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WHY WOULD MICROENTREPRENEURS CONTINUE USING MOBILE PAYMENTS? AN ENTREPRENEURIAL PERSPECTIVE WITH EVIDENCE FROM INDIA

Research Paper

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Abstract

Over the past decade, business activities have advanced electronically with mobile phones emerging as a significant channel for commercial transactions. How consumers are embracing mobile payments has received major attention in the literature. We shift focus to the microentrepreneurs, including small merchants and informal retailers, who constitute a bulk of developing economy markets. With the recent popularity of mobile payments among microentrepreneurs due to the demands of the Covid-19 pandemic, we now enquire about its long-term continuity. To acknowledge the entrepreneurial mindset driving microentrepreneurs to continue using mobile payments, we draw from the Entrepreneurial Orientation framework (Lumpkin and Dess, 1996) and develop a model that captures entrepreneurial characteristics of the technology like autonomy, innovativeness, competitive externalities, and customer expectations. Using the findings from a survey of 208 microentrepreneurs operating from an urban marketplace in India, we propose how mobile payment can contribute to sustainable development through long-term financial inclusion.

Keywords: Mobile payments, microentrepreneurs, entrepreneurial orientation, financial inclusion, sustainable development.

1 Introduction

With digitization on a global scale ranging from advanced to emerging economies, business activities have progressed electronically during the past decade with mobile phones emerging as a significant channel for commercial transactions (Liébana-Cabanillas and Lara-Rubio, 2017). Trends show that emerging economy customers are now attracted to mobile payments due to the ability to offer simple cashless transactions using a handheld mobile device (Moghavvemi, Mei, Phoong, and Phoong, 2021). As its popularity among consumers grows, retail merchants provide mobile payment as a transaction channel to meet up with new-age customer expectations. Alongside meeting customer preferences, merchants also find mobile payments useful in the facilitation of sales, with additional innovations associated with mobile payment systems like QR-code scanning and the unified payment interface (UPI) for inter-bank transactions, which increase the convenience of the sellers multi-fold (Kumar, 2023).

Mobile money transfers have sustainable developmental capabilities by supporting the growth and well-being of small vendors or microentrepreneurs through their financial inclusion (Senyo, Gozman, Karanasios, Dacre, and Baba, 2022; Yang and Zhang, 2020). These micro-enterprises constitute local establishments run by the owner or a small number of employees, sometimes operating on makeshift shops or vending carts (Viswanathan, Sridharan, and Ritchie, 2010). Such small resource-poor businesses, supporting the subsistence livelihood of the low-income owners, constitute the bulk of the economy in developing countries (Soluk, Kammerlander, and Darwin, 2021). With digital technology

aiding long-term business growth (Cardona, Kretschmer, and Strobel, 2013), these subsistence businesses thriving on immediate returns, struggle to realize its benefits. However, financial technologies aiding informal businesses play a key role in their financial inclusion (Senyo et al., 2022). Over the last few years, small businesses started heavy use of mobile payments, triggered twice in India as it served as a resilient option during subsequent crises – first, the demonetization invalidating banknotes (Pal, Herath, De', and Rao, 2021), and second, the Covid-19 pandemic marked by the fear of coronavirus-contamination through cash exchange (Rafdinal and Senalasar, 2021). This surge in the usage of mobile payments during the pandemic expanded the reach of financial inclusion (Malpass, 2022). However, as we return to normalcy with Covid-19 fear reducing across the globe, there is a threat of these microentrepreneurs migrating back to the more popular traditional cash, rejecting mobile payments. During these times, the continuity of mobile payment usage by these small retailers will determine the technology's sustainability and the long-term financial inclusion of the microentrepreneurs. Therefore, we primarily enquire: *What drives the continuity of mobile payments' usage for microentrepreneurs?* [Research Question 1].

Despite the social and infrastructural barriers constraining microentrepreneurs of developing economies, there is evidence of them embracing digital money as a resilient option, as they enjoy certain levels of autonomy, equipping them with the flexibility to adapt and innovate through recent digital technologies like mobile payments (Soluk et al., 2021). Their entrepreneurial bent of mind makes them accepting of newer technologies, and explore creative innovations with the technology (Suseno and Abbott, 2021). Therefore, acknowledging the entrepreneurial orientation of the microentrepreneurs that distinguishes them from other users, we examine: *What entrepreneurial characteristics of mobile payments promote its continuity among microentrepreneurs?* [Research Question 2]

To answer this, we develop a research model for microentrepreneurs' mobile payment continuity using the *entrepreneurial orientation framework* (Lumpkin and Dess, 1996). The entrepreneurial orientation perspective allows us to focus on the distinguished needs of microentrepreneurs, like competitiveness and innovativeness with customer-focused behavior, above and beyond the generic users' technology needs like convenience. We verify the identified factors' influence on mobile payment usage by merchants using a survey-based analysis of the research model, with results from 208 microentrepreneurs like street vendors and small shop-owners from marketplaces in Delhi, India. India is a developing economy with a consumer market dominated by the unorganized retail sector with a promising future of mobile payments, and it provides us with an interesting field for our merchant-centric study. The findings of the study would inform the development practitioners, policy-makers, and the government on what encourages microentrepreneurs to continue using mobile payments.

The contributions of this study are two-fold. One is the theoretical contribution in terms of [micro]entrepreneurial usage of mobile payments since studies examining its usage by merchants of developing economies remain exceptionally low (Mishra, Walsh, and Srivastava, 2022). And two, the financial inclusion of microentrepreneurs through mobile payments for sustainable development.

The following part of the paper discusses the literature, theoretical background, research model, and findings of the study. This is followed by the implications of the findings, before concluding the paper.

2 Literature

This study contributes to two areas within the broader domain of mobile payment adoption/usage – one, mobile payment usage by merchants or entrepreneurs, and two, mobile payments in the context of sustainable development. We have used keyword search ('merchant', 'retailer', or 'entrepreneur' and 'sustainable development' or 'sustainability' with 'mobile payment'/'mobile money') to retrieve the studies in the respective domains (Okoli, 2015), to investigate the theoretical background.

2.1 Merchant use of Mobile Payments

As mobile payments spread globally, research flourished with an increasing focus on customer-side adoption and usage (e.g., Dahlberg, Guo, and Ondrus, 2015; Pal et al., 2021; Thakur and Srivastava,

2014). *Merchant* adoption of mobile payments has been significantly under-researched, with some recent interests in merchant-side use (e.g., Mishra et al., 2022; Moghavvemi et al., 2021). On contrary, digital technology use in the entrepreneurial context has been of significant interest (Chatterjee, Dutta Gupta, and Upadhyay, 2020). Similarly, it is essential to focus separately on the merchant side of the use of mobile payment technology, as well, since many of the merchants' needs from mobile payments are significantly disparate from the consumer needs, like the need to provide alternative channels to their buyers and attract customers (Dahlberg and Oorni, 2007). Merchants' behaviour expands beyond the standard user behaviour, with a disposition towards innovation and curiosity (Mishra et al., 2022). This directs us to investigate the mobile payment use by micro-merchants from the entrepreneurial orientation angle (Lumpkin and Dess, 1996) which would encompass the entrepreneurial nature of the merchants when using mobile payments.

2.2 Mobile Payments for Financial Inclusion and Sustainable Development

Mobile payments not only fostered socioeconomic development through financial inclusion across the globe in developing economies like Kenya and India (Donovan, 2012; Pal, De', and Herath, 2020), it also aids in the agenda of sustainable development by promoting inclusive economic growth of microenterprises (Yang and Zhang, 2020). Sustainable development goal (SDG) #8, related to decent work and economic growth, states that policies should "encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services" (United Nations, 2022). With informal businesses run by microentrepreneurs constituting the bulk of the consumer market, needless to say, the inclusion of microentrepreneurs becomes critical for sustainable development (Senyo et al., 2022). Additionally, the financial inclusion of less-privileged microentrepreneurs through mobile payments contributes to SDGs as it caters to their overall well-being (Rahman, Taghizadeh, Ramayah, and Alam, 2017). On a positive note for mobile payments enabling financial inclusion, the unified payments interface (UPI) launched by the government of India, which enables interbank transactions through mobile payment apps, has recorded a high percentage of low-value transactions – dominant transactions at the unorganized small retailer stores (Pokharna, 2022). This has motivated studies to examine how technology aids in sustainable development through the inclusion of all sections, including small businesses (Senyo et al., 2022). As mobile payments are now being heavily used by merchants, including small retailers (Mishra et al., 2022), we advance the discussion on ICT to address mobile payment technology used by microentrepreneurs in a developing country context.

3 Theory

The primary aim of this study is to focus on the distinctive technology characteristics, based on their entrepreneurial needs, that would lead microentrepreneurs to continue using mobile payments. The seminal entrepreneurial orientation perspective aids us to develop factors focused on entrepreneurial disposition (Lumpkin and Dess, 1996). The original framework was developed to examine enterprises or firms, and individual entrepreneurs of small businesses who formed the sole unit of their ventures. The five dimensions of entrepreneurial orientation include autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness, which we individually develop into a mobile payment-specific factor within the context of microentrepreneurs. These dimensions are critical for the model development as they provide the basis of the entrepreneurial perspectives required for mobile payments to sustain as a digital technology for microentrepreneurs, typically with an innovative and curious disposition (Mishra et al., 2022). The entrepreneurial orientation framework captures the factors characteristic of microentrepreneurs, distinct from consumers or users in general since this lens encapsulates the entrepreneurial disposition that is important in driving individual microentrepreneurs' use of digital technology (Ritala, Baiyere, Hughes, and Kraus, 2021).

The entrepreneurial orientation perspective has been used in information systems (IS) literature to examine whether employees have the disposition to strategize using digital systems in their organizations (Ritala et al., 2021). The entrepreneurial orientation also helped to capture the innovation

potential of entrepreneurs concerning digital technology usage (Al Mamun and Fazal, 2018). We advance this to argue that the entrepreneurial orientation of microentrepreneurs will lead to identifying the entrepreneurial capabilities of mobile payments, based on which they would appreciate and use the technology. In other words, if mobile payments have been able to offer entrepreneurial features as required by the microentrepreneurs’ entrepreneurial mindset, then it will be valued among the microentrepreneurs sufficiently to continue using the technology. The individual entrepreneurial factors of mobile payments have been developed in the next section.

4 Model Development

We are exploring the entrepreneurial factors that would influence microentrepreneurs to continue using mobile payment, which we capture as the ‘continued usage’ dependent variable, as discussed below. Please see figure 1 for the research model developed.

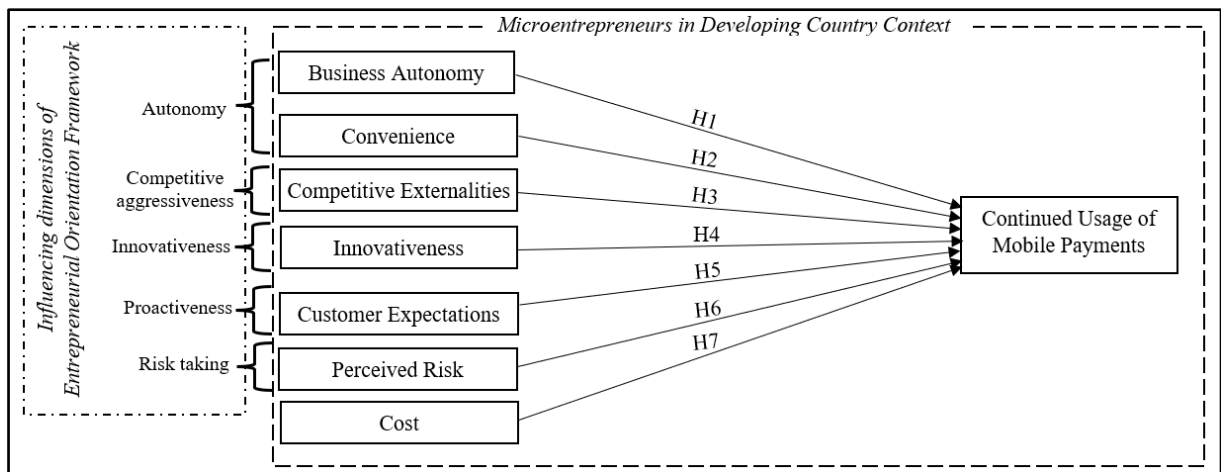


Figure 1. Research Model for Continued Usage of Mobile Payments by Microentrepreneurs in Developing Country Context

4.1 Dependent Variable: Continued Usage

The information technology (IT) adoption/use literature has a growing interest in extending beyond the usage intention, to understanding the continuous post-adoption IT use for the long-term sustainability of the IT artifact studied (Bhattacharjee and Lin, 2015; Deng, Turner, Gehling, and Prince, 2010). It becomes critical specifically in the merchant context since the businesses need to continue generating constant revenues with the support from the technology. Since mobile payments had been introduced to users a few years back, researchers have examined its continuance to evaluate its future for users in general (Pal et al., 2021). Therefore, it is now time to enquire about the long-term sustainability among these microentrepreneurs, achieved by measuring its continued usage. We adopt the construct for the microentrepreneurial context from continuance usage intention in IS usage literature, which indicates the user’s intent to use the technology repeatedly, similar to repurchase behavior (Bhattacharjee and Lin, 2015; Venkatesh, Thong, Chan, Hu, and Brown, 2011). The measurement items for continued usage capture if the user plans to continue using the technology (Venkatesh et al., 2011). We examine the factors affecting the continuance of mobile payment use by microentrepreneurs, as discussed next.

4.2 Independent Variables: Entrepreneurial Factors of Mobile Payments

The entrepreneurial orientation perspective includes five dimensions – autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness – which form the basis for our understanding of the mobile payment factors that support the microentrepreneurial objectives that would lead to its continuance.

4.2.1 Autonomy – Business Autonomy and Convenience

Autonomy lies at the core of the entrepreneurial orientation of merchants since entrepreneurs are individuals who value independence and freedom to operate their businesses, instead of alternative service-based income opportunities with lesser autonomy over regular operations (Lumpkin and Dess, 1996). Autonomy related to mobile payments has two sides – one when mobile payment *allows* entrepreneurs to run their business freely, and two when there is the autonomy of *using* mobile payment by its users.

Autonomy becomes a valuable characteristic of a resource, like mobile payments, required for running a successful business (Al Mamun and Fazal, 2018). When mobile payments support the autonomy of microentrepreneurs by allowing microentrepreneurs to perform their business activities freely, they enable the microentrepreneurs to pursue their requirements without constraints (Shir, Nikolaev, and Wincent, 2019). Since autonomy is defined by independent action, mobile payments affording autonomy would be of greater value to these independent-minded users. We term this as '**business autonomy**' to highlight the construct of capturing mobile payment's ability to retain the autonomy of independent-minded microentrepreneurs in their business activities.

H1: The **business autonomy** provided by mobile payments will positively impact its continued usage by microentrepreneurs.

There is another side to autonomy that includes the autonomy related to the use of the technology itself, i.e., the ability to use the technology whenever required. Mobile devices have been associated with the autonomy of the use of their applications irrespective of the bounds of place, time, and workplace (Porter and van den Hooff, 2020). This autonomy of mobile payments allowing easy transactions at all times has contributed heavily to the '**convenience**' of the users (Gao and Waechter, 2017; Pal et al., 2021). It is the convenience of mobile payment use that initially promoted small merchants to 'autonomously' adopt the technology that ensured ease of doing business (Bhakta, 2018). Therefore, we suggest that convenience will impact the continued usage of mobile payments by microentrepreneurs, as hypothesized here,

H2: The **convenience** provided by mobile payments will positively impact their continued usage by microentrepreneurs.

4.2.2 Competitive Externalities

Competitive aggressiveness, in the entrepreneurial orientation framework, is the tendency of entrepreneurs to challenge their competitors and perform better than the rivals in the marketplace (Lumpkin and Dess, 1996). In a competitive market setup, rival companies strategize using the latest digital technologies that the customers prefer, and mobile payment has been used by businesses to build a competitive advantage with its growing popularity among consumers (de Luna, Liébana-Cabanillas, Sánchez-Fernández, and Muñoz-Leiva, 2019). Microentrepreneurs would also continue using the technology if it offers a scope for competitive advantage by meeting the technology standards of its rivals, which we term as mobile payments' competitive externalities. Therefore, we posit,

H3: The **competitive externalities** of mobile payments will positively impact the continued usage of the technology by microentrepreneurs.

This construct is influenced by network externalities that enhance the utility of mobile payments if more people use it (Qasim and Abu-Shanab, 2016), but competitive externalities is considered only from a rivalry perspective. This construct captures that if mobile payments are used as a tool by the rivals of the microentrepreneur, it would give them a competitive edge for which they would want to use it.

4.2.3 Innovativeness

Mobile payment users often experiment with the technology to try something new with it, to exploit their individual innovativeness (Patil, Tamilmani, Rana, and Raghavan, 2020). Individual innovativeness has therefore impacted mobile payment adoption and usage (Thakur and Srivastava,

2014). Subsequently, entrepreneurs are pre-disposed to enjoy experimenting with new things and support novel ideas for their businesses (Entrepreneurial orientation framework, Lumpkin and Dess, 1996). As mobile payment usage has been influenced by innovativeness, it will reflect in the microentrepreneurial context, as well, particularly caused by their disposition towards innovativeness. This innovativeness construct indicates the experimenting possibilities with mobile payments. If mobile payments enable microentrepreneurs to innovate and experiment with the technology for their business, they will continue using it, as suggested below,

H4: The *innovativeness* provided by mobile payments will positively impact the continued usage of the technology by microentrepreneurs.

4.2.4 Customer expectations

The dimension of 'proactiveness' in the entrepreneurial orientation framework defines it as the propensity to participate actively in the market, anticipating the latest trends and demands (Lumpkin and Dess, 1996). Entrepreneurs need to adapt to the growing trends of the market, evolving themselves to meet the customer's expectations for digital technologies (Park, 2005). In other words, if the entrepreneur is proactive, she must be aware of the latest customer demands. With the growing popularity of mobile payments among consumers, pushed further by cash-related difficulties like the Covid-19 pandemic (Pal et al., 2021; Rafdinal and Senalasar, 2021), microentrepreneurs will gauge this consumer demand proactively and offer mobile payments to meet the customer expectations. Thus, if customers expect mobile payments offered by the microentrepreneurs, it will drive the microentrepreneurs to continue using it, as hypothesized below,

H5: *Customer expectations* for mobile payments will positively impact the continued usage of the technology by microentrepreneurs.

4.2.5 Perceived Risk

The financial nature of mobile payment technology places risk as one of the key concerns for its users, which has subsequently been heavily studied by mobile payment literature (e.g., Pal et al., 2021; Thakur and Srivastava, 2014). The transactional information handled by mobile payments also poses threats related to the privacy of the merchants (de Luna et al., 2019). The entrepreneurial orientation acknowledges that entrepreneurs have a certain amount of risk-taking propensity (Lumpkin and Dess, 1996), which highlights their definite awareness of risks in the business environment. Microentrepreneurs from developing economies operating on low-revenue margins will have a higher aversion to risk from the fear of losses (Dalton, Nhung, and Rüschenpöhler, 2020). With the various risk concerns of mobile payments, we suggest that perceived risk will hinder the continuity of using the technology. Therefore, we posit,

H6: The *perceived risks* of mobile payments will negatively impact the continued usage of the technology by microentrepreneurs.

4.2.6 Cost

It is observed that digital technology usage rises among microentrepreneurs when their cost declines (Ilavarasan, 2019). There is a basic infrastructural requirement for mobile payments to operate, which includes internet connectivity cost and commission per transaction, whose cost has to be borne by the microentrepreneurs. Merchants are often charged a transactional fee by mobile payment providers (Pal et al., 2020). When considering microentrepreneurs in the developing country context, the cost of maintaining mobile payments is a likely barrier to their usage. Although the cost has not been included as a dimension of entrepreneurial orientation, the discussion suggests that entrepreneurs often adapt low-cost strategies depending on the environmental conditions (Lumpkin and Dess, 1996). The context of microentrepreneurs operating in a developing country is likely to nurture low-cost strategies. Therefore, extending the entrepreneurial factors to the *microentrepreneurial* context, we suggest that the cost incurred by mobile payments will hinder its continued use, as hypothesized below,

H7: The *cost* incurred by mobile payments will negatively impact its continued usage by microentrepreneurs.

We proceed to empirically test the model developed here for the continuity of mobile payments by microentrepreneurs.

5 Methodology

The developed research model on microentrepreneurial factors of mobile payments was validated using survey data across 208 microentrepreneurs from New Delhi, India. The data analysis was executed using PLS-SEM, using the software SmartPLS 4.0. The sample characteristics and survey instrument development details are discussed here.

5.1 Survey Design and Administration

The survey was designed using instruments from past mobile payment literature and adapting the constructs to overlap with the dimensions of the entrepreneurial orientation framework. Please see Table A1 in the Appendix for the details of the survey instrument. The online survey was collected from marketplaces in New Delhi, the capital city of India by a market research agency (market-xcel.com). The respondents were microentrepreneurs who were local vendors operating from small shops or roadside establishments like carts or makeshift shades. The choice of New Delhi for the field of data collection was motivated by a high concentration of street vendors in urban marketplaces in India (cite). Some photographs from the data collection site are given in Figure 2.



Figure 2. Selected photographs of microentrepreneurs from the field during data collection

The data collection was conducted in July 2022, after a few months of Covid-19 lockdown restrictions were lifted and marketplaces were functional. The rise in mobile payments transactions since June 2020 post the hit of the Covid-19 pandemic gives us a field of merchants who had already adopted mobile payments due to Covid-19-related issues like fear of coronavirus transmission and lockdowns making physical banking difficult (Rafidinal and Senalasari, 2021).

The demographic characteristics of the sample like age, income from a business, and education, are given in Table A2 in the Appendix. These characteristics serve as the *control variables* for our study. We also included shop type as a control, which had categorical variables with various types of shops from makeshift establishments to roadside carts. A total of 208 samples were analyzed after the removal of incomplete, inattentive, and insincere responses.

5.2 Data Analysis

The data analysis was conducted using the path analysis technique, PLS-SEM methodology, using the SmartPLS 4.0 tool. PLS-SEM is helpful due to its applicability in validating new research frameworks, as in our case where the entrepreneurial factors influencing mobile payment continuity were developed

for this study (Hair, Risher, Sarstedt, and Ringle, 2019). The analysis consists of the first step for the assessment of the measurement model to ensure the reliability and validity of the factors, which is followed by the next step which includes the structural model to test the hypotheses of our research model. These steps of data analysis are explained below.

5.2.1 The Measurement Model

The *reliability and validity* of the seven reflective constructs of our research model were validated using the composite reliability (CR) score (above 0.7), the Cronbach’s alpha (CA) value (above 0.7), and the average extracted variance (AVE) scores (above 0.5), which were above the desirable limit (See table A3 in the Appendix). The *convergent validity* was established using the constructs’ cross-loading scores, which were higher than 0.7 or above 0.6, which are acceptable values for high and medium, respectively (Hair et al., 2019; Shi and Maydeu-Olivares, 2020) (See Table A4 in the Appendix). The *discriminant validity* of the constructs was validated using the Heterotrait-Monotrait (HTMT) ratio of correlation (values less than 0.85) (Hair et al., 2019) (See Table A3 in the Appendix).

The *common method bias (CMB) test* was carried out using the latent variable scores (below the threshold of 0.9) (refer to Table A5 in the Appendix), and using the marker variable. The marker variable, theoretically unrelated to the other constructs, was not significant and did not affect the R² of the model, thereby establishing the absence of any common method bias (Lindell and Whitney, 2001).

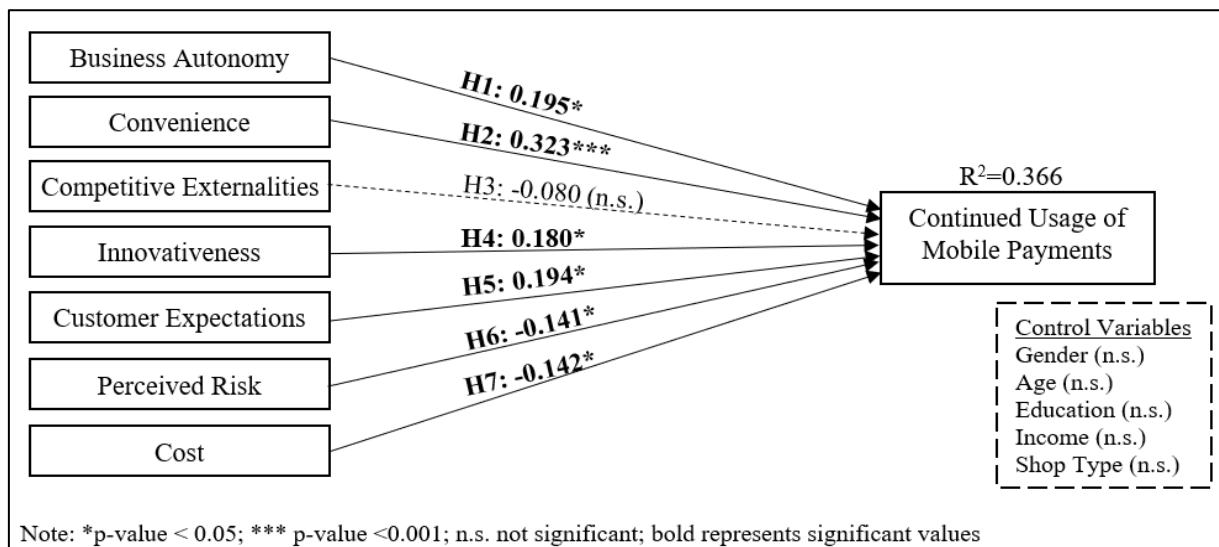


Figure 3. Findings for the Research Model for Microentrepreneurs

5.2.2 Structural Model

The seven hypotheses of the research model were tested for significance, and six of them were supported (H1, H2, H4, H5, H6, and H7). This implied that business autonomy provided by mobile payments and customer expectations of the technology being available positively impacted its continuity among the microentrepreneurs (H1 and H5) while the perceived risk and the cost of the technology (H6 and H7), were a hindrance to it continued usage. Innovativeness significantly impacted the continued usage (H4) highlighting how microentrepreneurs valued the technology’s ability to experiment. However, microentrepreneurs also were heavily influenced by how conveniently they were able to use the technology, depicted by the strong significance of convenience of continued use of mobile payments (H2). The competitive externalities did not significantly impact continued usage in the study (H3). The detailed discussion and implications of the findings are given next. The R² for the mode is 0.366 which can be considered a large effect for behavioural models (Cohen, 2011). For the results, see Figure 3 and table A6 in the Appendix.

6 Discussion of Findings

With the development of a mobile payment continued usage model focused on microentrepreneurs based on their entrepreneurial disposition, the findings of the data analysis have major implications, as discussed below.

Autonomy at work is one of the key reasons that motivate (micro)entrepreneurs to choose entrepreneurship over services with relatively consistent income (Lumpkin and Dess, 1996). The importance of *business autonomy* was reflected in the results as the hypothesis (H1) was supported, i.e., the freedom mobile payment gives the microentrepreneurs in conducting their business is important for the technology's continuity. Mobile payments do not interrupt standard business practices, therefore not disrupting the daily business activities of the vendors, but just providing an additional option for financial transactions. While on one side, the technology needs to allow smooth business operations, on the other side, microentrepreneurs enjoy innovating using the technology (Suseno and Abbott, 2021). Therefore, while mobile payments should not interfere with business activities, *innovativeness* through experimentation with it is taken as a positive technology characteristic by microentrepreneurs (H4). Innovative experimentation is possible as mobile payment allows a merchant transaction in multiple ways, including by scanning the QR-code generated by the merchant, using the mobile number of the merchant or buyer, or even through the QR-code generated on PoS machines (Kumar, 2023). This flexibility allows merchants to try out new ways of transactions and experiment with them, which finally contributes to the long-term continuity of the technology by them.

The popularity of mobile payments grew among merchants primarily due to the easy alternative payment option that did not require investment for infrastructure like the PoS machines in the case of debit/credit cards (Pal et al., 2020). Additionally, the *convenience* offered by it to users makes it advantageous both for consumers and merchants (Gao and Waechter, 2017; Mishra et al., 2022). The strong significance of convenience (H2) asserts how critical microentrepreneurs find the convenience that would lead to its continuity. Merchants also prefer mobile payments due to the convenience of their customers (Mishra et al., 2022), which was captured through *customer expectations*, which also positively impacted continuous use (H5). With recent innovations in the payments space, consumers expect the latest technology from merchants, which is pushing microentrepreneurs to continue using mobile payments (Shader, 2023).

The two hindrances to continuance include *cost* and *perceived risks* involved in using the technology. Cost and risk have been identified by literature as barriers to mobile payment use (Lu, Yang, Chau, and Cao, 2011), and we find support for their significant negative impact in our study, as well (H6 and H7). While risk has received great attention due to the financial transactions involved, the cost has been somewhat neglected since the majority of studies involve consumer-side views that do not concern the transaction fee charged to the merchants. However, smaller merchants' or microentrepreneurs' decisions will be impacted when a fee is incurred per transaction, consuming a part of their income. Therefore, cost becomes a critical barrier to a continuance for them.

We do not find support for *competitive externalities* (H3). While we still suggest the rival merchant's use of mobile payments will affect the microentrepreneurs' behavior to use it, the insignificant can be attributed to the lack of awareness of other merchants' payment behavior since these are small vendors managing shops single-handedly and possibly lacking detailed competitor information. The following sections discuss the implications of these interesting findings discussed above.

7 Implications

The study has theoretical implications related to the research model focused on entrepreneurial factors, and developmental implications regarding sustainable development through the financial inclusion of microentrepreneurs, as discussed next.

7.1 Theoretical contribution

The model development for microentrepreneurs makes an important theoretical contribution to mobile payment literature by introducing the usage framework specifically focusing on the merchant side of adoption influenced by their entrepreneurial disposition. With mobile payment adoption and use literature growing over the past decade, it is critical to address the limitation of merchant-oriented studies. The developed model adapted heavily from the theoretical framework of entrepreneurial orientation (Lumpkin and Dess, 1996), will be beneficial for future studies focusing on both microentrepreneurs and merchants, in general, since the premise is based on distinguished dispositions of merchant users in contrast to consumers.

The model includes constructs like convenience, risk, and cost has been frequently examined in prior mobile payment studies (e.g., Pal et al., 2021), we introduce the interesting constructs of business autonomy, innovativeness, and competitive externalities, which apply to the entrepreneurial context primarily. The model also analyzes the *continuance* of mobile payments. Continued usage holds major implications for the future sustenance and growth of the technology.

7.2 Developmental implications

Mobile payments are considered a technological innovation for fostering sustainable development through the financial inclusion of microentrepreneurs (Yang and Zhang, 2020). Microentrepreneurs constitute a significant section of these regions, with informal businesses contributing a bulk of the economy, which has brought attention to how their financial inclusion can contribute to attaining the SDGs like SDG #8 related to economic growth suggests promoting microentrepreneurship by providing adequate financial services, and SDG #3 related to the wellbeing of all (Senyo et al., 2022; Rahman et al., 2017). Our study addresses the entrepreneurial-oriented factors of mobile payments that would have microentrepreneurs continue their usage, thereby ensuring sustainable financial inclusion through mobile payment use.

The growing interests of customers in the latest technologies are leading to mobile payment usage by microentrepreneurs, as customer expectations impact continued usage (H5). However, it may be challenging for small subsistence businesses to sustain the new-edge innovations in the financial services space, thus challenging their business and livelihood sustenance (Shader, 2023). Therefore, government policies supporting financial inclusion become a leading necessity for sustainable socioeconomic development. The government may take measures to ensure low or no transaction costs for microentrepreneurs through regulatory means, since cost of using mobile payments recognized by microentrepreneurs as a barrier to continued use (H7). India has a technical interface termed the unified payment interface (UPI) provided by the government, and the ministry has ensured zero transaction fees for UPI-based transactions (Shetty, 2022). The government of other developing countries can consider the such a policy to enhance financial inclusion.

8 Conclusion

In this paper, we develop a model to understand the continued usage of mobile payments by microentrepreneurs in a developing country context (using entrepreneurial orientation (Lumpkin and Dess (1996)). The results show how autonomy, innovativeness, customer expectations, and convenience promote mobile payments' continuity while the cost of using it and perceived risks constrain it. Besides the theoretical contribution in terms of an entrepreneur-focused model for merchant-side use of mobile payments, the study has implications related to sustainable development through financial inclusion.

There are a couple of *limitations* of the study. Firstly, there is a lack of a systemic literature review on merchant usage literature for mobile payments since the objective of the study was to understand the background of the theoretical work (Okoli, 2015). However, a thorough standalone systematic review could indicate other directions to this research, which can be pursued in the future. A second limitation is the lack of qualitative interviews which would reveal insights related to how microentrepreneurs use

the technology innovatively. *Future research* can consider technology affordances as the theoretical lens to discover the evolution of the innovative uses of mobile payments by microentrepreneurs for achieving their business goals (Majchrzak and Markus, 2012). Additionally, future studies can examine usage across demographics to understand merchant behavior across socioeconomic segments.

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10 APPENDIX

Construct (Code)	Items*	Literature
Continued Usage of Mobile Payments (CUse)	Do you intend to continue using mobile payments for your business?	(Venkatesh et al., 2011)
	Do you plan to continue using mobile payments for your business?	
	Will you continue using mobile payments for your business in the future?	
Business autonomy (BA)	Does mobile payment allow you to run your business the way you wish to?	(Lumpkin and Dess, 1996)
	Can you choose to use mobile payment whenever you want for your business?	
	Does mobile payment allow you to retain autonomy on how you run your business?	
Convenience (Cnv)	Mobile payment is convenient because:	(Kim, Mirusmonov, and Lee, 2010)
	The mobile phone is always with you	
	You don't need to worry about returning change to customers	
	Overall, you find mobile payment very convenient	
Competitive Externalities (CpEx)	You use mobile payments for your business because:	(Lumpkin and Dess, 1996)
	Other merchants are using mobile payments	
	Your competitors are using mobile payments	
	Most merchants like you use mobile payments	
Innovativeness (Inv)	You use mobile payment for your business because:	(Al Mamun and Fazal, 2018)
	Mobile payment allows you to experiment with it	
	You can easily try out various mobile payment apps	
	You can easily try out different things with mobile payment	
	New technologies like mobile payments can be helpful	
	Mobile payment offers different ways to transact money	
	Mobile payment allows various new ways for business	
Customer expectations (CstE)	Your customers prefer to transact using mobile payments	(Venkatesh et al., 2011) [Subjective norm]
	You use mobile payments because your customers expect it	
	If you don't use mobile payments, you may lose customers	
Perceived Risk (PR)	You may lose money due to careless mistakes	(Thakur and Srivastava, 2014)
	You may lose money due to transaction errors	
	You are worried because many customers have your account details	
Cost (Cost)	The access cost like Internet data for using mobile payment is expensive	(Venkatesh, Thong, and Xu, 2012)
	The transaction fee of using mobile payment is expensive	
	There is a service charge or commission charged by the mobile payment app	
*Note: Items are measured by a 5-point Likert scale: Strongly disagree/ somewhat disagree/ neither agree nor disagree/ somewhat agree/ strongly agree.		

Table A1. Survey Instrument

		Number	Percentage
Gender	Male	189	90.9%
	Female	19	9.1%
Age	18-24 years	17	8.2%
	25 - 34 years	73	35.1%
	35 - 44 years	74	35.6%
	45 - 64 years	44	21.2%
Education	Never went to school	4	1.9%
	Went to school but less than matriculation	27	13%
	Matriculation (passed 10th class)	61	29.3%
	High school (passed 12th class)*	85	40.9%
	Graduate and above (completed college or more)	31	14.9%
Monthly income	Less than ₹10,000/-	9	4.3%
	₹10,001/- ₹20,000/-	82	39.4%
	₹20,001/- ₹30,000/-	66	31.7%
	₹30,001/- ₹40,000/-	23	11.1%
	Above ₹40,000/-	28	13.5%

*Note: In India, 11th -12th grade is referred to as higher secondary school or high school (Ministry of HRD, 2020)

Table A2. Demographic distribution

	CA*	CR*	AVE*	BA	Cnv	CpEx	Inv	CstE	PR	Cost	CUse
BA	0.859	0.914	0.78	-							
Cnv	0.774	0.871	0.694	0.244	-						
CpEx	0.801	0.884	0.718	0.567	0.709	-					
Inv	0.91	0.931	0.693	0.212	0.287	0.369	-				
CstE	0.763	0.862	0.675	0.342	0.641	0.771	0.546	-			
PR	0.706	0.837	0.636	0.142	0.353	0.336	0.334	0.501	-		
Cost	0.787	0.869	0.692	0.148	0.074	0.124	0.083	0.088	0.315	-	
CUse	0.806	0.884	0.72	0.39	0.531	0.417	0.356	0.492	0.134	0.158	-

*Note: CA= Cronbach's alpha, CR= Composite reliability, AVE= Average variance extracted
CA>0.7, CR>0.7, AVE >0.5; HTMT criterion: values <0.85 (Hair et al., 2019)

Table A3. Construct reliability and validity, and discriminant validity using HTMT criterion

	BA	Cnv	CpEx	Inv	CpEx	PR	Cost	CUse
BA_a	0.92	0.11	0.37	0.14	0.17	0.02	-0.13	0.33
BA_b	0.9	0.21	0.4	0.17	0.28	0.04	-0.09	0.24
BA_c	0.83	0.19	0.47	0.19	0.3	0.2	-0.1	0.27
Cnv_a	0.24	0.72	0.4	0.21	0.41	0.2	-0.04	0.35
Cnv_b	0.13	0.92	0.58	0.28	0.48	0.26	-0.03	0.44
Cnv_c	0.1	0.85	0.43	0.12	0.36	0.19	-0.04	0.31
CpEx_a	0.32	0.49	0.84	0.21	0.43	0.19	0.02	0.31
CpEx_b	0.46	0.55	0.92	0.26	0.55	0.21	0.01	0.31
CpEx_c	0.4	0.4	0.78	0.34	0.58	0.24	0.1	0.27
Inv_a	0.13	0.24	0.19	0.7	0.31	0.16	-0.03	0.26

Inv_b	0.15	0.16	0.22	0.83	0.4	0.2	0.05	0.24
Inv_c	0.15	0.2	0.24	0.87	0.37	0.23	0	0.25
Inv_d	0.14	0.25	0.31	0.89	0.43	0.26	0.03	0.3
Inv_e	0.15	0.19	0.31	0.86	0.43	0.27	0	0.27
Inv_f	0.2	0.21	0.28	0.84	0.39	0.26	-0.08	0.3
CpEx_a	0.22	0.54	0.51	0.45	0.86	0.35	0.01	0.39
CpEx_b	0.28	0.31	0.59	0.39	0.85	0.3	0.03	0.36
CpEx_c	0.16	0.38	0.38	0.28	0.75	0.25	0.05	0.25
PR_a	0.11	0.22	0.16	0.26	0.3	0.9	-0.22	0.09
PR_b	0.1	0.22	0.2	0.17	0.31	0.82	-0.17	0.05
PR_c	0.02	0.19	0.24	0.22	0.27	0.66	0.14	0.08
Cost_a	-0.09	-0.08	-0.06	-0.04	-0.03	-0.22	0.77	-0.07
Cost_b	-0.11	-0.04	0.06	0.02	0.02	-0.13	0.97	-0.18
Cost_c	-0.11	0.01	0.1	-0.05	0.11	0.14	0.74	-0.07
CUse_a	0.29	0.21	0.18	0.13	0.21	0.1	-0.05	0.7
CUse_b	0.29	0.47	0.39	0.3	0.36	0.04	-0.14	0.92
CUse_c	0.27	0.4	0.28	0.35	0.45	0.13	-0.18	0.9

Loadings >0.7 for most, >0.65 for one item; all loadings higher on intended constructs (Hair et al., 2019)

Table A4: Crossloadings for Convergent and Discriminant Validity

	BA	Cnv	CpEx	Inv	CpEx	PR	Cost	CUse
BA	1	0.187	0.465	0.185	0.273	0.094	-0.12	0.324
Cnv	0.187	1	0.57	0.253	0.504	0.263	-0.045	0.447
CpEx	0.465	0.57	1	0.314	0.608	0.245	0.046	0.349
Inv	0.185	0.253	0.314	1	0.467	0.279	-0.008	0.326
CstE	0.273	0.504	0.608	0.467	1	0.368	0.032	0.413
PR	0.094	0.263	0.245	0.279	0.368	1	-0.103	0.098
Cost	-0.12	-0.045	0.046	-0.008	0.032	-0.103	1	-0.154
CUse	0.324	0.447	0.349	0.326	0.413	0.098	-0.154	1

Highest correlation between constructs <0.9 (Lindell and Whitney, 2001)

Table A5. Latent Variable Scores for Common Method Bias Test

Hypothesis	Relationship	Path Coefficient	P values
H1	BusinessAutonomy -> ContinuedUsage	0.195*	0.048
H2	Convenience -> ContinuedUsage	0.323***	0
H3	CompetitiveExt -> ContinuedUsage	-0.08 (n.s.)	0.515
H4	Innovativeness -> ContinuedUsage	0.18*	0.016
H5	CustomerExp -> ContinuedUsage	0.194*	0.037
H6	PerceivedRisk -> ContinuedUsage	-0.141*	0.048
H7	Cost -> ContinuedUsage	-0.142*	0.048

*p-value < 0.05; *** p-value < 0.001; n.s. not significant; bold represents significant values

Table A6. Path Coefficients and Significance

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