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Theoretical Framework for Digital Payments in Rural India: Integrating UTAUT and Empowerment Theory

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Abstract. Indian economy is considered as one of the most promising and fast growing among all developing countries in the world. In the current global scenario, India has a number of strengths namely younger population, greater access to mobile phones, increasing technical competence and digital literacy among others. Indian government initiated a number of steps to incorporate information technology (IT) tools in public institutions to increase transparency, remove middlemen, and minimize digital divide. Digital payment is one of the prominent applications of the ICT in the past couple of years due to some of the initiatives of government of India like demonetization, and digital India. However, around 67% of Indian Population still lives in rural areas and thereby it is imperative to understand the behavioral intention to use and its continuous usage of digital payments in rural population of India. This research attempts to develop a theoretical research framework by integrating psychological empowerment theory and the unified theory of acceptance and use of technology (**UTAUT**) to explore and understand perception of rural population towards digital payments in Indian context. Researchers using structural equation modeling or other statistical models may test the proposed research framework. In this research framework, second order of empowerment construct is proposed, which is rarely available in the extant literature. The findings of this research will be useful to government agencies, financial institutions, mobile and telecommunications operators, and researchers. This paper is a working paper and intends to further test the theoretical model proposed as the ongoing work.

Keywords: Digital payments, UTAUT, Empowerment theory, Rural India

1 Introduction

The Information and Communication Technologies augmented with the rise of the Internet have opened new opportunities for the growth of business worldwide and one of the path breaking technological inventions till date is the technology based transactions. The developments in the field of technological innovations have boosted an inspiring shift towards digital platforms and completely transformed the dynamics of commerce (Hromcová et al., 2014; Beijnen& Bolt, 2009; Bolt &Humphrey, 2007). The advancements of these payment methods intend to seize the customary mode of transactions as the digitized payment methods not only provide the higher level of security through secured gateways but also create a virtual terminal to its users and

thereby offer a win-win situation for the user and the bank as well by enabling the direct transfer of money between the merchant bank's account and the user's bank account.

The worldwide digital payment segment amounts to the total transaction value of US $ 3402,168 million in 2018 and expected to show an annual growth rate of 13.9 percent by 2022 (Statista, 2018). The increasing trend towards digital payments is certainly promising however it is important to note that cash transaction still leads as the most preferred mode of payment (Arango-Arango et al.,2018). Therefore, the challenge lies in not only making the users switch towards digital payments but also retain them as continuous users so that they not only accept the technology of digital payments but also continue to use the same.

The key determinants that influence the acceptance of digital payments have been developed in the extant literature (Patil et al. 2018ab; 2017) on the basis of theoretical models such as technology acceptance model (TAM: Davis 1989), unified theory of acceptance and use of technology (UTAUT: Venkatesh et al. 2003) and some extensions of these well-established models such as TAM2 (Chauhan 2015), UTAUT2 (Slade et al., 2015) among others. However, developing a theory for digital payments from electronic participation perspective is rarely available in the existing literature. Venkatesh et al. (2016) argued that it is important to integrate other theoretical models to understand better acceptance of information technology phenomenon for greater citizen participation to exploit maximum potential of the technology. Kang (2014) suggested that citizen empowerment is one of the key factors to enhance citizen participation. As a result, the amalgamation of UTAUT with citizen empowerment theory in the proposed research model may provide some useful insights for better understanding of digital payment adoption among rural population in the Indian context.

This study makes mainly three contributions to extend the extant literature of digital payments among rural population in the Indian context. Firstly, this study develops a research model on the basis of UTAUT model and the citizen empowerment theory to understand key determinants of continuous intention to use the digital payments. Secondly, we propose amalgamation of UTAUT with citizen empowerment theory to increase the predictive power of the UTAUT model. Finally, this framework is proposed in the context of Indian economy, which is the one of fastest growing economies in the world.

2 Literature review and development of hypotheses

2.1 Digital Payments in India

India experienced the demonetization of all INR 500 and INR 1000 banknotes on November 8, 2016 in order to curb the shadow economy and control the use of illicit and counterfeit cash (India Today, ToI, 2016). Post the execution of demonetization, the country faced the challenges of prolonged cash shortages in the following weeks and the use of digital payment methods observed an impressive upward trend then onwards (The Economic Times, 2017; The Economist, 2016). According to the National Payments Corporation of India (NPCI), the value of the digital payments trans-

actions reached to INR 115490.3 billion on February 2018 from INR 671.5 billion in November 2016 while the volume of transactions reached 1098millionfrom 671.5million in the same period (NPCI statistics, 2018). Despite the positive buzz around the digital payments post demonetization, Indians still rely heavily on cash transactions. The total currency put in circulation has more than doubled to over INR 19.3 lakh crore from about INR 8.9 lakh crore post demonetization(ToI Business, 2018). There are costs associated with digital alternatives, particularly due to the reason that an average user lacks the technical knowledge to use an app and hesitate to adopt new alternatives (Creehan, 2018). This indicates that India offers a huge growth potential for digital payments if the users are sensitized towards the technology adaption to increase the level of acceptance towards the same which leads to the specific direction of this work. However, it is equally important to realize that the growth of digital transactions in India is hugely dominated by urban population and rural India is heavily untapped till date in terms of digitization particularly digital payments. The urban population of India constitutes 33.2% with digital payment customers as 44% but the 66.8% rural population of India has only 16% digital payment customers (IMAI, 2018). This paper therefore attempts to explore the opportunities of digital payments in Rural India and offer a specific model that fits the rural surroundings of India in order to enhance the usage of digital payments in rural India.

2.2 Gaps in the existing body of knowledge and the consequent theoretical development

The UTAUT model developed by Venkatesh et al. (2003) has been considered as a theoretical lens in several technology adoptions studies under various settings. The UTAUT model was developed through a rigorous review and empirical validations of eight prominent adoption theories. The UTAUT is the most suitable theoretical model to understand intention of rural population in India as it is developed on the basis of technological and social determinants (Zuiderwijk et al. 2015). However, over the years, a need however a need has constantly been felt over the applicability and generalizability of these models (Gregor, 2006; Weber 2003 & Lee and Baskerville, 2003). Weiyin et al. (2014) further examined the role of context-specific theory development and further provided directions so as to contextualize theories in IS research. Therefore, it necessitated to provide a theoretical model to build constructs of digital payments adoption and continuous usage specific for Indian rural perspective.

In this context, the current work has two specific distinctions in order to seek the applicability and suitability for the fit of any model. Firstly, research is based in Rural India and the rural people being ignorant of the benefits of the digital payments, need to be oriented and motivated towards going digital before actually placing the advantages of digital payments in front of them. Through the interactions with rural inhabitants, it was noticed that the rural people carry a certain perception that only those who are literate and have knowledge of computers use things like digital payments, or only those who have enough money can use digital payments. The rural India has its own sets of constraints which are context and geography specific. They being ignorant and uneducated to a large extent show a very slow rate of adoption of

the Kisan Credit Card (KCC) system (IndiaStat, 2018; Bista et al., 2012) which was developed for them only and are also not aware of Aadhaar enabled payment system, introduced by government of India as part of digital drive as realized during the interaction with them. Moreover, the role of local shops and traders offer a very strong hindrance in achieving a cashless rural India.

Therefore, it was felt that apart from the conceptualization and implementation of UTAUT theory in order to enhance the functional usage of digital payments in rural India, there is a need to sensitize the rural inhabitants towards the digital payments by associating them with the idea of empowerment with the usage of digital payments so that they not only feel the need to go digital but also necessitates its usage with a sense of being digitally empowered.

This led the researchers to explore the possibilities of developing a construct in the form of Citizen empowerment theory as suggested by Kang (2014), resulted in second order construct, in order to enhance the usage of digital payments in rural India. Moreover, the IS literature lacks studies on IT empowerment which also substantiates the exploration of Citizen empowerment theory in the context of digital payments in rural India.

Secondly, the research attempts to seek the continuous use of the digital payment which is not addressed in the UTAUT and thereby the integration of the citizen empowerment constructs with UTAUT model helps to grasp the continuous use of the digital payment.

2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The UTAUT model has been used to understand the user behavior in various information technology domains such as mobile Internet (Alalwan et al. 2018), mobile banking (Alalwan et al. 2017), mobile health (Dwivedi et al. 2016), mobile payments (Slade et al. 2015ab; Kapoor et al. 2015), online information services (Oh & Yoon, 2014). Researchers (William et al. 2011; Dwivedi et al. 2017ab) re-examined the UTAUT model and provided some useful insights to researchers and practitioners. In case of the applications of the UTAUT model, the aforementioned researchers have adapted hypotheses from the original UTAUT model developed by Venkatesh et al. (2003). In this study also, we have adapted four hypotheses from the UTAUT model in the context of digital payments from Indian perspective.

2.3.1 Performance expectancy.

Performance expectancy has been one of the key determinants which influences intention to use a new technology without any effect of settings. We have adapted performance expectancy from Venkatesh et al. (2003) and defined in this study as the degree to which rural population considers that using digital payments is beneficiary or helpful in increasing productivity. Pikkarainen et al. (2004) believed that consumers easily accept a system if they find it easy to use and learn. Performance expectancy has been identified as a significant indicator in the decision making towardsthe acceptance of a new information system(Thakur & Srivastava 2014; Alalwan et al.

2017; Tamilmani et al. 2019). Moreover, performance expectancy has been taken a strong predictor of behavioral intention towards the mobile apps and m-commerce (Luo et al, 2010; Venkatesh et al. 2012; Chong, 2013).The rural population of India has been customized of doing cash transactions and due to lack of education not aware with the benefits of making digital payments and it is perceived that if they are educated towards the benefits of digital transactions, it might shift their preference towards digital payments. Therefore, we hypothesize that

H1: Performance expectancy positively influences intention to use digital payments.

2.3.2 Effort Expectancy.

Effort expectancy is defined by Venkatesh et al. (2003) as "the degree of ease associated with the use of a given technology, which influences the use of that technology". Effort expectancy is similar to perceived ease of use in another advanced TAM Model. Leong et al. (2013)identified the ease of technology use increases the adoption rate among individuals. In fact, it has consistently been identified as a very significant predictor of behavioral intention towards technology adoption (Venkatesh et al.,2012;Thakur, 2013; slade et al, 2015). Slade et al. (2015) later found that effort expectancy influences the decision to adopt mobile payments. It is believed that rural population would expect the use of digital payment with minimal efforts. In the case of rural India, people who are still in the initial stage of technology acceptance, the comfort of using it might influence their inclination towards the acceptance of new technology and eventually impact their decision of switching towards digital payments and if theyhave some difficulty in the use of digital payments, they might not accept the technology. Hence, we hypothesize that

H2: Effort expectancy positively influences intention to use digital payments.

2.3.3 Social Influence.

Social influence is another important factor of UTAUT model which influences decision of users towards intention to use a new information technology. Venkatesh et al. (2003) defined social influence as "the extent to which an individual perceives that other who are important to him/her, consider that he or she should use the system". Wei et al. (2009) categorized social influence as mass media influence and personal influence. Social influence has been identified as a strong predictor of behavioral intention (Crabbe et al. 2009; Venkatesh et al.2012). Further, Slade et al. (2015) observed that individuals have a tendency to seek opinions from their social network before embarking upon a new technology. Alalwan et al. (2018) found that social influence is one of the key predictors of the intent to use a new technology. We believe that in the rural settings, social influence would play a significant role in the decision to accept digital payments as rural people in India have very strong social culture and work in small social units and thereby, their chances of getting influenced from social surroundings are invariably high and in the case of accepting new technology of payments, the chances of getting influenced by the surroundings increase as it will ease out their pressure of not being accepted by others while embarking upon a

new system of digital payments and give them a sense of acceptance amongst their peers. Therefore, we hypothesize that

H3: Social influence positively influences intention to use digital payments.

2.3.4 Facilitating conditions.

Facilitating conditions are defined by Venkatesh et al. (2003) as "the degree to which the individual perceives the existence of resources and support to use certain technology whenever necessary". Digital payments are supported by digital infrastructure such as desktop, smartphones, electricity in the context of rural India, and Internet service providers among others. Lewis et al. (2013) opined that individuals seek for assistance while adopting any new technology and might not adopt the same due to insufficient facilitating conditions. Zuiderwijk et al. (2015) found that facilitating conditions are important predictor of intention to use a new information technology or system. Facilitating conditions has been proven to be a very strong predictor in the case of m-commerce and mobile apps adoption (Crabbe et al., 2009; Venkatesh et al., 2012; Chong, 2013; Hew et al., 2015; Tamilmani et al. 2018). In the case of Indian rural settings, the rural habitants may seek facilitating conditions in the form of internet connection, low cost wi-fi facility as the resources and quick online assistance through customer care as the support. It is very critical to have good facilitating conditions to promote digital payments in the rural settings as rural people are used to making payments through traditional system and the facilitation of required assistance and resources might influence their inclination towards digital payments and bring out the hesitation of using new technology. Therefore, we hypothesize that

H4: Facilitating conditions positively influences intention to use digital payments.

2.4 Citizen empowerment theory.

Researchers (Zimmerman & Rappaport, 1988; Zimmerman 1995) proposed psychological citizen empowerment theory and defined as "the connection between a sense of personal competence, a desire for, and a willingness to take action in the public domain". This theory attempts to comprehend the motivation in the work settings. However, Kang (2014) observed that psychological empowerment is crucial in motivating large population to engage in an activity with positive outcomes. Naranjo-Zolotov& Oliveira (2018) studied the citizens' intention to use and recommend for electronic participation in e-government services. The empowerment theory is context specific and constructs impact, meaning, competence and self- determination as motivational aspect of empowerment. In this study, we define empowerment as the second order construct developed on the first order four constructs however we felt that motivational empowerment at workplace cannot be generalized when it comes to motivating the rural people towards the use of digital payments. Spreitzer (1996), way back believed that it is important to assess the empowerment through perception. This extended our work in the form of exploratory discussion with the rural people in general in the surrounding areas so as to understand the meaning of rural empowerment towards digitization. With 20 such in depth discussions, it turned out that the rural pop-

ulation, especially the middle age group and old age group are apprehensive towards the use of digital payments however the younger rural population showed their eagerness towards digital payments. The rural youth is highly inclined to bridge this social gap between the rural people and urban ones and believe that if given the orientation, they are willing to learn and adopt the new technologies and also showed their inclination towards learning the benefits of digital payments. On exploring further, they acknowledged that the use and understanding of digital payments give them a sense of self-esteem and equality vis-à-vis their urban counterparts. Thereby, it is recommended to reframe the citizen empowerment theory constructs in the context of Indian rural population towards digital payments. Thereby, we propose the empowerment constructs as sense of self-esteem, sense of equality, competence and self-determination. Thus, we propose to replace the two constructs as impact and meaning by self-esteem and sense of equality in the case of acceptance of digital payments in rural India.The existing literature however suggests that empowerment theory may contribute significantly in the adoption of a new system. Therefore, we hypothesize that

H6: Citizen empowerment positively mediates intention to use digital payments to enhance continuous intention to use.

2.5 Intention to use and continuous intention to use

As observed by Tam and Oliveira (2016), retention of the customers is as important as attracting them for the potential purchase. If the users feel satisfied from the services offered by merchant, they are more likely to repeat the use of the services, which will lead to their intention of continuous usage (Kuo et al., 2009; Moon & Kim, 2001). It has been also observed that users will be involved in the continuous usage if they intend to use services at all, as users want to have an enjoyable experience while using a service (Kim, Ferrin, & Rao, 2009; Kim, Chan, and Gupta, 2007). Sharma & Sharma (2019) also observed that intention to use leads to actual usage particularly in the case of m-banking. It is believed that if rural people get positive inclination towards digital payments, the associated benefits, the use of ease, the supporting facilities and also the sense of empowerment might influence their decision of continuously using it. Thereby, the intention to use tends to positively and significantly impact the continuous intention of usage which leads to the development of the following hypotheses:

H7: Intention to use positively influences continuous intention to use digital payments.

3 Proposed research model

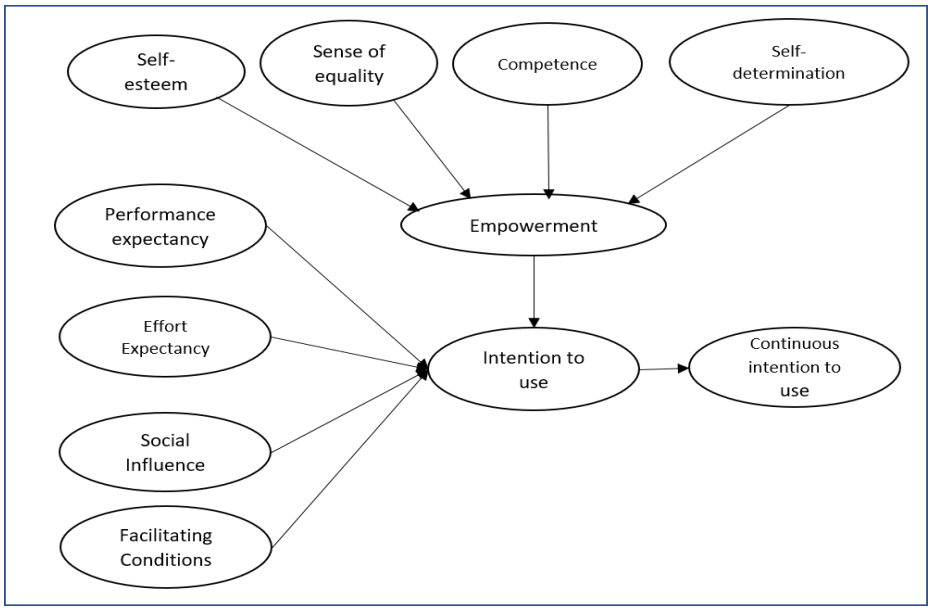

Fig. 1. Research Model (Adapted from Venkatesh et al. 2003)

4 Concluding remarks

In the era of digital world, the use of ICT applications for rural development is increasing day by day. Digital payments under ICT applications are one of the prominent applications with far reaching objectives and have potential to minimize the gap of financial inclusion. Furthermore, digital payments applications among rural population provide a sense of true empowerment that enables them to perform financial transactions during odd hours. The success of digital payments in the rural population primarily depends upon the acceptance of this financial technology by rural inhabitants. Consequently, objective of this study was to develop a research framework on the basis of the amalgamation of UTAUT with citizen empowerment theory, which will help in identifying key determinants influencing the decision to accept digital payments in the rural population in the context of India. The another main objective of the paper was to build a theoretical model that can promote continuous usage of the digital payments in rural India. Digital payment is vital for rural India but it was comprehended from the extant literature there is no complete existing framework to understand the intention to adopt and the continuous use of the digital payment. Thereby, this research attempts to overcome this research gap through integrating UTAUT model and citizen empowerment theory. The proposed framework can be used for empirical investigations by researchers and practitioners. The empirical validation of the research model will help in understanding the effect of independent variables on the dependent variables. In addition, qualitative research such as structured interviews, case studies may provide some deeper insights about the factors in the pro-

posed research framework. It is recommended to conduct a rigorous quantitative research using the proposed research model for validation and generalization purposes. The longitudinal quantitative study using the proposed research model will provide consistent insights to generalize results from strategic perspective. Finally, the cross-cultural evaluation of the research model will provide additional insights about digital payments in the rural population from two or more cultural settings. This is a working paper and intends to further test the theoretical model proposed as the ongoing work.

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