Change in the uses pattern of digital banking services by Indian rural MSMEs during demonetization and Covid-19 pandemic-related restrictions

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Abstract

Purpose – In the ever fast-changing modern world, through the use of digital banking services (DBS), the old concept of banking in a traditional way has been completely changed. It was made possible through the use of modern artificial intelligence embedded technologies. It was done to meet the ever-growing demands of customers through more user-friendly and time-saving uses of technologies. This paper aims to uncover and analyse the factors affecting the adoption of digital banking services by rural micro small and medium enterprises (MSMEs). MSME is one of the most active sectors in India. It plays an important role in the economic development of the country through exports and domestic supplies and by creating employment opportunities.

Design/methodology/approach – The study was conducted using a questionnaire survey. In total, 148 rural MSME owners were considered for the analysis in this study. Rural MSMEs in India are way behind in using digital banking services than their urban counterparts. The present study uses IBM SPSS and AMOS to shed light on the prevalent factors that influence the attitude to use digital banking services.

Findings – It is found out that convenience (which includes perceived usefulness and perceived ease of use), perceived self-efficacy, demonetization, performance expectancy and pandemic effect have a significant effect on the attitude to adopt DBS. The findings of the study will provide deeper insights for the banks as well as different government agencies to revamp their strategies in changing the financial landscape of the country through a "cashless economy".

Practical implications – Demonetization, a boom in eCommerce in India, pandemic-related lockdowns or restrictions and the government's push for the digital economy will aid the use of DBS at a faster pace. The outcome of the study will help both the government and the financial institutions to chalk out strategies to cater to the rural MSMEs in embracing DBS.

Originality/value – The use of digital services for banking in India is in a nascent stage, but the rate of adoption is increasing at a cyclonic speed. Affordable electronic devices, cheap internet and different medium of using DBS are fuelling the rapid increase; yet, limited research focuses on the differences in the rate of acceptance of digital banking services concerning rural MSMEs.

Keywords Digital banking, MSME, Internet banking, Digital India, Cashless economy, eCommerce, m-banking, e-banking, Banking services

Paper type Research paper

1. Introduction

Presently, the world is in the grip of the devastation of Covid-19. It is not only taking lives but also changing the economic status of people. Lockdowns were implemented in almost every country to contain the spread of it. Due to these lockdowns, the economic impact of this pandemic was experienced by almost every country. Many countries are on the verge of an economic breakdown. In India, a series of lockdowns started from 25th March 2020 and continued till 31st May 2020, comprising of 68 days (Chauhan, 2020). We are now in Unlock 1 phase, and still, there are partial lockdowns in many parts of the country. Both MSMEs and the banking sector got affected due to these lockdowns; among them, micro small and medium enterprises (MSMEs) were among the hardest hit sector. Social distancing was one of the norms during this lockdown. While maintaining a safe distance of at least a meter, the brick-and-mortar branches faced a complicated and challenging task (DQI Bureau, 2020). To minimize the risks associated with the use of cash during this pandemic, even, the Reserve Bank of India (RBI) Governor Shaktikanta Das urged Indians to use digital banking services (ETBFSI, 2020).

The enormous potential of internet banking is already getting special attention by the government, academicians, researchers and financial institutions. This is done for the benefits of the consumers, businesses and banking institutions. The usage of mobile banking is drastically on the lower side in India despite its huge benefits (Poddar *et al.*, 2016). The Government of India, through its Digital India concept, is promoting and encouraging people to embrace a cashless economy. To promote digital banking, the Government of India took out initiatives in the form of Lucky Grahak Yojana, Bharat Interface for Money, Aadhar Pay, etc. They have also encouraged the use of an Unified Payments Interface (UPI) by giving different incentives. The use of UPI has changed the digital landscape a lot in both urban and rural regions of the country. With continuous support from the government, almost all the banks and different financial institutions are investing a lot in digital banking services. The banks or financial institutions must identify the factors influencing the decision-making capability to adopt digital banking services by the customers. Therefore, the purpose of this paper is to understand and analyze the factors affecting the adoption of digital banking services in India in both the situation related to demonetization and Covid-19. These two events being discussed have changed the way we transact with our money. Both the circumstances discussed demands businesses with limited or zero online presence to think about the digital transformation of their business particularly in the digital financial transactions front (Tafti *et al.*, 2020).

In this technology innovative world, the banking sector is completely keeping pace with each up-gradation in technology to give new and better services to their customers by being at the forefront of technological innovation. After the 1990s financial sector reform in India, technology played a key role in bringing the mainstream banking sector to the digital platform. With a plethora of better applications, cloud computing, artificial intelligence, quick delivery of services, process digitization, etc., the banking sector is always prepared to cater to the growing customer demands. Across the globe, banks are exploring several ways to convert their services to a more digital business model perspective. Everything associated with the way banking activities are performed started changing from the first online banking launched by ICICI bank in India in 1996 to the next two decades (Dhananjay and Suresh, 2015). Digital banking services have entirely revamped the way banks conduct their business. There was a change in focus from a banking perspective to more on the needs of the customers. This is evident through the increase in the use of digital platforms, the volume of online transactions and the utilization of an online platform, directly or through different applications (Bankole *et al.*, 2011). Bankole and Corbitt (2003) defined mobile

banking as an interactive channel where both the customers and the bank interact virtually by using a mobile device. Flexibility, efficiency and convenience in the use of mobile applications facilitate the use of mobile banking applications in business and personal use (Rao and Troshani, 2007). The concept of anytime from anywhere banking differentiates traditional banking and mobile banking (Kleijnen *et al.*, 2004; Herzberg, 2003; Laukkanen, 2007). With internet banking, making payments through the transfer of funds or making bill payments or checking balances round the clock makes the customer self-dependent as banking services are always open for him/her as per his/her convenience.

Modern technology has completely revamped the functioning of different business entities all around the world by providing enhanced efficiency. It also provides access to improved and precise information (Uppal, 2008). The gradual increase in the use of information technology (IT) by banks all around the world has helped in enhancing management processes, discovering different market prospects, establishing new products or services and in return, generating higher business revenues (Liao and Cheung, 2002). Both demonetization and pandemic-related restrictions will impact consumer behaviour of first-time adopters of digital banking services, as they will continue to use it even after everything becomes normal (Tafti *et al.*, 2020). The past few years have seen immense growth in digital payments in India. This growth has shown the customer's preference towards firms having digital payments as an option (Goyal, 2021). As more consumers are shifting towards the digital platform of payments, small and medium enterprises (SMEs) need to switch to this platform to match the requirements of the consumers (Mansur, 2020). Given the recent trends and the experiences related to pandemic-related restrictions, digital payments have changed their status from being a means of convenience to a means of necessity (Tafti *et al.*, 2020).

The pandemic forced many people, including the ones who resisted the use of digital technologies in banking services, to adopt the use of digital banking services. The longer duration of these lockdowns will help the customers to get familiarized with digital banking services, and the chances of them moving to physical branches will be less after the lockdowns are fully over (Khidhir, 2020). Apart from all the negativity, the pandemic has given many opportunities to the banking sector to launch many digital initiatives (ResearchDive, 2020). Live chats, use of virtual assistants, WhatsApp Business, etc. became the new norm just after the initial relaxation of protocols being followed for Covid-19 restrictions (Goyal, 2020). Due to the Covid-19 pandemic, consumers are forced more towards online shopping, and it is quite evident through the Mastercard study, which points out that nearly 49% of Indian online customers are interested to do more online purchase in the future (Mansur, 2020). Businesses related to the selling of groceries, pharmaceutical products, bill payments, recharges and online education have seen an immense rise in digital payments (Tafti *et al.*, 2020). Just after the outbreak of the pandemic, even banks had to close their physical branches. For example, JP Morgan closed around 1,000 branches, whereas Citigroup closed around 100 branches in the USA (Subbanna, 2020). There has been a rise of about 8% in both the users of internet banking and mobile banking through financial apps as compared to both pre-Covid-19 and during Covid-19-related restrictions (ANI, 2020). The purpose of the study is to find out how demonetization and the current pandemic have reshaped the usage of digital banking services. It also tries to find out the factors that influences consumers' adoption of these digital banking services.

The subsequent sections of the paper shed light on the different available literatures related with the usage of digital banking services. The importance of demonetization or the pandemic in reshaping the adoption of these banking services is evident through the literatures. It also provides us with a clear picture about the different factors that influence

or become a hindrance in the adoption process of digital banking services. The importance of digital banking services for MSMEs, specially the rural MSMEs, is also highlighted in the subsequent sections of this paper. Through of analysis of the data being collected, the purpose of this paper and its importance in this current scenario are also being explained.

2. Literature review

MSME is one of the most significant and vibrant sectors for the development of the country economically. It is considered as a backbone of the Indian economy. It provides financial support to the economy, through employment generation capability and 28.77% share in India's gross domestic products (GDP) (MSME Annual Report 2017-18). Approximately 58.5 million businesses were found to be operational as per the Sixth Economic Census (2016). Among them, 59.48% of businesses were found to be in rural areas. The top five states in terms of the number of MSMEs are Uttar Pradesh, West Bengal, Tamil Nadu, Maharashtra and Karnataka. The huge numbers of MSMEs are most relevant in the enhancement of using digital banking services for realizing the dream of a cashless economy in India.

Digital banking services are a form of a virtual bank that provides all banking activities online. It helps banking customers enjoy the comfort of accessing and performing all traditional banking activities at their convenience. Money deposits, withdrawals, transfers, account management, applying for financial products, loan management, bill payment and other integrated services like an investment in mutual funds or share market are some of the key forms of digital banking services. India is a country with a boom in technological aspects and a rapidly growing financial economy. Digital banking, being the need of the hour, has completely changed the way we interact and transact with the banks and vice-versa. Since the demonetization, the push for a cashless economy is connecting more and more users towards digital banking. Internet banking, m-commerce through banks application or from other financial institutions, through wallets, ATM services, etc. are the different forms of using digital banking services. Through better access to data and information, cost reduction and enhanced efficiency, the advancement of technology all over the world has drastically revamped the operations of business organizations (Uppal, 2008). Innovation in the field of IT in the 21st century has transformed the functioning of business entities in almost every country. The availability and access to better and high-speed internet have become affordable to almost every corner of the country, which is helping with the growth of the financial service industry. Affordable internet coupled with affordable IT and mobile devices is the main pillar behind banks offering tailor-made electronic-based financial products to customers within their convenience. Technological advancement in the field of internet banking has completely changed the ways of financial activities and the nature of banking from "physical" to "virtual". Without diminishing the existing service levels, banks, with the help of technology, are catering to the growing demands of the customers in offering different banking products and services through non-traditional or alternative delivery channels within customer's convenience and economical boundaries (Akinci et al., 2004).

In this fast-moving era, convenience is becoming the prime aspect of choosing a product or service, especially of the "Generation Y" population. Effortlessly managing lives on the move and getting an efficient result is the need of the hour. Therefore, banks offering innovative and cutting-edge solutions through user-friendly applications or different mediums are getting the maximum attention from the customers. The feature that distinguishes the services of e-banking from traditional banking is proximity and convenient time (Ibrahim et al., 2006). The knowledge about the perception of mobile users is critically important for the success of m-commerce (Okazaki, 2006; Lee and Lee, 2007).

The time-saving potential along with the convenience of online or mobile banking services is valued the most by the younger consumers as compared with older consumers (Howcroft *et al.*, 2002). In the Indian context, it is found that the adoption of new digital technologies is more in urban consumers than rural consumers (Singh and Aggarwal, 2013). The incapability to provide "performance to price value" is considered as the only reason for the consumer's resistance to mobile banking (Laukkanen *et al.*, 2007).

The growth of digital banking services with the help of different applications by the banks or other financial institutions, affordable devices and high-speed internet connections as well the convenience of quick banking round the clock are changing the banking landscape. Still, the growth is lagging behind the growth of digital innovations. The responsibility to share the benefits of digital services lies with the bank. They should make the customer aware of the benefits of it and should train them with all necessary information (Mukherjee and Nath, 2003; Lin, 2011). Simple and use of user-friendly technology in mobile banking increases the acceptance for its use (Mortimer *et al.*, 2015; Koksal, 2016). Influence of the society has a positive significance in the usage of mobile banking (Laukkanen *et al.*, 2007; Amin *et al.*, 2008; Riquelme and Rios, 2010; Puschel *et al.*, 2010; Dasgupta *et al.*, 2011). Confidence in the mobile device and the positive experience with its uses significantly influences the use of banking digitally (Iddris, 2013). Cultural environment and several other economic factors are also significant aspects of the acceptance of mobile banking (Amin *et al.*, 2006; Ainin *et al.*, 2007; Bankole *et al.*, 2011; Baptista and Oliveira, 2015; Koksal, 2016). Privacy-related to personal data and the security of the device play an important part in mobile banking acceptance (Wang *et al.*, 2003; Hernandez *et al.*, 2008). Security is one of the main factors towards customers' dependency on mobile banking (Sathye, 1999; Singhal and Padhmanabhan, 2008; Riquelme and Rios, 2010; Grewal, 2012; Deb and Lomo-David, 2014; Khatana and Dahiya, 2015).

The barriers of illiteracy, availability of products or services and cost faced by the common population were prevailed by the revolutions and advancement in information communications and technology. Cheap mobile service charges or internet charges, increase in the purchase of unlimited data plans and the government's initiative is fuelling the growth of m-commerce and m-banking in India (Grewal, 2012). Lack of trust in m-banking plays a major factor in its adoption (Rahman, 2013). Psychological factors were found to be more important than technological factors in the adoption of m-commerce. The rates of mobile banking adoption can be improved by the endorsement of positive attitudes for m-commerce by marketers (Mishra, 2014). "Perceived risk, perceived security risk, demographic variables, and adoption behavior" were found to be a key factor in the acceptance of internet banking in India **(**Mann and Sahni, 2012). Digital banking services are beneficial for the business financially through the quick and easy use of banking services respecting their convenience. It is evident that most of the MSMEs fail in the management of their financial resources properly (Ahmed and Sur, 2017).

The experiences gained through the use of digital banking services, both from the customer and bank viewpoint, will act as a boost in reshaping the backend operations of the bank by optimizing and digitalizing it (DQI Bureau, 2020). According to Rajashekara Maiya, Vice President, Global Head for Business Consulting, Infosys Finacle, this pandemic has presented banks with dual opportunities. First, banks with no or medium usage for digital banking services have to ramp up their resources to use and provide more need of the hour digital services. The second opportunity is for those pure digital banks who were offering digital-only services will have to look for ways to become "full-fledged service providers" (Srivats, 2020). India is categorized as a breakout country, which means that the country is although having low penetration in digitalization, yet is evolving at a rapid speed (Chakravorti *et al.*, 2017). Demonetization along with the push and encouragement from the

Indian government as well the banks has fuelled the rise in the digital payment landscape (Gupta and Dua, 2018; Athique, 2019; Ahmed and Haq, 2019).

Looking on the brighter side of the pandemic-related restrictions, there has been a surge in the use of online platform and e-commerce activities by consumers (Dutt, 2020). Adopting a digital payment solution for the business increased the revenue of firms by around 34%, as pointed out by some analyses. This is one such trigger along with others that are making many businesses adopt digital payments for their business (Mansur, 2020). It is rightly pointed out that the increase in the use of digital payments during the pandemic can be somewhat termed to be a forceful act, and to stop the decline in the use of it post the pandemic, financial institutions should keep improving the security of the e-Wallets (Undale *et al.*, 2020). The government has a huge role to play in enhancing digital payments by providing favourable ecosystems, promoting and creating awareness about the benefits (Sobti, 2019). To create a smooth transition from cash-based payments to the digital-based payments system, the government should enhance digital literacy among the Indian population and by providing the required digital payment infrastructure (Sivathanu, 2019). The government is also promoting contactless payments and encouraging people towards digital payments (Tafti *et al.*, 2020).

Convenience in using digital banking services by MSMEs is making them accept these digital means of banking, and this is the main reason in the increase in the adaptability level of MSMEs towards digital banking services (Meher *et al.*, 2021). The study on the usage and adoption of digital banking services with respect to SMEs in Nigeria (Mbah and Obiezekwem, 2019), SMEs in Kakamega County (Muchiri, 2018) and rural people in Assam (Neog, 2019) focussed on several factors favouring the using of digital banking services. Businesses generally hesitate to provide all their financial details, especially transactions details in the digital platform due to their sense of security (Meher and Gupta, 2020a, 2020b).

3. Research gap
Numerous research papers and articles were studied to understand the adoption process of digital banking services. The study on MSMEs, especially rural MSMEs, is too limited. There are more numbers of MSMEs in rural India, so the study has significance in shaping digital banking penetration in rural India. Also, the current scenario of Covid-19-related lockdowns adds a different dimension to the adoption process.

4. Objective of the study
The objective of the study is to find out the factors that influence consumers' adoption process of digital banking services. The study also tries to find out the role of demonetization and pandemic-related restrictions in adopting DBS by the rural MSMEs. The proposed model will show all the motivating factors as well as the hindrances towards adopting digital banking services among MSMEs in rural India.

5. Conceptual model
5.1 Convenience
With the surge in using the digital mode of payments in offline point-of-sale counters, it is found out that convenience along with the scope to get better deals, cashbacks and discounts are the most motivating factors in the use of it (Shah *et al.*, 2016).

5.1.1 Perceived usefulness (PU). Mobile banking provides an ample amount of information and can be used as per the user's convenience for different banking services. This makes banking hassle-free and effortless as we can use it whenever we need it. Any services that are perceived to be useful by the user can enhance job effectiveness through improvement in productivity and job performance (Rao and Troshani, 2007; Sangle and

Awasthi, 2011; Khan and Khan, 2012; Ramdhony and Munien, 2013). Perceived usefulness (PU) can be defined as the user's belief that the use of digital banking services will be beneficial for them (Jeong and Yoon, 2013). Understanding the user's PU is important to increase the use of digital banking usage (Chaurasia *et al.*, 2019).

5.1.2 Perceived ease of use (PEU). Customers are generally more inclined to use those services that are devoid of any complexities and are easy to learn and use. Acceptance of mobile banking technology by the customer gets enhanced whenever it is simple and easy to understand (Chitungo and Munongo, 2013; Mortimer *et al.*, 2015; Koksal, 2016). Accessibility of new technology in banking influences a customer's initial keenness to adopt it (Ramayah *et al.*, 2003). Users' adoption of mobile banking services through its hassle-free technology is being facilitated by the perceived ease of use (PEU) (Kazemi *et al.*, 2013; Jeong and Yoon, 2013; Govender and Sihlali, 2014).

For our study, both PU and PEU are clubbed together in the convenience component. As both show customers' ease in using the services, they are taken as a single component:

H1. Convenience has a significant effect on the attitude to adopt digital banking services (DBS).

5.2 Perceived risk (PR)

Risk can be defined as the "possibilities of financial loss". Mobile theft, PIN theft, private data exposures, etc., all are directly responsible for the financial losses any human being or business entities has to face. Perceived risk (PR) is the "degree of uncertainty" associated with mobile banking (Gerrard and Cunningham, 2003). The mismatch between customer requirements and anticipated results from digital banking technologies gives rise to this type of risk (Koenig-Lewis *et al.*, 2010). The different types of risks related to economic, functional, psychological, social, etc. are also included in PR (Luo *et al.*, 2010). Other risks arise with the loss of PIN code (Kuisma *et al.*, 2007) and the loss of mobile devices (Luarn and Lin, 2005):

H2. PR has a significant effect on the attitude to adopt DBS.

5.3 Perceived self-efficacy (PSE)

Self-efficacy can be defined as "one's belief or judgement on what customer can do with the skill the customer possess within a particular domain" (Venkatesh and Davis, 2000). Self-efficacy is defined as: "People's judgments of their capabilities to organize and execute courses of action required to attain designed types of performances. It is concerned not with the skills one has, but with the judgement of what one can do with whatever skills one possesses" (Bandura, 1986). In the context of internet banking, perceived self-efficacy (PSE) is the perception of one's confidence in having the required knowledge and skills to carry out online banking transactions. It is considered to be an influencing factor in the adoption of DBS (Luarn and Lin, 2005; Puschel *et al.*, 2010; Dasgupta *et al.*, 2011):

H3. PSE has a significant effect on the attitude to adopt DBS.

5.4 Demonetization effect (DE)

Demonetization came into effect from 8th November 2016 after the announcement by our Prime Minister. This was the third time that demonetization came into effect in India after

1946 and 1978 (Kapoor, PWC, 2016). Digital wallets saw a huge surge in their usage post-demonetization (Nielsen Report Part II, 2016). Auroville in Tamil Nadu and Akodara in Gujarat were the two places in India to become fully cashless as they fully embraced ITeBS and all digital platforms much before demonetization (Shepard, 2016). It had a huge impact on the consumer adoption process of digital payment (Sobti, 2019):

H4. Demonetization effect (DE) has a significant effect on the attitude to adopt DBS.

5.5 Trust

In terms of mobile banking, trust can be described as "the belief that allows individuals to willingly become vulnerable to the bank, the telecommunication provider, and the mobile technology after having the banks, and the telecommunication provider's characteristic embedded in the technology artifact" (Masrek *et al.*, 2012). For digital banking, Yousafzai *et al.* (2009) have identified three levels of trust, namely, "Trust in the bank" (Sohail and Shanmugham, 2003; Saparito *et al.*, 2004; Lee *et al.*, 2007; Arnott, 2007; Hongyoun Hahn and Kim, 2009), "Trust in the internet" (Yousafzai *et al.*, 2003; Sohail and Shanmugham, 2003; Kim and Prabhakar, 2004) and "Trust in internet banking information" (McCole, 2002; Wang and Emurian, 2005; Yousafzai *et al.*, 2009). Several studies show the importance of trust in the adoption process of any services related to DBS (Lee and Turban, 2001; Suh and Han, 2002; Mukherjee and Nath, 2003; Eriksson *et al.*, 2004; Luarn and Lin, 2005; Lee *et al.*, 2007; Nor and Pearson, 2007; Cai *et al.*, 2008; Zhou, 2011; Yu, 2012; Chong *et al.*, 2014; Hanafizadeh *et al.*, 2014; Afshan and Sharif, 2016; Alalwan *et al.*, 2017):

H5. Trust has a significant effect on the attitude to adopt DBS.

5.6 Performance expectancy (PE)

Performance expectancy (PE) refers to "the extent to which individuals in performing certain activities will experience some benefits as a result of using technology" (Venkatesh and Davis, 2000; Venkatesh *et al.*, 2003). PE plays a key role in the adoption of mobile payment in India (Sinha *et al.*, 2015). It directly impacts consumers' intention to use mobile or internet banking (Zhou *et al.*, 2010; Luo *et al.*, 2010; Hongxia *et al.*, 2011; Yu, 2012; Wang and Yi, 2012; Oliveira *et al.*, 2014; Baptista and Oliveira, 2015; Tan and Lau, 2016; Tarhini *et al.*, 2016; Alalwan *et al.*, 2017):

H6. PE has a significant effect on the attitude to adopt DBS.

5.7 Pandemic effect

It has created an opportunity for the banks to make the clients understand the cost and time benefits of using DBS. Payments through a digital platform and the use of digital currencies will probably play an important task after the Covid-19 pandemic. There will be an increase in the use of digital payments through the push of the government to use this form of contactless payment (De *et al.*, 2020). Covid-19 has increased the use of DBS and has helped the banks to fast-forward their digitization process (Seetharaman, 2020). The future is transforming to be a place where every banking customer will demand more advanced financial services (Krivaa, 2020) (Figure 1):

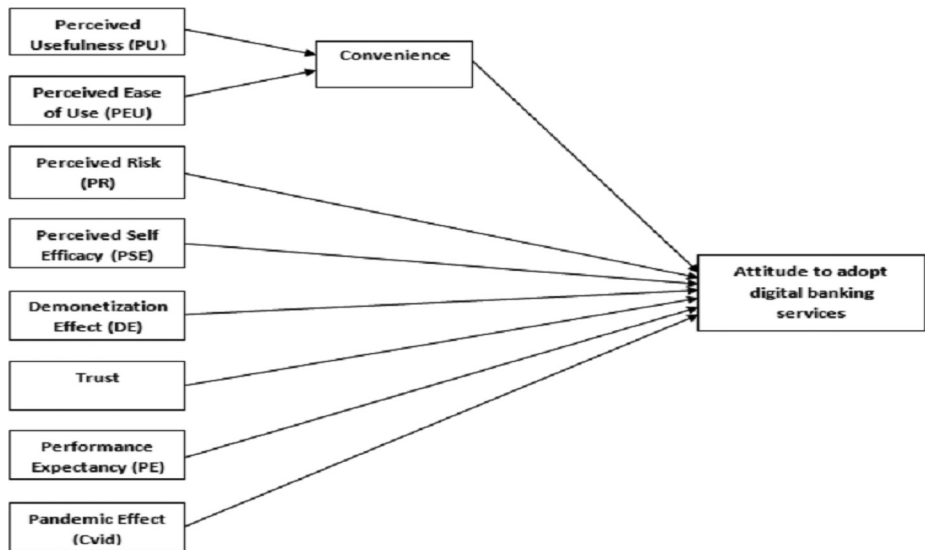*H7.* The pandemic effect has a significant effect on the attitude to adopt DBS.

6. Research methodology

The nature of our study is exploratory involving both qualitative and quantitative aspects of research. It tries to understand the real thought process of the rural MSMEs regarding their decision to adopt digital banking. A structured questionnaire with multi-choice questions on a Likert scale (five points) was used to gather the primary data for this study. The survey was conducted using an interview schedule from 25th February 2020 to 15th June 2020. For online responses, Google forms were used to collect the responses of MSME owners present in different Facebook pages. And for off-line responses, an interview schedule was used to conduct several field surveys (Data was collected with the help of Google Forms and from different Facebook pages and with the help of the interview schedule through a field survey). All the responses were collected in three phases – pre-pandemic lockdown phase, Phases III and IV of lockdown and during Unlock 1 phase. A total of 233 data was collected from Malda and Murshidabad districts and also from other parts of West Bengal, among which a sample of 148 MSME owners was considered for data analysis. The left-out 85 samples were either incomplete or were repetitive. A Likert scale was used to measure all the items of the proposed study. All the questions of the survey were closed-ended with multiple choices as options having values ranged from 1 – totally disagree to 5 – totally agree.

Factor analysis, specifically principal component analysis (PCA), was performed to reduce the factors by using IBM SPPS 25.0. Structural equation modelling (SEM) and path analysis was performed using IBM AMOS 21.0.

7. Data interpretation

7.1 Sample size

The item-to-response ratio for an ideal sample size has a range of a minimum of 1:4 to a maximum of 1:10 (Hinkin, 1995). As per the ratio, the range was calculated as 112–280 respondents. This study is having 148 respondents, which are within that ideal sample size range. The required sample size for the study was also checked using an *a priori* sample size calculator. After adjusting the

anticipated effect size (as 0.15), desired statistical power level (as 0.9) and probability level (as 0.05), the minimum sample required for this study came out as 129. Our study with 148 responses satisfied the minimum required sample size for the study (Nitzl, 2016).

7.2 Demographic profile
Out of the 148 MSME owners, 95.9% were male owners, and the rest 4.1% were female (Table 1).

Almost one-third of the respondents, i.e. 37.8%, were in the age category of 41–50 years (Table 2).

Only 23% of the respondents were having a graduation or post-graduation degree, with 20.9% of respondents having primary-level education (Table 3).

The services sector constituted of 41.2% respondents, and the rest 58.8% of the respondents were from the manufacturing sector (Table 4).

Gender	Frequency	(%)
Male	142	95.9
Female	6	4.1
Total	148	100

Table 1.
Demographic
profile – gender

Age	Frequency	(%)
Up to 30 years	6	4.1
31–40 years	39	26.4
41–50 years	56	37.8
51–60 years	43	29.1
Above 60 years	4	2.7
Total	148	100

Table 2.
Demographic
profile – age

Education	Frequency	(%)
Primary	31	20.9
Secondary	44	29.7
Higher secondary	39	26.4
Graduate	24	16.2
Post-graduate	10	6.8
Total	148	100

Table 3.
Demographic
profile – education

MSME category	Frequency	(%)
Services – micro	56	37.8
Services – small	5	3.4
Manufacturing – micro	76	51.4
Manufacturing – small	11	7.4
Total	148	100

Table 4.
Demographic
profile – MSME
category

Those MSMEs among the respondents generating yearly revenue of up to INR15 lakhs were 50.7% of the total respondents of our study data. Only 10.9% of respondents were generating INR16 lakhs or more yearly revenue (Table 5).

7.3 Data analysis
Data were analyzed using PCA using SPSS 25.0, and the SEM analysis was done using AMOS 21.0.

Common method bias (CMB) was tested using Harman's single-factor test. CMB happens when "variations in responses are caused by the instrument rather than the actual predispositions of the respondents that the instrument attempts to uncover". A data is without CMB only when the total variance of a single factor is less than 50% (Podsakoff *et al.*, 2012). The proposed study is not having CMB, as the total variance for a single factor of this study is 21.364%.

The survey of the study initially had 37 items as part of the questionnaire. PCA was conducted to find out the components. Items having a factor loading score of 0.5 or more were considered for the analysis, keeping in view the criterion for acceptance (Hair *et al.*, 2006). A total of nine items were dropped as their loading scores were way less than 0.5. Finally, 28 items were considered for the final analysis.

7.3.1 Data normality. Normality checks are done as a prerequisite for performing SEM (Byrne, 2016). As per the recommendation, the skewness and kurtosis of all the items considered for the analysis of the proposed research model should be below 3 and 8, respectively (Kline, 2011). All the items were found to be well within the recommended boundaries.

7.3.2 Results. The Kaiser–Meyer–Olkin (KMO) is an index to measure the sampling adequacy to show the appropriateness of factor analysis. The factor analysis is appropriate when we get high values in the range (0.5–1.0) (Hair *et al.*, 2006). The calculated KMO value of our study is 0.794, which shows the appropriateness of our database (Table 6).

The eight components were chosen based on the eigenvalue of 1 or more. It can be seen that the model explains 67.934 of the total sample variance, which is more than the recommended variance of 60% (Malhotra and Dash, 2011).

Yearly revenue	Frequency	(%)
Prefer not to say	57	38.5
Up to INR15 lakhs	75	50.7
INR16–INR30 lakhs	14	9.5
INR31–INR45 lakhs	2	1.4
Total	148	100

Table 5.
Demographic profile – yearly revenue

KMO measure of sampling adequacy	0.794
Bartlett's test of sphericity	
Approximate χ^2	1,643.84
Df	378
Sig.	0

Table 6.
KMO and Bartlett's test

The scree plot also confirms the number of components to be considered for the analysis of the study as 8, based on the eigenvalue of 1 or more (Figure 2).

The total variance explained also confirms that the components for our study will be 8. The cumulative percentage is 67.934, which is well above the standard required for analysis of the data (Table 7).

Factor analysis of the data was done using PCA as the extraction method, and the rotation method used here was varimax. All items having a factor loading score of more than 0.5 were considered for the analysis, keeping in view the criterion for acceptance (Hair *et al.*, 2006). All the constructs were clubbed into different components using the table generated from the rotated component matrix (Table 8).

7.3.3 Reliability and validity of the measurement model. As the researcher has established the statements related to this paper from various literature and has measured it in a Likert scale, it is mandatory to measure the validity and reliability of the scale of the given sample. The sample has been chosen absolutely to represent the target population of the research; hence, the reliability and validity of the scale will represent the construction of the particular measurement scale in the particular area. Because of the consistency of the responses of the respondents, concurrency is also established.

The reliability of the constructs was checked using Cronbach's α values, and those items having a value of 0.7 or more were considered for this data analysis process (Hair *et al.*, 2006). The overall Cronbach's α value of the data was found out to be 0.847. Cronbach's α values are used to examine the internal consistency and reliability of the constructs. As the values obtained are well above the threshold limits, construct reliability is established (Table 9).

The proposed model of our study was tested with SEM using AMOS 21.0 with maximum likelihood estimation. According to Anderson and Gerbing (1988), a two-step approach was recommended and is applied in our SEM analysis. Testing the reliability and validity of the measured scale using confirmatory factor analysis (CFA) is the first step, namely, measurement model. SEM analysis for the structural model is our second step. It is generally used to determine the "interrelationships among the constructs" as well as to "test the hypotheses" and to "test the proposed theoretical model". The results generated from the CFA showed a statistically significant χ^2 (χ^2 = 351.532, df = 319, χ^2/df = 1.102). As per Hair (2014), the recommended level for goodness-of-fit index (GFI), Tucker–Lewis coefficient (TLI) and comparative fit index (CFI) of a measurement
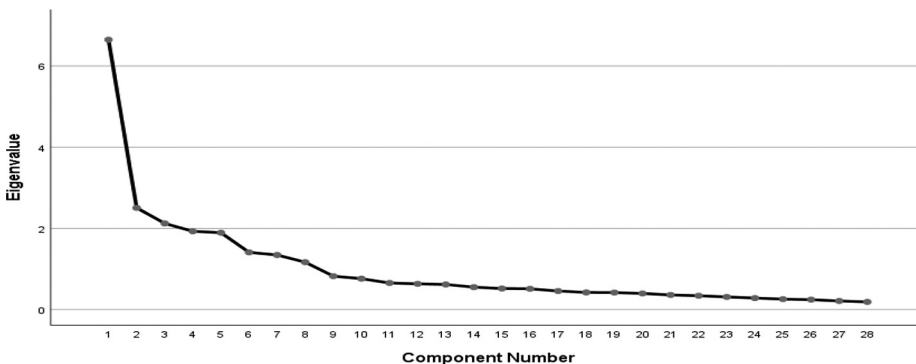
Component	Initial Eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	(%) of variance	Cumulative (%)	Total	(%) of variance	Cumulative (%)	Total	(%) of variance	Cumulative (%)
1	6.647	23.740	23.740	6.647	23.740	23.740	4.059	14.496	14.496
2	2.506	8.951	32.691	2.506	8.951	32.691	2.317	8.274	22.770
3	2.123	7.583	40.274	2.123	7.583	40.274	2.304	8.229	30.999
4	1.928	6.885	47.159	1.928	6.885	47.159	2.173	7.762	38.761
5	1.894	6.764	53.922	1.894	6.764	53.922	2.069	7.389	46.150
6	1.410	5.037	58.960	1.410	5.037	58.960	2.052	7.327	53.477
7	1.345	4.805	63.764	1.345	4.805	63.764	2.043	7.297	60.773
8	1.168	4.170	67.934	1.168	4.170	67.934	2.005	7.161	67.934

Table 7.
Total variance
explained

	Component							
	1	2	3	4	5	6	7	8
PU4	0.733							
PEU1	0.718							
PU1	0.710							
PEU2	0.698							
PU3	0.695							
PEU3	0.673							
PU2	0.654							
PSE3		0.863						
PSE1		0.862						
PSE2		0.840						
PR3			0.830					
PR1			0.806					
PR2			0.804					
Atti3				0.810				
Atti1				0.752				
Atti2				0.714				
DE1					0.807			
DE2					0.773			
DE3					0.725			
Covid2						0.801		
Covid1						0.734		
Covid3						0.690		
PE2							0.820	
PE1							0.814	
PE3							0.711	
Trust3								0.794
Trust1								0.788
Trust2								0.773

Notes: Extraction method – PCA. Rotation method – varimax with Kaiser normalization. Rotation converged in six iterations

Table 8.
Rotated component matrix

Construct	No. of items	Cronbach's α
Total	28	0.847
Convenience	7 (PU – 4 items and PEU – 3 items)	0.872
PSE	3	0.829
PR	3	0.828
Attitude to adopt DBS	3	0.777
DE	3	0.761
Pandemic effect (Covid-19 effect)	3	0.721
PE	3	0.728
Trust	3	0.710

Table 9.
Cronbach's α values

model must be greater than 0.90. The CMIN/df and root mean square error of approximation (RMSEA) should be below 3 and 0.080. The model fit indices generated through our data analysis are at par or exceed the common acceptance level required for the fit statistics. GFI of the measurement model is 0.857, which is just a fraction below

the threshold and can be accepted for model fitness. It demonstrates the fitness of our measurement model and validates the adequacy of the data collected for our study (Table 10).

Table 11 is used to show the composite reliability (CR), average variance extracted (AVE) and discriminant validity (DV).

CR of the latent factors (constructs) was generated to check the reliability of the data related to the attitude to adopt DBS. The recommended value of the CR coefficient is above 0.60 (Hair *et al.*, 2006).

AVE shows the overall amount of variance in the proposed indicators. The standard value of the AVE is expected to be above 0.50 (Hair *et al.*, 2006). DV of the constructs is found when the square root of the AVE is found to be more than the correlation of the latent variables. In our study, DV is established as the square root of AVE of each component is component and is found out to be more than the correlation of the latent variables (Table 12).

The proposed measurement model is evaluated at par with the recommendation of Hair (2014).

7.3.4 Structural model. After getting the CR, DV and model fitness of the measurement model, SEM analysis is conducted to get the fitness of the structural model. The generated result showed a statistically significant χ^2 ($\chi^2 = 366.264$, df = 322, χ^2/df = 1.137). The GFI, TLI and CFI of the structural model are generated as 0.857, 0.963 and 0.968, respectively. It is within the recommended level as per Hair (2014) with GFI marginally within the reach of the threshold and can be considered for good model fitness. The RMSEA of the structural model is 0.031. It shows that the proposed model is having satisfactory fitness generated from the observed data.

Fit index	Measurement model	Structural model	Standard level
CMIN/DF	1.102	1.137	<3.0
GFI	0.863	0.857	>0.90
TLI	0.972	0.963	>0.90
CFI	0.977	0.968	>0.90
RMSEA	0.026	0.031	<0.08

Table 10.
Model fit index

Latent variables	AVE	Square root of AVE	CR
Convenience	0.5	0.71	0.86
Attitude	0.54	0.73	0.78
PSE	0.62	0.79	0.83
PR	0.62	0.79	0.83
DE	0.52	0.72	0.76
Covid-19 effect	0.5	0.71	0.71
PE	0.51	0.71	0.73
Trust	0.5	0.71	0.71

Table 11.
AVE value and CR value

Latent variables		Latent variables	Estimate
Convenience	<->	Trust	0.012
Convenience	<->	Perf_Expectancy	0.282
Convenience	<->	Covid_Effect	0.501
Convenience	<->	Demone_Effect	0.488
Convenience	<->	Perceived_Risk	0.507
Convenience	<->	Self_Efficacy	0.004
Self_Efficacy	<->	Trust	−0.145
Self_Efficacy	<->	Perf_Expectancy	−0.049
Self_Efficacy	<->	Covid_Effect	0.017
Self_Efficacy	<->	Demone_Effect	−0.056
Self_Efficacy	<->	Perceived_Risk	0.038
Perceived_Risk	<->	Trust	0.024
Perceived_Risk	<->	Perf_Expectancy	0.207
Perceived_Risk	<->	Covid_Effect	0.206
Perceived_Risk	<->	Demone_Effect	0.223
Demone_Effect	<->	Trust	0.122
Demone_Effect	<->	Perf_Expectancy	0.242
Demone_Effect	<->	Covid_Effect	0.344
Covid_Effect	<->	Trust	0.044
Covid_Effect	<->	Perf_Expectancy	−0.057
Perf_Expectancy	<->	Trust	0.058

Table 12.
Correlation estimates

7.4 Results and discussions

H1 (convenience), H2 (PR), H3 (PSE), H4 (DE), H5 (trust), H6 (PE) and H7 (pandemic effect – Covid-19) are the hypotheses of our study. To check whether the proposed hypotheses of the study are accepted or rejected, the standardized regression weight of each construct is analyzed along with the t-values of it at the recommended significance level of less than 0.05. To accept the proposed hypotheses, the t-vale or the critical ratio value is recommended to be more than ± 2 (Byrne, 2016). Table 13 shows the t-values and p-value associated with each hypothesis along with the path scores.

Convenience (H1), which includes both PU and PEU, is found to be significant with a t-value of 3.242, with a significance of 0.001. MSMEs understand the benefits of using DBS. They also find it a bit easy to use the applications or the online user interface of the banks to perform the banking services digitally. This is considered to be the first step in adopting any kind of technological services. It shows that the convenience of using any platform for

Dependent variable	Independent variable	Standard regression weights	SE	t-value	p-value	Hypotheses accepted/ rejected
ATTITUDE	Convenience (H1)	0.247	0.063	3.242	0.001	Accepted
ATTITUDE	PR (H2)	0.014	0.049	0.244	0.807	Rejected
ATTITUDE	PSE (H3)	0.226	0.039	4.694	0.001	Accepted
ATTITUDE	DE (H4)	0.274	0.055	4.431	0.001	Accepted
ATTITUDE	Trust (H5)	−0.126	0.047	−2.446	0.014	Accepted
ATTITUDE	PE (H6)	0.223	0.057	3.836	0.001	Accepted
ATTITUDE	Pandemic effect (H7)	0.159	0.064	2.422	0.015	Accepted

Table 13.
Hypotheses result

performing different tasks will lead to the actual usage of it. The results indicate that any services that are perceived to be useful by the user can enhance job effectiveness through improvement in productivity and job performance (Rao and Troshani, 2007; Sangle and Awasthi, 2011; Khan and Khan, 2012; Ramdhony and Munien, 2013). Also, the adoption of DBS gets facilitated by PEU when there is a hassle-free technology for using DBS (Kazemi *et al.*, 2013; Jeong and Yoon, 2013; Govender and Sihlali, 2014).

PR (*H2*) is found to be insignificant with a *t*-value of 0.014 and a *p*-value of more than the limit of 0.05. Through the result, it is evident that MSMEs do not think that there are many kinds of big risks involved in using DBS. Many are using DBS for the past 4–5 years, and they have not found any unkind risk happening with their transactions. Their experience in using DBS has negated the effect of PR in the usage of DBS. It contradicts the previous studies (Luarn and Lin, 2005; Kuisma *et al.*, 2007 Koenig-Lewis *et al.*,2010; Luo *et al.*, 2010), which have shown PR to be an important factor in the attitude to use banking services in a digital form.

PSE (*H3*) is found to be significant with a *t*-value of 4.694, with a significance of 0.001. It shows that MSME owners have the confidence in the capabilities of themselves that they can execute courses of action required to attain designed types of performances. Better education levels, a better user interface of applications and online platform and the ease in using mobile devices or devices used to perform DBS have enhanced this confidence in themselves. The result shows that PSE is an influencing factor in the adoption of digital banking services (Luarn and Lin, 2005; Puschel *et al.*, 2010; Dasgupta *et al.*, 2011).

DE (*H4*) is found to be significant with a *t*-value of 4.431, with a significance of 0.001. The scarcity of cash during the demonetization phase has pushed people to use the digital form of financial transactions. During this period, DBS was an important and viable option for doing business, and many MSMEs started using this period because of the demand of the hour from both consumer and business perspectives. It had a huge impact on the consumer adoption process of digital payment (Maji, 2017; Sobti, 2019; Goyal, 2021) and is evident from the result.

Trust (*H5*) is found to be significant with a *t*-value of –2.446, with a significance of 0.014. It is negatively associated with the adoption of DBS. MSME owners are sceptical about trusting the bank or the internet or the information provided by the banks or financial institutions. It is also found significant in the previous studies related to DBS (Sohail and Shanmugham, 2003; Yousafzai *et al.*, 2003; Yousafzai *et al.*, 2009; Afshan and Sharif, 2016).

PE (*H6*) is also found to be significant with a *t*-value of 3.836 and a *p*-value of 0.001. MSMEs have already experienced the benefits associated with it since the demonetization period. Payments from consumers and payments to the vendors are quickly processed through the use of DBS. Also, they can cater to tech-savvy consumers by providing them with multiple payment options. PE plays a key role in the adoption of mobile payment in India (Sinha *et al.*, 2015) and directly impacts the attitude to use DBS (Zhou *et al.*, 2010; Wang and Yi, 2012; Oliveira *et al.*, 2014; Baptista and Oliveira, 2015; Alalwan *et al.*, 2017). The result also shows the same impact of PE on the attitude to use DBS.

Pandemic effect (*H7*) is also found to be significant with a *t*-value of 2.422 and a *p*-value of 0.015. With repeated lockdown-related restrictions and the fear of the spread of the virus through the use of physical currency, the use of DBS has become significant. The restrictions also forced people to get their needs delivered directly to their home. In all the circumstances, DBS was the best viable option. The result shows that the pandemic had a significant effect on the attitude to use DBS, as is evident in various other studies (Tafti *et al.*, 2020; Krivaa, 2020; Seetharaman, 2020; De *et al.*, 2020).
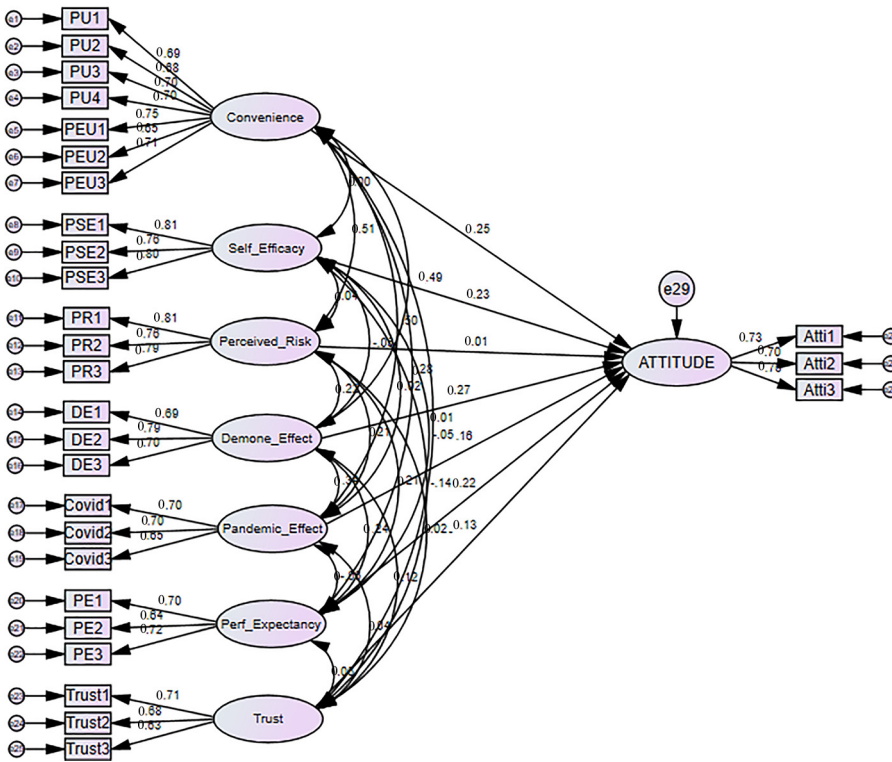
The result, which is shown in Figure 3, shows that DE has the most impact on the attitude to use DBS, with the highest path score of 0.274. It is followed by convenience, PSE, PE and pandemic effect with a score of 0.247, 0.226, 0.223 and 0.159, respectively. Trust is negatively significant with a path score of –0.126. It can be interpreted from the result that MSMEs got the thrust in using DBS in the demonetization period. Convenience in using the digital platform of banking services supported by their self-efficacy, and their experience of the benefits from the use of it has changed and is changing their attitude to use DBS. Covid-19 pandemic also has made their attitude align towards the use of DBS.

8. Implications
8.1 Theoretical implications
Research has previously pointed out the low penetration of digital banking in India (Poddar *et al.*, 2016), and almost negligible studies have pointed out its adoption by rural MSMEs. As it is pointed out, the adoption of new digital technologies is more in urban consumers than rural consumers (Singh and Aggarwal, 2013). This study presents a unique viewpoint, as it has tried to show the impact of demonetization and Covid-19 on the adoption of DBS. Both the situation demands businesses with limited or zero online presence to think about the digital transformation of their business, especially in the digital financial transactions front (Tafti *et al.*, 2020). Rural MSMEs are aware of the rise in digital banking consumers (Mansur, 2020) and have experienced the benefits of it during both demonetization and

Covid-19 periods. The proposed model has given a viewpoint wherein it is evident that convenience in using DBS along with their PSE has given a positive result to its PE parameter. The results from the analysis of the proposed model show that MSMEs are leaning towards the rush in users of DBS and trying to incorporate it into their organization. The role of the consumers in making the MSMEs switch to cashless payments along with cash transactions is evident as we know that societal influence has a positive significance in the approval of mobile banking (Laukkanen *et al.*, 2007; Amin *et al.*, 2008; Riquelme and Rios, 2010; Puschel *et al.*, 2010; Dasgupta *et al.*, 2011).

8.2 Managerial implications

From a more practical viewpoint, this research provides enough justification to use an awareness campaign that shows the benefits of using DBS and the convenience of using it. The government has a huge role to play in enhancing digital payments by providing favourable ecosystems, promoting and creating awareness about the benefits (Sobti, 2019). To create a smooth transition from cash-based payments to the digital-based payments system, the government should enhance digital literacy among the Indian population and by providing the required digital payment infrastructure (Sivathanu, 2019).

A clear and more evident picture that can be interpreted from the business viewpoint is that the surge in consumers using digital banking has benefitted the business a lot. They need to adopt various means of providing customers with multiple payment options, including all digital payments options. It is highly recommended that proper awareness and promotional campaign should be in place on the part of MSMEs so that consumers become more aware of their adoption of digital means of payments. Campaigns should directly show the PU and PEU in using DBS and the benefits it can give to both the business and the consumers. These campaigns can also boost the confidence of both the consumers and business in the security of the banks for performing digital transactions.

9. Conclusions

The financial situation bore a grim look during this pandemic lockdowns with business either being completely shut or faced a tough situation with low revenues. MSME owners were frustrated with their low sales and the way the pandemic gripped every aspect of their business. This frustration was shown at the time of our interaction with them. Our analysis shows that convenience, PSE, DE, Covid-19 effect and PE significantly affect the decision-making process of the owners towards the use of DBS for their business. PR is less significant, whereas trust is significant but in the reverse direction. While formulating plans to add these rural MSMEs to the cashless economy and the digital India concept, the government and the banks should focus on providing custom made rural products that focus primarily on their benefits aspects. During our field survey, many owners were sceptical about their financial transactions being tracked and they being given the tax burden. The government should educate them properly and should give them tax relaxations for the initial periods to get them acquainted with the digital systems, not only in banking but also in the digitalization of their business. The result of the study points out that rural MSME owners understand the benefits of using DBS, but they are concerned about two important factors before implementing them in their business. One is the cost involved to incorporate it, and another is the trust involved with the use of it. As most of the workforce is less educated, they prefer to deal with cash rather than digital money being transferred in their accounts. Also, most of the rural MSMEs belong to the informal and unstructured categories, they do not want to fall under the purview of labour laws and taxes related to the payments to their workforce.

10. Limitations

Due to the lockdowns associated with the Covid-19 pandemic, data collection through field surveys was time-consuming and challenging. Travelling to different districts was also not possible. That is why, maximum data is collected from two districts, and few data were collected from other parts through an online survey. Data from different areas would have given a different dimension to this study.

11. Suggestion and future scope

Our country is moving towards a digitalized mechanism by promoting "Make in India", "Go Desi" and online transactions through UPI/wallets. Also, with the boom in e-commerce, MSMEs are coping with their ability to adopt innovation. DBS is also growing at the fastest rate. Lockdowns are also helping to spike the use of it. This study can help bankers, government or academicians to formulate better strategies to cater to the demands of businesses, especially rural MSMEs. Before the implementation of any schemes or policies related to the use of DBS, the government or the banks should understand and find out the means to win their trust in using these digital services. Also, the micro rural MSMEs mostly cater to the local markets; the government or banks should lure the local customers to use digital payments services, which will lure local business in the adoption of it.

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