



PROMOTING MOBILE PAYMENT FOR SMALL BUSINESS OWNERS – A BRIDGE CONNECTING THE DIGITAL DIVIDE

ANIRBAN CHAUDHURI ¹

¹ RESEARCH SCHOLAR, IEST SHIBPUR, BOTANIC GARDEN, HOWRAH, WEST BENGAL-711103.

ABSTRACT:

Mobile payment is seen as a game changer by financial institutions, regulatory bodies as well as well as development sector practitioners that has the power to transform the lives of millions of people in the base of pyramid through financial inclusion. The technology stack is not the only cog in this wheel but it is the participation of key stakeholders like subsistence and micro entrepreneurs is essential for its success. The survey based study covers base of pyramid entrepreneurs and attempts to gauge the predisposition towards adopting and using digital payment in business transactions through mobile payment apps in India.

KEYWORDS:

BRIDGING DIGITAL DIVIDE. DIGITAL PAYMENTS. MOBILE PAYMENTS. SMALL AND MICRO ENTREPRENEURS. FINANCIAL INCLUSION.

INTRODUCTION: STRONG WINDS OF A DIGITAL LIFE YET A LARGE DISTANCE TO COVER

The troika of internet, mobile and social media has pivoted the life of millions worldwide (Chayko, 2014; Rainie and Wellman, 2012) through an always-on, connected mobility as the lifeline of modern living. Deeply entrenched communication technology across every aspect human life has resulted in people living a socially active life by virtual means – the *techno-social lives* (Chakyo, 2014). Aided by plummeting smart phone prices, India too is witnessing a rapid growth in smartphone adoption. Smartphone shipments grew 23% YoY year on year to reach over 38 million units in the first quarter (Q1) of 2021, a highest ever Q1 figures (Counterpoint Research, 2021). The number of mobile internet users in India is expected to hit

900 million by 2025 compared to around 622 million in 2020 (Kantar, 2021).

But in spite of this stellar growth story the story of India's digital literacy is not uniform. As reported in ICUBE2020, an annual syndicated study of Kantar, the various demographic territories within the country have very different level of penetration for internet usage. The report suggests, of 1433 million population in India, 622 million individuals are active internet usage (AIU) which is 43% of the total population (estimating population size of 1433 million across urban and rural India). Internet penetration in urban is more than 2X that of in rural while in absolute terms they are close enough - 323 million in urban covering 67% of the urban population in contrast to 299 million in rural constituting 31% of rural population (Kantar, 2020). A detailed break up of AIU can be referred to as per the following table:

TABLE 01: ACTIVE INTERNET USERS IN INDIA BY GEOGRAPHICAL CLASSIFICATION OF TERRITORIES

Urban	52%	Top 4 Metro	22%
		Next 5 Metro	11%
		Small Metro	19%
		Non-metro	09%
		Small Towns	39%
Rural	48%	Villages with population > 1000	85%
		Villages with population < 1000	15%

There is disparity in active internet usage with respect to gender as well. Out of the 622 million AIU in India, 58% of all AIU in India are male and remaining are female (Kantar, 2021).

The other area of focus is the nature of internet usage in

India. The ICUBE2020 report elaborates that 96% of the use by AIU is related to activities like watching videos, listening to music or playing virtual games – mostly entertainment related usage. In contrast, digital payments are only 46% of the AIU usage frequency at an overall level with rural India pegged at only 33% (Kantar,

2021).

DIGITAL DIVIDE AND SOCIAL EXCLUSION.

There is no denying of the fact that globally there is a massive enhancement of internet infrastructure to give access to everyone. In 2019, the gap in global coverage of internet dropped to just 7% compared to 44% a decade back with mobile broadband being made available. But only 44% of the global population is using it (GSMA, 2021).

The key challenge of being not on the digital highway has multiple socio-economic consequences. Pierre Levy (2000), the leading cyberspace theorist commented that, "If one is not connected, one is excluded" (Walterova & Tveit, 2012). Instead of looking at this gap in digital adoption as a unitary phenomenon but spread across four broad trajectories (Ed. Keniston, 2004) as follows:

THE FIRST DIVIDE seen across any market is the divide between rich, educated and powerful and others who are not so.

THE SECOND DIGITAL DIVIDE, very relevant for a multi-linguistic and multi-cultural country like India, is the divide that separates those who speak English from those who do not.

THE THIRD DIGITAL divide follows inevitably from the first two situations that could be an outcome of the country's economy and thus creating a sharp distinction between rich and poor markets.

THE FOURTH DIGITAL DIVIDE refers to the emergence of the new elite group, *digerati* - beneficiaries of the hugely successful internet technology industry and the other knowledge-based sectors of the economy who have an edge on the usage and benefits of products and services over who are not having any background in these fields.

As the digital infrastructure becomes closely interspersed with day to day requirements of modern living, access to information and communications technology (ICT) in terms of content and language, literacy and education levels of users, community and institutional infrastructure assume larger meaningfulness over just physical connectivity (Warschauer, 2002).

For example, digital payment is increasingly becoming a way of doing business in contemporary world. It is a positive catalyst for many digital transformation across the various strata of society. But the adoption of digital payments, including mobile payments have been restricted mostly to the relatively large and established business enterprises and smaller entrepreneurs have been lagging behind. In emerging markets, 90% of the small business owners are yet to imbibe the digital payment platform (Teulery, 2020).

In India, in his first Independence Day speech in 2014, the Indian Prime Minister Shri Narendra Modi reiterated the focus towards this direction of driving digital inclusion for all. The vision of Digital India programme is to transform India into a digitally empowered society and knowledge economy (India Today, 2014). The Digital India

programme is centred on three key vision areas as stated in the www.digitalindia.gov.in portal further articulated by the then union cabinet minister for communications and information technology (Prasad, 2015) as follows:

- 1) Digital Infrastructure as a Core Utility to Every Citizen
- 2) Governance and Services on Demand
- 3) Digital Empowerment of Citizens

The current study thus is focused on understanding the various predictors of mobile payment app adoption and usage by the subsistence and micro entrepreneurs in India. A detailed report commissioned by VISA in 2016 estimates more than 180 million micro and small merchants operate across the emerging markets who transact over \$6.5 trillion per year through their interaction with more than 4.5 billion customers every day (Carlberg et. al., 2016). Finding means of on-boarding these businesses on the digital payment platform will be a great fillip for the cashless economy and its outcomes.

MATERIALS AND METHODS: SURVEYING SMALL AND MICRO ENTREPRENEURS

The study was carried out with a sample size of 760 small and medium entrepreneurs who are engaged in businesses like roadside vending, tea stalls, vegetable selling, fish selling etc. across three locations, Delhi National Capital Region, Bhubaneshwar and Kolkata. The sample constitutes all respondents who are aware of mobile payment apps while they may or may not be using it. It also covers men and women entrepreneurs at the base of pyramid.

The survey instrument had a focused scale of 50 attributes built around items that is based on the Multi-level Framework of Technology Acceptance and Use (Venkatesh et. al. 2016) that advocates using a baseline model that incorporates the main effects of Unified Theory of Unified Theory of Acceptance and Use of Technology (UTAUT) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and allows adding additional attributes for individual level and higher level contextual factors. The items for the scale construction in line with the baseline model is based on the UTAUT2 survey items prescribed by Venkatesh et. al. (2021).

RESULTS AND INTERPRETATION:

Based on the survey data a multiple linear regression was carried out to estimate how the dependent variable of taking action expressed through the variable - 'How do you plan to use your mobile payments wallet/ app in future?' changes as the independent items in the scale change. This would help understand the areas of intervention for promoting the adoption and usage of mobile payment in India.

The equation for multiple linear β regression applied is as follows:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + e$$

y = the predicted value of the dependent variable

β_0 =the y-intercept (value of y when all other parameters are set to 0)

$\beta_1 X_1$ =the regression coefficient (β_1) of the first independent variable (X_1) (the effect that changing the value of the same has on the predicted y value)

... =do the same for however many independent variables you are testing

$\beta_n X_n$ =the regression coefficient of the last independent variable

e =model error (that is, how much variation there is in the estimate of y)

In the current survey there are 50 items in the scale which means there are 50 independent variables ($X_1, X_2 \dots X_{50}$) and the null and alternative hypothesis for the purpose of this research analyses can be written as:

NULL HYPOTHESIS (H0) -

None of the independent variables ($X_1, X_2 \dots X_{50}$) influence the dependent variable (y) of adopting mobile payment

ALTERNATIVE HYPOTHESES

(H1) - Independent variable X_1 is likely to influence the dependent variable (y) of adopting mobile payment

(H2) - Independent variable X_2 is likely to influence the dependent variable (y) of adopting mobile payment

(H3) - Independent variable X_3 is likely to influence the dependent variable (y) of adopting mobile payment

...

(H50) - Independent variable X_{50} is likely to influence the dependent variable (y) of adopting mobile payment

THE RESULTS OF THE MULTIPLE LINEAR REGRESSION ARE AS FOLLOWS:

TABLE 02: MULTIPLE LINEAR REGRESSION MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.639 ^a	.409	.367	.977

TABLE 03: ANOVA TABLE

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	468.068	50	9.361	9.798	.000 ^b
	Residual	677.385	709	.955		
	Total	1145.453	759			
a. Dependent Variable: Q17-How do you plan to use your mobile payments wallet/ app in future						
b. Predictors: (Constant), X_1 to X_{50}						

The following table captures the outcome of the multiple linear regression technique on the survey data with 50 items that act as independent variables:

Table 04: β (STANDARDISED COEFFICIENT BETA) OF MULTIPLE LINEAR REGRESSION OF INDIVIDUAL VARIABLES WITH T VALUE AT 95% LEVEL OF CONFIDENCE. H₀ IS THE NULL HYPOTHESIS.

IV No.	Independent Variables (IV)	Standardised Coefficients Beta (β)	t	Sig.	H ₀
1	I have the resources necessary to use mobile payment	0.128	19.274	0.034	Rejected
2	I have the knowledge necessary to use mobile payment	0.059	0.946	0.345	Accepted
3	Mobile payment is compatible with other technologies I use	(0.040)	(0.768)	0.443	Accepted

4	I can get help from others when I have difficulties using mobile payment	(0.129)	(2.463)	0.014	Rejected
5	I find mobile payment useful in my daily life	0.023	0.372	0.710	Accepted
6	Using mobile payment increases my chances of achieving things that are important to me	0.127	2.180	0.030	Rejected
7	Using mobile payment helps me accomplish things more quickly	0.162	2.685	0.007	Rejected
8	Using mobile payment increases my productivity	(0.014)	(0.223)	0.823	Accepted
9	Learning how to use mobile payment is easy for me.	0.119	1.948	0.052	Accepted
10	My interaction with mobile payment is clear and understandable	0.050	0.816	0.415	Accepted
11	I find mobile payment easy to use	0.032	0.532	0.595	Accepted
12	It is easy for me to become skillful at using mobile payment	0.064	1.143	0.254	Accepted
13	People who are important to me think that I should use mobile payment	(0.014)	(0.242)	0.809	Accepted
14	People who influence my behavior think that I should use mobile payment	0.008	0.143	0.886	Accepted
15	People whose opinions that I value prefer that I use mobile payment	(0.201)	(3.345)	0.001	Rejected
16	Using mobile payment is fun	0.099	1.628	0.104	Accepted
17	Using mobile payment is enjoyable	0.172	2.837	0.005	Rejected
18	Using mobile payment is very entertaining	0.041	0.728	0.467	Accepted
19	Mobile payment is reasonably priced	(0.003)	(0.058)	0.954	Accepted
20	Mobile payment is a good value for the money	0.085	1.434	0.152	Accepted
21	At the current price, mobile payment provides a good value	(0.090)	(1.654)	0.098	Accepted
22	The use of mobile payment has become a habit for me	0.044	0.686	0.493	Accepted
23	I am addicted to using mobile payment	0.102	1.559	0.119	Accepted
24	I must use mobile payment	(0.124)	(2.147)	0.032	Rejected
25	Using mobile Internet has become natural to me	0.016	0.289	0.772	Accepted
26	I intend to continue using mobile payment in the future.	(0.095)	(2.080)	0.038	Rejected

27	I will always try to use mobile payment in my daily life.	(0.039)	(0.925)	0.355	Accepted
28	I plan to continue to use mobile payment frequently.	(0.015)	(0.243)	0.808	Accepted
29	The business environment is encouraging use of mobile payment	0.099	1.627	0.104	Accepted
30	The number of options available for mobile payment is confusing	(0.032)	(0.777)	0.437	Accepted
31	The mobile payments records help my loan prospects go up as I have proof of my cash flows	0.017	0.306	0.760	Accepted
32	Using mobile payments helps me protect against cash pilferage	(0.030)	(0.497)	0.619	Accepted
33	There is very few customers who demand mobile payments	(0.020)	(0.408)	0.683	Accepted
34	Using mobile payments does not help when I procure supplies/ services from suppliers (as they deal on cash only	(0.065)	(1.373)	0.170	Accepted
35	Being able to pay at any time using mobile payments allows me to be prompt with my vendors/ staff	(0.141)	(2.657)	0.008	Rejected
36	Using mobile payment makes one look smart	(0.121)	(2.289)	0.022	Rejected
37	People identify with me being progressive as I use mobile payments	(0.154)	(2.517)	0.012	Rejected
38	Mobile payments usage gives me the feeling of using latest trend	0.124	2.158	0.031	Rejected
39	Mobile payments are likely to expose me to taxation hassles like GST	0.002	0.031	0.975	Accepted
40	Mobile payments records makes reconciliation of transactions easy	0.100	1.844	0.066	Accepted
41	With mobile payments I save on resources for bank deposit and withdrawal	0.036	0.663	0.508	Accepted
42	Mobile payments help me save time on each transaction	0.045	0.855	0.393	Accepted
43	It is difficult to be aware of the mechanism involved in mobile payments	(0.019)	(0.410)	0.682	Accepted
44	The time I need to concentrate on mobile payments can be used on serving more customers	0.031	0.822	0.411	Accepted
45	Mobile payments demand high quality smart phones	(0.128)	(2.421)	0.016	Rejected
46	Mobile payments demand high quality internet connection	0.059	1.135	0.257	Accepted

47	Often the completion of the transaction on mobile phone remains unclear leading to chances of getting cheated	0.016	0.447	0.655	Accepted
48	I often like to try out new things like mobile payments	0.060	1.229	0.220	Accepted
49	I prefer going with what most people do like cash transactions	0.010	0.230	0.818	Accepted
50	I continuously look for tools that can enhance my business skills	0.162	2.944	0.003	Rejected

The multiple linear regression is significant at 5% level of significance as shown in the ANOVA Table. Coefficient of determination is 36.7%. This implies 36.7% of the variability in dependent variable of taking action on adopting and using mobile payment is explained by the 50 independent variables. The results identify the independent variables that have a statistically significant impact on the dependent variable of taking action related to adoption and usage of mobile payments. The regression coefficients of only 14 variables are significant at 5% level of significance. This shows that these 14 attributes significantly affect respondents' preferred action regarding adoption and usage of mobile payments.

DISCUSSIONS:

Looking at the Adjusted R-square value, the current model explains 36.7% variability in the dependent variable. This is an acceptable model given that we are trying to predict human behaviour that is often difficult to gauge and experts suggest expecting an R-square value of less than 50% (Frost, 2020). The model is significant and also there are 14 independent variables that can help us explain the respondent behaviour regarding adoption and usage of mobile payment in business transactions.

Interpreting the regression model outcome, the independent variable 1, measured by X_1 in the survey has the most powerful impact on the adoption of mobile payment. The sense of having the necessary resources is of prime importance for the small entrepreneur to start using the mobile payment apps. Interestingly they seem not to be overwhelmed by the influencers in adopting this behaviour as evident from the negative correlation between X_{15} and the dependent variable. The ask for the prospective users, to be active on such apps is the need for constant support which might not be the case in current times as X_4 , the variable *I can get help from others when I have difficulties using mobile payment* shows a significant negative impact of the usage behaviour.

Benefits of using mobile payments – allowing important things to get accomplished X_6 and quickly X_7 have a positive impact in it adoption, but the intent to continue using it X_{26} seems to be still absent. This gets reiterated as they do not see the need for mobile payments as a must in their business transactions (X_{24}). The lack of a surround ecosystem accepting this mode of transaction X_{35} or not valuing much the expressive needs of being an mobile

payment user (X_{36} , looking smart or X_{37} , being considered smart by others) are operating in the opposite direction of adopting this habit. But at an individual level, the respondents appreciate the feeling of getting to use the latest trend (X_{38}) in the context of mobile payments. They also perceive that the process of using mobile payment is enjoyable (X_{17}).

While the respondents claim that they are continuously looking out for tools to enhance their business (X_{50}) that is likely to impact adoption of mobile payments, the perception of mobile payments requiring high end smart phones (X_{45}) is a significant dampener of that drive.

The study clearly shows the need for highlighting the scope of enhancing individual ability to decipher the mobile payment mechanism by constant support from the ambient infrastructure, showcasing the beneficial outcome of using the same and making the entire process an enjoyable journey will help faster and larger adoption of the digital payment systems like mobile payment. These findings seem to have close coherence to the global observations made by GSMA in its recent report where it identifies five areas of improvement that include affordability, knowledge and digital skills, relevance, safety and security, and access (2021).

REFERENCES

1. Carlberg. T., Lien. Y., Gomez. M. P., Nayar. A., Dougherty. J., Gugelev. A, & Boll. E. (2016). Small Merchants, Big Opportunity - The Forgotten Path to Financial Inclusion. Dalberg Global Development Advisors and Global Development Incubator.
2. Chayko M (2014), Techno-social life: The Internet, Digital Technology, and Social Connectedness, Sociology Compass, Volume 8, Issue 7, 976-991.
3. Counterpoint Research. (2021): Global Smartphone Market Share: By Quarter available at <https://www.counterpointresearch.com/global-smartphone-share/>, accessed 05 August, 2021
4. Frost. J. (2020). Goodness-of-Fit, in Regression Analysis: An Intuitive Guide for Using and Interpreting Linear Models., statisticsbyjim.com, pp

125-147

5. GSMA (2021). Accelerating mobile internet adoption: Policy considerations to bridge the digital divide in low and middle-income countries. Available at

<https://www.gsma.com/mobilefordevelopment/resources/accelerating-mobile-internet-adoption-policy-considerations/> , access 20 June 2021

6. India Today. (2014). Narendra Modi's first Independence Day speech: Full text available at <https://www.indiatoday.in/india/story/narendra-modi-independence-day-speech-full-text-red-fort-2014-2014-08-15> , accessed 31 July 2021

7. Kantar. (2021), ICUBE2020 Report. IAMAI and Kantar.

8. Keniston. K., & Kumar. D. (2004). IT Experience in India. Bridging the Digital Divide, Sage

9. Prasad. R. S. (2015). Digital India – The Vision and the Mission available at <https://blog.mygov.in/editorial/digital-india-the-vision-and-the-mission/> , accessed 31 July 2021

10. Rainie, L., & Wellman B. (2012). Networked: The New Operating System. Cambridge, MA: MIT Press

11. Teulery. D. (2020). How payments acceptance on smartphones can bridge the digital divide available at https://km.visamiddleeast.com/en_KM/visa-everywhere/blog/bdp/2020/12/05/how-payments-acceptance-1607146676990.html , accessed 31 July 2021

12. Venkatesh. V., Thong. J. Y. L., & Xu. X. (2012), Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology, MIS Quarterly, Vol. 36, No. 1 (March 2012), pp. 157-178, Management Information Systems Research Center, University of Minnesota

13. Venkatesh. V., Thong. J. Y. L., & Xu. X. (2016), Unified Theory of Acceptance and Use of Technology: A Synthesis and the Road Ahead, Journal of the Association for Information Systems, Vol. 17, No. 5 (May 2016), pp. 328-376

14. Walterova I, & Tveit L. (2012), Digital local agenda: bridging the digital divide, Transforming Government: People, Process and Policy, 6 (4), 345-357.

15. Warschauer, M. (2002). Reconceptualizing the Digital Divide. First Monday, 7(7).