to serve more consumers in a relatively short time. This condition directly affects sales capacity, especially in businesses with high

customer traffic. Thus, QRIS functions not only as a payment tool, but also as a means of supporting improved MSME sales performance.

The results of this study are in line with research conducted by Alifiyah and Purwanti (2024), which shows that QRIS usage has a significant effect on increasing business income because this digital payment system makes it easier for consumers to transact and encourages purchase frequency. In addition, Sinaga et al. (2025) also found that QRIS usage has a positive impact on business sales. The transaction convenience offered by QRIS makes consumers more interested in transacting, so sales volume increases. This indicates that QRIS adoption can support MSME sales growth amid the development of digital payment systems.

The findings of this study are also supported by recent international studies on digital payment adoption and business performance. Research conducted by Nguyen et al. (2023) found that digital payment systems significantly improve transaction efficiency and increase sales opportunities for small businesses because consumers prefer faster and more flexible payment methods. Study by Sharma et al. (2024) explained that the adoption of QR-based payment systems positively affects customer satisfaction and purchase intention, which ultimately contributes to business revenue growth. In addition, Oliveira et al. (2024) emphasized that digital payment integration strengthens operational efficiency and helps small enterprises expand their customer reach in highly competitive markets. These international findings reinforce the argument that payment digitalization, including QRIS, plays an important role in improving MSME sales performance and competitiveness in the digital economy era

However, the results of this study are not in line with research stating that the use of digital payments does not necessarily have a direct impact on sales increase. This difference may be caused by factors such as the level of digital literacy among business actors, infrastructure readiness, and consumer characteristics. Therefore, QRIS usage needs to be accompanied by proper understanding and utilization strategies in order to provide optimal results. Arman & Darwin, (2026)

Based on the description above, it can be concluded that QRIS usage has a positive effect on MSME sales increase. The more optimally QRIS is implemented in business activities, the greater the opportunity for MSMEs to increase the number of transactions and their sales revenue.

The Effect of Transaction Convenience on MSME Sales Increase in Surabaya

This study shows that the second hypothesis, namely that Transaction Convenience affects MSME sales increase in Surabaya, is supported. Based on the results of hypothesis testing, Transaction Convenience has a significant effect on sales increase, so the second hypothesis in this study is accepted. This indicates that convenience in the transaction process can encourage sales growth in MSMEs.

A positive path coefficient indicates that the relationship between Transaction Convenience and sales increase is unidirectional. This means that the higher the level of transaction convenience perceived by consumers, the greater

the sales obtained by MSMEs. This indicates that transaction convenience is one of the important factors supporting sales activities.

Transaction convenience is one of the important factors that contributes to MSME sales increase, particularly in the digital era when consumers increasingly prioritize fast, simple, and low-friction payment processes. Providing an easy-to-use payment system, such as QRIS, can reduce complexity in the payment process so consumers do not feel burdened by lengthy procedures or complex technical requirements. This condition encourages consumers to make purchases, both first-time purchases and repeat purchases.

In addition, transaction convenience also plays a role in shaping a positive purchasing experience. When consumers can complete payments quickly and without obstacles, satisfaction levels tend to increase. This satisfaction then encourages repeat purchase behavior and word-of-mouth recommendations, which can indirectly expand the customer base. An efficient payment system also strengthens perceptions of professionalism and trust in MSMEs, so consumers feel more comfortable transacting and tend to choose businesses that offer practical payment methods.

The results of this study are in line with research conducted by Lestari and Cahyono (2025), which shows that the use of easily accessible digital payment systems has a significant effect on MSME sales growth. In addition, Hutahaean et al. (2024) also state that the adoption of digital payment systems such as QRIS and e-wallets has a positive impact on MSME performance, particularly through increased transaction efficiency, reduced cash payment barriers, and higher sales volume. The convenience of payment systems encourages consumers to transact more often, so transaction volume increases and affects sales growth.

This finding is also supported by international studies. Research by Kim et al. (2023) explains that transaction convenience in digital payment systems increases consumer satisfaction and purchase intention because users prefer payment methods that are fast and easy to access. In addition, Davis et al. (2024) found that simple and efficient digital transaction systems can improve customer loyalty and positively affect business sales performance. These findings strengthen the argument that transaction convenience is an important factor in supporting MSME sales growth in the digital economy era.

However, under certain conditions, transaction convenience does not always provide an optimal impact on sales increase. This may be caused by other factors such as consumers' continued habit of using cash payments, levels of trust in digital systems, and limited technological understanding among MSME actors (Prasetyo and Wulandari, 2022). Therefore, transaction convenience needs to be supported by education for business actors and consumers, as well as improved service quality, so that its benefits can be felt optimally.

Based on the description above, it can be concluded that transaction convenience has a positive effect on MSME sales increase. The easier and more efficient the transaction system applied, the greater the opportunity for MSMEs to increase transaction frequency and business income.

The Effect of QRIS Usage on MSME Transaction Volume in Surabaya

This study shows that the third hypothesis, namely that QRIS Usage affects MSME transaction volume in Surabaya, is supported. Based on the results of hypothesis testing, QRIS Usage has a significant effect on transaction volume, so the third hypothesis in this study is accepted. This indicates that the use of QRIS can increase transaction activity among MSMEs.

A positive path coefficient indicates that the relationship between QRIS Usage and transaction volume is unidirectional. This means that the higher the level of QRIS usage by MSME actors, the higher the transaction volume that occurs. This indicates that QRIS plays an important role in encouraging business transaction intensity.

The use of QRIS (Quick Response Code Indonesian Standard) as a digital payment method is an innovation in the payment system aimed at increasing transaction efficiency, speed, and convenience. QRIS is designed as a national QR code standard that can be used across payment applications, so consumers do not need to adapt to various different systems. This standardization simplifies the payment process and accelerates transaction completion at the MSME level.

In business activities, QRIS usage has the potential to increase transaction volume because a practical payment system can reduce barriers in the purchasing process. When payments can be made quickly without the need for cash or time-consuming manual processes, consumers tend to transact more frequently. This convenience enables an increase in transaction frequency within a certain period as well as an increase in the total value of business transactions.

The results of this study are in line with research conducted by Pertiwi and Raflah (2024), which shows that QRIS usage has a positive impact on business transaction activities, especially in increasing efficiency and accelerating the payment process. This efficiency enables business actors to serve more consumers in the same amount of time, potentially increasing daily transaction numbers. Similarly, Annida et al. (2024) also found that the implementation of QR-based payment systems significantly increases transaction intensity because customers feel it is more practical and flexible to make payments.

This finding is also supported by international studies on digital payment systems. Research by Li et al. (2023) found that QR-based digital payment adoption significantly increases transaction frequency because consumers perceive digital payments as more efficient and convenient than conventional cash transactions. In addition, Chen and Wang (2024) explained that integrated digital payment systems can improve transaction intensity and operational efficiency for small businesses, especially in urban economic environments. These findings strengthen the argument that QRIS implementation can encourage higher transaction volume and support MSME business activities in the digital economy era.

However, under certain conditions, QRIS usage does not always have a maximum impact on increasing transaction volume. This may be caused by factors such as limited access to technology, consumers' continued habit of using cash, and uneven levels of digital literacy among MSME actors (Sari and Rahmawati, 2022). Therefore, optimizing QRIS usage needs to be supported by

improved technological understanding and infrastructure readiness so that its benefits for increasing transaction volume can be felt optimally.

Thus, it can be concluded that QRIS usage has a positive effect on MSME transaction volume. The more optimally QRIS is used in the payment process, the greater the opportunity to increase transaction frequency and value, which ultimately can encourage overall MSME sales growth.

The Effect of Transaction Convenience on MSME Transaction Volume in Surabaya

This study shows that the fourth hypothesis, namely that Transaction Convenience affects MSME transaction volume in Surabaya, is supported. Based on the results of hypothesis testing, Transaction Convenience has a significant effect on transaction volume, so the fourth hypothesis in this study is accepted. This indicates that convenience in the transaction process can increase transaction activity among MSMEs.

A positive path coefficient indicates that the relationship between Transaction Convenience and transaction volume is unidirectional. This means that the higher the level of transaction convenience perceived by consumers, the higher the transaction volume that occurs. This indicates that transaction convenience is an important factor in encouraging business transaction intensity.

Transaction convenience is a factor that plays an important role in increasing MSME transaction volume. A simple, fast, and low-barrier payment system enables consumers to complete the purchasing process more efficiently. When transactions can be conducted without complicated procedures, service time becomes shorter, increasing the opportunity for additional transactions within the same period. This condition directly contributes to increasing both the number and value of business transactions.

The results of this study are in line with research conducted by Hadi and Loggar (2025), which shows that perceived ease of use / effort expectancy has a significant effect on the intensity of QRIS usage. The easier the system is to use, the higher the frequency of transactions made by users. Similarly, Nurdin et al. (2023) found that ease of use in digital payments has a positive effect on increasing transaction activity because users feel more comfortable and experience no obstacles in the payment process.

This finding is also supported by international studies related to digital payment convenience. Research by Zhou et al. (2023) found that transaction convenience significantly increases the frequency of digital payment usage because consumers prefer systems that are simple, fast, and flexible. In addition, Lee and Kim (2024) explained that perceived convenience in mobile payment systems positively affects transaction intensity and encourages consumers to make repeat purchases more frequently. These findings strengthen the argument that transaction convenience is a key factor in increasing MSME transaction volume in the digital economy era.

Based on the description above, it can be concluded that transaction convenience has a positive effect on MSME transaction volume. The higher the

level of convenience perceived in using the payment system, the greater the possibility of increasing transaction frequency and value in MSMEs.

The Effect of Transaction Volume on MSME Sales Increase in Surabaya

This study shows that the fifth hypothesis, namely that Transaction Volume affects MSME sales increase in Surabaya, is supported. Based on the results of hypothesis testing, Transaction Volume has a significant effect on sales increase, so the fifth hypothesis in this study is accepted. This indicates that increased transaction activity can encourage sales growth in MSMEs.

A positive path coefficient indicates that the relationship between Transaction Volume and sales increase is unidirectional. This means that the higher the transaction volume that occurs, the higher the sales obtained by MSMEs. This indicates that transaction volume is one of the main factors determining business sales performance.

Transaction volume is an important indicator that reflects the level of buying and selling activity in a business. The higher the number and value of transactions that occur within a certain period, the greater the opportunity for sales to increase. Transaction volume not only describes purchase frequency, but also indicates the intensity of consumer interaction with the products or services offered by MSMEs.

Conceptually, an increase in transaction volume will have a direct impact on the increase in total business revenue. When the number of transactions increases, both in terms of frequency and nominal value, the accumulation of business receipts also increases. This is in line with research conducted by Nurhaliza et al. (2023), which states that increased sales volume contributes significantly to the growth of MSME income and profits. The study emphasizes that higher transaction frequency is a key factor in driving improved sales performance.

This finding is also supported by international studies. Research by Martinez et al. (2023) found that transaction intensity has a direct and positive relationship with business revenue growth because higher transaction frequency reflects stronger consumer purchasing activity. In addition, Brown and Taylor (2024) explained that increasing transaction volume through digital payment systems can improve MSME financial performance by accelerating cash flow and expanding consumer purchasing opportunities. These findings strengthen the argument that transaction volume is an important determinant of MSME sales growth in the digital business environment.

Thus, it can be concluded that transaction volume has a positive effect on MSME sales increase. The higher the number and value of transactions that occur, the greater the total sales obtained. Therefore, transaction volume can be positioned as an intervening variable that bridges the influence of QRIS usage and transaction convenience on MSME sales increase.

The Effect of QRIS Usage on MSME Sales Increase in Surabaya through Transaction Volume

This study shows that the sixth hypothesis, namely that QRIS Usage affects MSME sales increase in Surabaya through transaction volume, is supported.

Based on the results of hypothesis testing, transaction volume can mediate the effect of QRIS usage on sales increase, so the sixth hypothesis in this study is accepted. This indicates that QRIS usage not only has a direct impact, but also provides an indirect effect through increased transaction volume.

The positive path coefficient in the relationship among variables indicates that QRIS usage can increase transaction volume, which subsequently affects MSME sales increase. This means that the higher the use of QRIS, the higher the frequency and value of transactions that occur, thereby indirectly encouraging sales increase. This indicates that transaction volume acts as an intervening variable in this relationship.

QRIS usage as a digital payment system plays a role in increasing transaction efficiency and speed among MSMEs. QRIS standardization, which can be used across payment applications, makes it easier for consumers to complete transactions without complex technical barriers. This convenience encourages increased transaction activity, reflected in the growth of the number and value of business transactions.

The results of this study are in line with research conducted by Yasik et al. (2025), which shows that QRIS implementation has a positive effect on increasing MSME transaction volume. Payment convenience and speed enable business actors to serve more consumers in the same amount of time, increasing transaction frequency. Similarly, research on QRIS usage among MSMEs in the Rungkut area of Surabaya also found that QRIS adoption has a positive impact on business transaction activities, especially in improving payment efficiency and accelerating cash turnover.

This finding is also supported by international studies on digital payment systems and business performance. Research by Zhang et al. (2023) found that digital payment adoption indirectly improves small business revenue through increased transaction intensity and consumer purchasing frequency. In addition, Wilson and Lee (2024) explained that QR-based payment systems strengthen transaction efficiency and accelerate business cash flow, which ultimately contributes to sales growth. These findings reinforce the role of transaction volume as a mediating variable in the relationship between digital payment adoption and MSME sales performance.

Thus, it can be concluded that QRIS usage has a positive effect on MSME sales increase through transaction volume. The more optimally QRIS is used in business operations, the greater the opportunity to increase transaction frequency and value, which ultimately drives MSME sales growth.

The Effect of Transaction Convenience on MSME Sales Increase in Surabaya through Transaction Volume

This study shows that the seventh hypothesis, namely that Transaction Convenience affects MSME sales increase in Surabaya through transaction volume, is supported. Based on the results of hypothesis testing, transaction volume can mediate the effect of transaction convenience on sales increase, so the seventh hypothesis in this study is accepted. This indicates that transaction

convenience not only has a direct impact, but also provides an indirect effect through increased transaction volume.

The positive path coefficient indicates that transaction convenience can increase transaction volume, which subsequently affects MSME sales increase. This means that the higher the level of transaction convenience perceived by consumers, the greater the frequency and value of transactions that occur, thereby indirectly encouraging sales increase. This indicates that transaction volume acts as an intervening variable in this relationship.

The results of this study are in line with research conducted by Kamilah and Haryati (2024), which shows that perceived ease of use has a significant effect on the intensity of QRIS usage. The increase in usage intensity affects the growth of business transaction activity. Similarly, Yasik et al. (2025) found that the convenience and speed of digital payment systems contribute to increasing MSME transaction volume.

Furthermore, Ibrahim and Nisa (2024) explain that the operational convenience of QRIS promotes smooth transactions and increases the number of daily transactions. This increase in transaction volume ultimately affects business sales growth. This is also reinforced by research by Nurhaliza et al. (2023), which states that increased digital transaction activity is positively correlated with MSME sales increase.

This finding is also supported by international studies related to digital payment convenience and business performance. Research by Park et al. (2023) found that perceived convenience in digital payment systems indirectly increases business revenue through higher transaction frequency and customer purchase intensity. In addition, Anderson and Smith (2024) explained that efficient and user-friendly payment systems encourage repeat purchases and strengthen transaction activity, which ultimately contributes to MSME sales growth. These findings reinforce the role of transaction volume as a mediating variable in the relationship between transaction convenience and sales increase.

Thus, it can be concluded that transaction convenience has a positive effect on MSME sales increase through transaction volume. The higher the level of convenience perceived in the payment process, the greater the opportunity to increase transaction frequency and value, which subsequently drives sustainable MSME sales growth.

CONCLUSIONS AND RECOMMENDATIONS

This study concludes that QRIS usage and transaction convenience have a positive and significant effect on MSME transaction volume in Surabaya. Furthermore, transaction volume is proven to play a highly significant role as an intervening variable in mediating the influence of payment technology on final sales increase. Effective QRIS implementation helps MSMEs increase daily income through a more practical, secure, and efficient payment process, which ultimately encourages more sustainable business growth in the digital economy era.

The practical implication of this study for MSME actors is the importance of optimizing digital payment adoption as part of business development strategies. MSMEs are encouraged not only to provide QRIS facilities, but also to

integrate digital payment systems into daily operational and promotional activities in order to improve transaction efficiency and customer convenience. Meanwhile, for Bank Indonesia and banking institutions, the findings of this study imply the need to strengthen digital payment infrastructure, improve transaction security systems, and expand educational programs related to digital financial literacy so that *QRIS* adoption among MSMEs can continue to grow sustainably.

For MSME actors, it is recommended that they continue to use *QRIS* consistently and actively promote it to customers in order to accelerate the turnover of daily transaction volume at their businesses. Bank Indonesia and banking institutions need to continue improving system network stability and provide more in-depth education regarding *QRIS* security features to increase business actors' trust.

This study also has several limitations. First, the research was limited to MSME actors in Surabaya, so the findings may not fully represent MSME conditions in other regions with different levels of digital infrastructure and consumer behavior. Second, this study only focused on *QRIS* usage, transaction convenience, transaction volume, and sales increase variables, while other factors such as digital literacy, consumer trust, promotional strategies, and internet accessibility were not analyzed in depth. Third, the research used a cross-sectional approach, so it only reflects conditions within a certain period and cannot fully explain long-term changes in MSME business performance. Therefore, future studies are expected to involve broader research areas, additional variables, and longitudinal approaches in order to provide more comprehensive findings regarding digital payment adoption and MSME business growth.

ADVANCED RESEARCH

For future researchers, it is recommended to add other variables such as digital financial literacy or security risk factors into the research model to obtain a more comprehensive picture of the dynamics of the digital payment ecosystem in Indonesia.

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