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EXPLORING THE ADOPTION AND IMPACT OF DIGITAL PAYMENT SYSTEM ON SMALL MEDIUM ENTERPRISES IN RURAL PAKISTAN

Danish Raza
Faculty of Social and Political Sciences
Email: draza53@gmail.com

Abstract: This research examines the uptake and the role of digital payment systems in rural small and medium enterprises (SME) in Pakistan, an area that has been largely ignored in the literature on the subject due to its urban and developed economy focus. The study explored the drivers, perceived benefits, and barriers to adoption using a qualitative approach stemming out of a comprehensive review of scholarly and policy research and industry insights. Results indicate that when introduced well, mobile wallets, QR payments, and banking apps have the potential to increase the efficiency of operations, lower transaction costs, and increase the number of people who have access to formal finance. The adoption is, however, at a low rate because of poor infrastructure, low digital and financial literacy, tax issues, and security-related fears. The work adds new knowledge by concentrating on rural SMEs and offering context-specific solutions, such as the targeted fintech solutions, infrastructure development, and the campaigns to raise literacy rates, as a way to close the digital divide. These results are practical recommendations to policymakers, financial service providers, and rural businesses to build inclusive digital financial ecosystems.

Keywords: *Rural Pakistan, Digital Payment System, Digital Literacy, Small and Medium Enterprises (SME), Fintech, Technology Adoption.*

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1. Introduction

SMEs are considered an integral part of any economy in the world. SMEs in Pakistan are estimated to have about 90 percent of business establishments, nearly 80 percent of the non-agricultural labor force, 40 percent of GDP, and 25 percent of exports in Pakistan. (State Bank of Pakistan, 2024). The inability to access formal financial services is one of the most critical issues of MSMEs in Pakistan because, according to estimations, less than 6 percent of MSMEs have access to bank financing. (Mobilink Bank, 2025).

Digital payment systems, such as mobile wallets, QR merchant systems, point-of-sale terminals, and bank mobile apps, have demonstrated the possibility of lowering the cost of transactions, increasing the cash flow, improving the record keeping, and broadening market access (Soomro et al., 2024). New national programs like Raast and PayPak are designed to expand digital payment infrastructure, and it is intended to grow digital merchant acceptance ten-fold within three years (Shahid, 2024). The adoption rates, however, are still low: 1.1 percent of adults in rural Pakistan make use of digital merchant payments as of 2021 (IPA & LUMS, 2025).

Digital payment systems in the emerging economies have significantly spurred financial activities, responded to local exigencies in the region, and helped small and medium-sized businesses (SMEs) to grow. An example is M-Pesa in Kenya and other cell phone prices in Nigeria.

That have assisted businesses to break the hurdle, as it includes limited access to conventional banking services to encourage market expansion and financial prospects (ALADAĞ, 2023). This availability-use disparity underscores a long-standing existing digital divide in rural Pakistan that stems from limited infrastructure (Fanelli, 2021), complicated tax treatment (K. B. Khan et al., 2024), lack of trust in digital platforms (Manzoor et al., 2021), and cultural bias towards cash (Hassaan & Yaseen, 2024). The majority of current studies are available either on urban markets or on generalized statistics at the national level, with rural SMEs remaining under-researched.

This study focuses specifically on rural SMEs and combines both international evidence and local understanding to suggest a set of tactics that can be used to enhance digital financial inclusion. The study offers context-specific advice to policymakers, fintech providers, and financial institutions by revealing what is motivating the adoption, the perceived usefulness, and the impediments to the use of financial apps. It is the first attempt to conceptualize rural Pakistan adoption barriers and benefits using a systematic content analysis, which addresses a significant gap in the literature.

This research aims to address the following questions:
1. Which factors most strongly influence rural SMEs in Pakistan to adopt digital payment?
2. How do digital payment solutions impact operational efficiency for rural SMEs in Pakistan?
3. What are the barriers of rural SMEs in Pakistan to adopting a digital payment system?

2. Literature Review

The number of small and medium-sized enterprises (SMEs) in Pakistan is approximately 5 million (five million). Such businesses are a source of employment for nearly 80 percent (eighty percent) of all non-agriculture labor force, about 40 percent (forty percent) of the gross domestic product (GDP) of the country, and 25 percent (twenty-five percent) of the total exports of Pakistan. Nonetheless, of these SMEs, only 155,000 (one hundred and fifty-five thousand), or 3 percent (three percent), are accessing financing by the banking sector. The small and medium-sized enterprises (SMEs) have been viewed as being the backbone of most economies because they create jobs, promote innovation and add to the gross domestic product (State Bank of Pakistan, 2024). In spite of this visibility, a low percentage of SMEs utilize formal financial and banking services proactively, which indicates the presence of a financial inclusion gap (VISA, 2024). The need to fill this gap by incorporating digital payment systems has become a focus in recent years, especially as digital finance is one of the core aspects of inclusive economic development globally.

2.1 Global Adoption Trends

Digital payment systems have not been adopted equally all over the world, with major differences in different regions due to infrastructure, technological preparedness, and legal landscapes. Nations that have well-developed mobile networks and a substantial smartphone base as well as possess favorable policies have identified stronger adoptions of mobile wallets, QR code payments, and online banking applications (Neves et al., 2023). In the case of Cambodia, the perception of the usefulness of the digital payment systems and the ease of use,

and the confidence of small businesses to control the transactions digitally, made a significant impact on the willingness to upgrade to digital payment systems (Ly & Ly, 2024).

Behavioral factors are also very crucial. Attitudes of business owners, the perceived expectations of their colleagues, and their trust in the usage of digital financial tools greatly influence their intentions to use them (M. S. Khan & Siddiqui, 2019). Nonetheless, access to Technology is not a sufficient factor that can ensure adoption; social and psychological factors such as normative influence and perceived trust are equally significant.

2.2 Benefits of Digital Payments Adoption

Digitization of payment systems has a number of advantages for SMEs. To begin with, the systems decrease the per-transaction costs through cash-handling expenses and administrative overheads (Neves et al., 2023). Second, they help settle it in a shorter period and generate superior audit paths, which improves transparency and reduces revenue leakage (The World Bank, 2025). It has been demonstrated that the combination of digital payments and complementary business tools, including e-commerce platforms and online advertising, should enhance the productivity, market flexibility, and customer reach (Overseas Development Institute, 2024). When such digital transformation is adopted by the SMEs, high operational efficiency, inventory management, and competitive positioning are reported. Another imperative outcome is financial inclusion. Online records of transactions allow SMEs to have a credible credit footprint, which would be appealing to lenders (Khalid, 2020). The moderating effect is also shown by digital financial literacy (DFL): the higher the DFL level, the better the risk management of the firm, the higher the resilience, and the more sustainable the business performance (Ali et al., 2022).

2.3 Digital Payment landscape in Pakistan

There is a consistent expansion of the digital finance market in Pakistan that mostly occurred due to mobile-based platforms like Easypaisa and JazzCash and national projects like Raast and PayPak, which contribute to interoperability and lowered transaction costs (State Bank of Pakistan, 2024). These efforts do not have wide adoption amongst SMEs. The utilization of formal banking services by SMEs remains low (3 percent), and penetration of digital merchant payments in rural regions is low, as only 1.1 percent of adults are reported to have been active in 2021 (IPA & LUMS, 2025). There are a number of reasons behind this low uptake. Digital illiteracy remains a prominent obstacle, especially in the rural setting, where few people understand mobile and banking applications (Ullah et al., 2022). In addition, inadequate infrastructure (particularly lack of electricity and broadband) limits the regular access to digital financial services (Asian Development Bank, 2025). Support by the top management in SMEs has been noted to be a key determinant of adoption. Owners or managers who have been at the forefront of ensuring that digital change takes place are more likely to embrace mobile payment solutions because they can grasp the opportunities available in making the processes of conducting transactions and satisfying customers more efficient (Bahadur et al., 2021).

2.4 Impact of Digital Payments

There is plenty of evidence of the positive effect of digital payments on the performance of SMEs. Most companies claim that their cash flow has improved, fewer mistakes are made in billing, and collections are being made at a rapid pace after digital transactions are incorporated into their business processes (Khalid, 2020). Additionally, online sales with

digital payment are frequently more geographically reachable and scalable, which is obtained by SMEs (Ahmed, 2023).

The situation with consumer behavior has also changed because tech-savvy customers are becoming more willing to use the services of the merchants accepting cashless payments. Such a trend does not only increase revenues but also customer retention, especially in urban and semi-urban markets (Soomro et al., 2024). Online transaction records also allow organizations to have better credit terms since they present verifiable financial information to the lenders. This association of digital finance and the availability of working capital has been seen in Pakistan as well as other similar economies, which means that there is an evident way to achieve a more inclusive financial nature (The World Bank, 2025).

2.5 Barriers in Adoption digital payment system

Although it has got the potential advantages, rural SMEs in Pakistan are experiencing various obstacles to the use of digital payment systems. The most imminent issue is the lack of digital infrastructure in the form of a weak internet connection and frequent power outages (Asian Development Bank, 2025). Major factors are related to trust. The fear of fraud and data breach, the low speed of redressing grievances, and the fear of insignificance are the reasons why many SMEs hesitate to use digital platforms (Manzoor et al., 2021). Moreover, the reason why micro-merchants do not adopt such systems on a large-scale basis is the high transaction costs, especially when dealing with low-value payments (Chauhan & Sharma, 2024). This resistance is strengthened by the aspects of culture. Business owners in the rural area tend to believe that cash exchange is safer and more stable, particularly in collectivist environments where personal connections are used to build business trust (K. B. Khan et al., 2024). The taxation issue is also another factor that keeps adoption down, since the digital payments leave a trail of transactions that can invite regulatory attention to informal businesses (Hassaan & Yaseen, 2024).

2.6 Insights from neighboring countries and developing nations

The issues that Pakistan is experiencing are not exclusive. The experiences of neighboring and similar economies have good lessons on how to overcome these barriers. Rural merchants who have implemented solutions such as BharatPe in India found that their sales are on average growing by 30–40 percent when using the platform, with trust, convenience, and low transaction costs becoming the main predeterminants of success (Kumari et al., 2021). Mobile money services like M-Pesa became a game changer in the operations of micro-businesses in Kenya by minimizing the risks associated with transactions and enhancing financial inclusion. They were initially limited by high service fees and a lack of integration with the existing banking systems, which hindered their wider use (Otieno & Kahonge, 2014). Mobile-based financial services such as bKash and Nagad were prominent in the empowerment of female entrepreneurs, enhanced market penetration in rural areas, and inclusive growth in Bangladesh (Alom et al., 2025). These illustrations underscore the need to combine digital finance efforts with user education, trust-building efforts, and incentives based on local conditions.

The use of technology is commonly described as perceptions of usefulness and perceived ease of use as the determinants of technology adoption are described using the Technology Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT), which further extends the concept by including the social influence and facilitating conditions (Venkatesh et al., 2003). Recent research has validated their applicability in the area of digital financial adoption studies. For instance, (Kala'lembang et al., 2024) used

a modified TAM when applied to Indonesian SMEs employing the OVO application, and the results showed that perceived usefulness and security had a significant impact on adoption intentions. This was also the case with (Sakib et al., 2025) who expanded UTAUT to the developing world and verified that the consumer adoption of cashless transactions is influenced by the performance expectancy, effort expectancy, trust, and infrastructural support. UTAU was also tested in Thailand in the context of mobile payment adoption, and the results indicated that the performance expectancy and social influence become important predictors (Changchit et al., 2024). Although these research studies demonstrate the strength of TAM and UTAUT in emerging markets, the level of their application to rural SMEs in Pakistan is still underrepresented, which makes this study theoretically and empirically gap-filled.

3. Research Method

The present study uses a qualitative methodology in determining the uptake of digital payment systems among rural SMEs in Pakistan. The methodology includes a thorough literature review, assessment, and studies at international and national levels in order to have a clear picture of the factors, challenges, and advantages related to this phenomenon. The research report compares scholarly journal articles, government documents, and past studies that dwell on the subject of digital transactions and SME development in Pakistan. The structured content analysis method was used to collect the data and identified the major drivers, such as infrastructural readiness, financial inclusion mechanisms, and policy interventions, as factors that influence the adoption.

4. Result and Discussion

4.1 Results

The reviewed studies were mainly concentrated on small and medium enterprises (SMEs) in rural Pakistan, especially those involved in retail activities, services, and small-scale manufacturing activities. The evidence found in these sources suggests that although there is a common awareness of digital payment applications like mobile wallets (Easypaisa, JazzCash), bank mobile apps, and QR merchant systems, the actual adoption is low. Nevertheless, a low percentage indicated regular use, indicating a big discrepancy between awareness and adoption. Financial inclusion campaigns by the government and the private sector have penetrated such communities, but their adoption is still low, mostly due to infrastructural and educational differences (State Bank of Pakistan, 2024). The attempts of the private sector, such as the Visa and 1Link partnerships, are intended to increase digital merchant acceptance by threefold within three years (Shahid, 2024). These interventions have yet to transform rural SMEs to be in a low banking penetration and access structured credit systems. (Morris et al., 2022). The urban-rural divide is still strong, and rural territories experience bottlenecks in the infrastructure development limiting their involvement in the digital economy (Fanelli, 2021).

Factors Influencing Adoption of Digital Payment Systems

The analysis found out that over 70% of the SMEs that had implemented digital payments were satisfied with such systems and reported better business performance (VISA, 2024). The general rural penetration of digital merchant payments is appallingly low; in 2021 only 1.1% of adults in rural Pakistan use digital merchant payments (IPA & LUMS, 2025). A hybrid model whereby many of the SMEs employ digital means to transact on the select transactions and still use cash as the main means of exchange is still in place (K. B. Khan et al., 2024). Infrastructural and cultural preference still keeps the routine business activities as cash-based (Hassaan & Yaseen, 2024). Such hybrid dependency is especially noticeable in the regions of

low internet connectivity and ineffective power supply (Asian Development Bank, 2025), which limits the frequent use of mobile-based financial solutions. Banking networks in remote areas are less developed, and few point-of-sale machines and agent networks are present (State Bank of Pakistan, 2024). This unreliability of the availability results in low confidence in the reliability of digital platforms among SME owners (Manzoor et al., 2021). The other developing countries have had experiences that are of significance to the rural SMEs in Pakistan. SMEs that started using such platforms as BharatPe in rural India enjoyed an average post-adoption sales growth of 30-40% (Global Business Line, 2024).

Perceived Benefits

The reviewed studies show that there are numerous advantages of digital payment systems that rural SMEs are aware of. Digital payments have lower transaction costs, which is especially important to micro and small businesses with thin margins (Neves et al., 2023). Quick settlements enhance a better working capital turnover as they decrease the interval between sale and availability of funds (The World Bank, 2025). Online records generate clear tracks of transactions and help in bookkeeping and auditing (Soomro et al., 2024). It has been reported by many SMEs that digital payment methods have helped in reaching more customers, particularly when it comes to reaching younger or urban consumers who use cashless methods (Ahmed, 2023).

When records of digital transactions are kept, access to formal credit becomes more achievable, with the lenders having more assurance regarding the performance of the business (Khalid, 2020). Companies that combine online marketing or e-commerce with online payment have an improved growth rate and expansion across geographic boundaries (Overseas Development Institute, 2024). In Pakistan, there is evidence indicating that the operations efficiency and flexibility of the SMEs positively respond to digital transformation initiatives (Mushtaq et al., 2024). Online financial literacy amplifies the enterprise risk management conduct, thus bettering operational fortitude (Ali et al., 2022). Research also indicates that in cases where such technologies are adopted by SMEs, they tend to establish a better competitive advantage and customer retention (VISA, 2024).

M-Pesa in Kenya has revolutionized the way of doing micro-businesses by making transactions easier and the risks involved in the handling of cash minimized (Mbogo, 2010). Nevertheless, the transaction costs were still high in Kenya (Otieno & Kahonge, 2014). Mobile-based finance systems such as bKash and Nagad facilitated better financial access and market access in Bangladesh, especially among enterprises run by women (Alom et al., 2025).

Barriers to Adoption

Despite the potential benefits, significant obstacles persist. A number of SME owners and employees do not have sufficient digital literacy, and thus, they are reluctant to interact with multifaceted mobile apps or banking services (Ullah et al., 2022). Lack of financial literacy is also observable in most rural communities, which reduces the level of awareness about the cost structure and risk mitigation in relation to digital means (Ali et al., 2022). The lack of good infrastructure, especially unreliable electricity and lack of penetration in internet, remains a hindrance to the normal running of the digital payment system (Asian Development Bank, 2025). Many SMEs are scared of taxation and formalization, which prevents them, particularly those that partially operate in the informal sector, from fully switching to the digital systems (K. B. Khan et al., 2024). Rural marketplaces still do not stop their cultural norms that place emphasis on the usage of cash (Hassaan & Yaseen, 2024).

These cases of fraud and scams in the financial space also decrease the trust, particularly in micro-merchants with less recourse (M. R. Khan & Blumenstock, 2017). The perception of insecurity arises among the users because of weak or slow grievance redress mechanisms (VISA, 2024). Small-value payments are also associated with high transaction costs and the lack of incentives, which decreases the readiness of small merchants to integrate into the new systems (Chauhan & Sharma, 2024). Consequently, despite the awareness of the SMEs about digital solutions, a significant number of them are still unwilling to entirely adopt them in business processes. The most significant factors to determine adoption in Tamil Nadu were trust and low transaction costs (Kumari et al., 2021).

4.2 Discussions

These findings demonstrate that there is a significant disparity in awareness and real adoption of digital payment by rural SMEs in Pakistan. Even after numerous projects like Raast and PayPak have increased access to digital infrastructure (State Bank of Pakistan, 2024), only 1.1 percent of adults have used digital merchant payments, indicating structural and behavioral resistance to adoption (IPA & LUMS, 2025). Such inequity implies that the availability of technology does not inevitably translate into large-scale use, and the same trend may be observed in other developing settings where digital products were introduced without a detailed user engagement strategy (Neves et al., 2023).

The fact that cash remains the most popular payment system in spite of recognizing the possibility of mobile and QR payments shows the cultural and trust-based factors common in rural Pakistan (Hassaan & Yaseen, 2024). A significant number of SMEs are run informally so as not to pay taxes, and digital payments usually leave a trail of transactions, which scares them away (K. B. Khan et al., 2024). The lack of digital literacy in the entrepreneurship also diminishes the trust in using these systems (Ullah et al., 2022). The unstable internet connectivity and frequent power outages make it challenging to carry out these transactions and make people less confident in the online solutions due to the absence of good infrastructure (Asian Development Bank, 2025). The incidences of fraud as reported in rural markets contribute to insecurity perceptions (M. R. Khan & Blumenstock, 2017).

Those results are consistent with the Technology Acceptance Model, which pays significant attention to perceived usefulness and ease of use as the key success factors in the adoption of technology (M. S. Khan & Siddiqui, 2019). The Unified Theory of Acceptance and Use of Technology also confirms the presence of facilitating conditions that are still lacking in most rural locations (Chauhan & Sharma, 2024). The hybrid payment models in Pakistan are also similar to those in rural India, in which SMEs switch to BharatPe or other similar platforms selectively but keep cash transactions at small-value sales (Kumari et al., 2021). Likewise, adoption of mobile payments in Kenya using M-Pesa did not substitute but initially complemented cash-based operations because of the cost of transactions (Otieno & Kahonge, 2014). Conversely, its adoption was quicker in Bangladesh, and in this area, specific literacy initiatives and incentives have been used, especially among women entrepreneurs (Alom et al., 2025).

The research proposes a number of implications for the policymakers and practitioners. It is important to enhance digital infrastructures in the rural areas by providing good connectivity (Asian Development Bank, 2025). Both the perception and confidence in e-transactions may be increased with the help of financial and digital literacy sessions designed specifically to accommodate the SME owners (Ali et al., 2022). Simple tax systems can also ease the opposition of the informal sector through the reduction of the perceived risks of financial

traceability (K. B. Khan et al., 2024). To managers, the ability to combine digital payments with other work-related solutions, including inventory management and online marketing, would help retain more clients and expand into the market (Mushtaq et al., 2024). Fintech-SME partnerships have the potential to develop bespoke solutions tailored to the rural business environment (Shahid, 2024).

The research has a unique contribution, as it is the first study to position a rural Pakistan-specific model of digital payment system adoption systematically. Unlike the past studies, which have focused on urban markets or national-level statistics, the paper has brought out the peculiarities of rural SMEs, where infrastructural gaps, cultural dependence on cash, and fear of taxation play a key role in adoption. Contextualizing the world experiences of M-Pesa in Kenya, BharatPe in India, and bKash in Bangladesh, the study does not just find common drivers and obstacles but also unveils the distinctly Pakistani circumstances under which digital finance is adopted. By placing technology adoption models (TAM and UTAUT) into rural contexts of subpar infrastructure and cultural trust frameworks, it is technologically theoretically situated. In practice, it offers policymakers, fintech providers, and SME stakeholders a territory-sensitive roadmap for surmounting obstacles and speeding up digital financial inclusion in rural Pakistan.

5. Conclusion

The present study explored how Pakistani rural SMEs are adopting digital payment systems based on the present literature. The findings suggest that, though digital platforms have evident advantages like expedited transactions, transparency, financial inclusion, and enhanced market accessibility, there are a number of obstacles that avert their extensive application. These are the inadequate internet service, insufficient smartphone adoption, the mistrust towards financial institutions, dependence on cash in cultures, and complicated taxation policies. As a result, rural SMEs are yet to fully adopt digital systems but have instead embraced some hybrid models in which cash still prevails and partial digital adoption is adopted.

The originality of the study is that it aims at rural Pakistan, where no research has been done in the previous studies on adoption. Through the comparisons of Pakistan and the experiences in India, Kenya, Indonesia, and Bangladesh, the research demonstrates that the global drivers of digital adoption in the great sense of usefulness, convenience, and social persuasion exist and are undermined by the contextual constraints. This broadens the existing frameworks such as TAM and UTAUT and proves that adoption in rural Pakistan is not a full transition between cash and digital but a hybrid path that is determined by infrastructure and culture.

The results indicate the need to invest in rural digital infrastructures, ease the taxation system, and introduce trust-building programs to stimulate financial inclusion. To the policymakers and the fintech providers, solutions designed on integration with the current cash-based practices should be adopted to promote gradual adoption. Although this paper presents a new conceptual model of adoption using secondary evidence, the research ought to adopt the use of primary surveys in the future to test empirically these insights and further support the adoption drivers in the rural SME sector.

Recommendations

In order to increase the use of digital payments among SMEs in the rural area, it is necessary to work on increasing the financial/digital literacy, instill trust in the system through fraud protection, grievance, and resolution, and improve network infrastructure in terms of

internet connectivity, electricity, and agent networks. Cultural and behavioral obstacles may be overcome by involving local communities and trade associations to promote a change in perceptions about formal digital tools, and policymakers and financial establishments should give more SMEs credit through advertising digital transaction statistics. To conduct future research, survey of primary data over the rural regions is required to capture more experiences of the SMEs and above comparative studies between the rural and the urban regions, cross-country studies, and studies of gender, generational, and sectoral variations on adoption.

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