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From Fintech to Financial Inclusion: A Holistic Examination of India's Evolving Economic Landscape

Prof. Dr. Mukund Madhav Tripathi

NMIMS School of Commerce, Navi Mumbai, Maharashtra

Prof. Amit Bathia*

(* Corresponding Author)

NMIMS Anil Surendra Modi School of Commerce, Mumbai, Maharashtra

Mr. Tejas Kokcha

Bachelors of Business Administration, NMIMS School of Commerce, Navi Mumbai, Maharashtra

Mr. Harshvardhan Patel

Bachelors of Business Administration, NMIMS School of Commerce, Navi Mumbai, Maharashtra

Mr. Krish Juthani

Bachelors of Business Administration, NMIMS School of Commerce, Navi Mumbai, Maharashtra

Abstract:

This study aims to understand how use of Fintech is enabling more people access to financial services in Indian context. Based on the analysis of the indicated UPI transactions, consumer lending, Findex database and others, the study examines the effects of growth of fintech on the financial inclusion. Consequently, the study shows that Digital Payments and, in particular, UPI plays a crucial role in enhancing of the availability of financial services thus making government efforts enhance this effect. Thus, the present study support the role of fintech in filling the gap of financial inclusion in India. This is the reason why it is important for policy makers who wish to enhance the access to financial services and stimulate economic growth.

Keywords: Digital Payments, Consumer Spending, Fintech, World Bank, RBI, Commercial Bank, UPI

Introduction:

Over the last few years, the presence of the number of fintech firms in India has been on steep rise. This has led to a revolution in the financial sector that impacts various aspects of economics. This is further supported by Findex explanation of FinTech penetration in India and innovation by World Bank, this economic driver point demonstrates areas like commercial banking lending and digital payments through UPI. With a claim to institutional legitimacy as a tool for assessing and measuring financial access in the country, Findex takes the centre stage to explain the emerging shape of India's finances.

The Findex identifies the access point and utilization of the financial services such as fintech integration. fintechs have grown rapidly to become significant players in the provision of financial services especially to banking the unserved and under-banked especially in the rural areas. On the same note, there has been a creation of more fintech startups hence increasing competition and collaboration among the banks. Fintech has also disrupted the traditional ways of operation in commercial banks, thus the adoption of digital technology to enhance the provision of services and its provision to other institutions. (Kaka et al.,2019).

Further, the emergence of the fintechs has created numerous lending practices which are outside the banking channels which have been in existence previously. According to Godard (2022), in the recent years non-banking financial institutions that allows lending have been embraced and are indispensable for fulfilling the needs of a large population that conventional financial systems serve negatively. This new orientation to lending has very serious implications for financial access since it complements many of the missing gaps left by traditional banking structures.

Through the analysis of this paper, it has pointed out that the introduction of fintech services in India has substantially altered the manner that consumers comprehend their need and the supply. The increase in financial services through the Internet has increased the consumers' power of bargaining through providing the consumers with tools for arranging and also saving funds and also in investing money. In addition, this sort of democratization of the financial services was making the consumers more confident and was seen benefiting the whole economy (Kaka et al., 2019). Also, the emergence of the fintechs has led to various lending processes, which do not only occur within the traditional banking places. In doing so, there has been an evolution of many non-bank financial institutions and also similar other online credit platforms to meet credit demands of many people who were excluded from formal monetary systems (Godard et al., 2021). However, the above change to the lending system has some excellent advantages to the growth of financial inclusion that complements what the traditional banking systems failed to provide.

Likewise, the entrance of Fintech in India has also changed consumer's shopping behavior and pattern. As it has been noted above, millions of service takers have gotten from the digital financial services all that they need to manage their finances, save and, in fact, even invest. This democratization of the financial services has contributed to the enhancement of consumer confidence thus impacting on the economic growth as pointed out by Kaka et al., (2019). The rising trends of the UPI are clear indication that the digital payments are on the rise and are popularly accepted. Many fintechs have adopted the UPI technology which has been massively instrumental in this shift towards a cashless society while at the same time helping to deliver a payment process infrastructure that is both efficient and inclusive.

Thus, the Findex is evidence of the fact that fintechs have expanded significantly in India, and it becomes a new chapter in the financial industry of the state. These differ with regards to the impact that the advancement of fintech has brought to the commercial banking practices and lending activity, the customer spending and also the UPI transactions. As India progress towards financial inclusion, it becomes extremely important for policy makers to understand the complementary relationship that exists between fintechs and all important macro-economic indicators.

Literature Review

The exponential growth of the fintech industry in India marks a new era for the country's financial industry, with a significant implication for commercial banking, lending practices, consumers spending behaviors, digital transactions through platforms like UPI. To understand the symbiotic relationship between fintechs and key economic indicators and parameters we referred to various reports and articles.

Digital Based Payment System, like UPI in India, leverages digital technology to provide fair and equitable access to various financial services, such as bank accounts, loans, insurance, investments, and payment systems. This enhances financial inclusion by extending access to financial resources, especially for rural customers, and facilitates basic financial transactions through mobile apps, online banking, and digital payment platforms. The adoption of digital payment systems has shown to positively impact financial inclusion by reducing discrepancies, improving efficiency, and promoting economic empowerment, ultimately leading to increased access and participation in the formal financial system. This translates into better financial opportunities for individuals, including those previously underserved by traditional banking systems, thereby contributing to poverty alleviation and economic development (Tarigan & Mawardi, 2023).

Over the last few years, the number of fintech firms in India has increased significantly and this revolution impacted various factors of economics (PwC India, ASSOCHAM, 2022). The FinTech industry of India has grown over USD 30 billion and been quite vibrant in the current COVID-19 situation. The industry has numerous advantages such as a favourable environment governed by policies and rules, a large untapped market, and adequate supply of skilled human resources that has positioned the industry for further accelerated growth Trends (PwC India, ASSOCHAM, 2022). With growth of the fintech industry the question has witnessed the adverse effects in its line of operation which have aided at enhancing the aspect of financial inclusion. Fintechs have a few advantages meeting traditional financial intermediaries: the use of advanced technology and an absolutely downward business model of activities (Godard, 2022). This allows them to develop products that meet the needs of the marginalized groups with an aim of offering the necessary financial services. Fintechs can deliver level playing field financial services in sectors like, credit underwriting for increments based on non-traditional data, payments, remittances, and insurance. In addition, the fintechs might have a meaningful contribution towards achieving a sustainable finance by integrating the ESG factors into investment decisions. In general, fintechs can expand the population's access to financial services for excluded or underserved groups (PwC India, ASSOCHAM, 2022).

Collaboration between banks and FinTech startups through partnerships, acquisitions, and investments has been a key driver of FinTech growth in India (RBSA Advisors, 2021). FinTech has had a significant impact in regions where people

and businesses previously had limited access to financial services, such as the unbanked, rural areas, and small/micro businesses. The rapid growth of India's FinTech business has streamlined the loan process by leveraging technologies such as artificial intelligence and machine learning. This has allowed digital lenders and intermediaries to use data to filter and advance loans, provide aggregation services, and offer a variety of services such as personal loans, loan against salary/payday loans, gold loans, and SME lending. FinTech businesses have also focused on meeting the credit needs of underserved groups, offering services such as invoice discounting, channel finance, credit rating, and collections. FinTech adoption has formalized lending for the unbanked population and used alternative data like education and job history to establish credit eligibility, simplifying the lending process for a larger client base (RBSA Advisors, 2021). The Pradhan Mantri Jan Dhan Yojana (PMJDY) has played a significant role in universalizing financial inclusion initiatives in India, leading to a significant increase in the number of bank accounts (Mahajan, 2023).

It is evident that FinTechs are expanding in India at a fast pace in the recent years. Currently, there is more than 6000 FinTechs in India and the market is worth more than $30 Billion (PwC India, ASSOCHAM). Some of the factors that have contributed to this growth include the vast untapped and potential consumer market, a supportive legal environment, a capable workforce, better access to capital, and the fabulous public internet infrastructure provided by India Stack. However, the COVID-19 outbreak virtually brought the global economy to a standstill, yet the FinTech business model has not been negatively impacted in terms of investment, adoption, and revenue growth The UPI has brought a revolution in the fintech industry in India. UPI has changed the way digital transactions are done by offering an efficient, speedy, and secured means of transferring money (Sinharay, 2024). This has seen an increase in the use of digital financial transactions thereby expanding the market for financial services. Fintech firms have used UPI as a tool to create new payment products, including mobile wallet services, P2P lending, payment interfaces, and so on, which in turn has helped propagate financial inclusion. Also, UPI has assisted in the expansion of online businesses and e-commerce by providing the necessary means of payment for customers. In conclusion, UPI has played a crucial role in the development of the fintech sector and has promoted digitalization and financial inclusion of customers and companies (Sinharay, 2024).

The rapid expansion of India's fintech industry, as seen by its value exceeding $30 billion and recovery in the face of pandemic problems, marks a watershed moment in the country's financial environment. This has been attributed to factors such as; the right legal environment, availability of personnel, and increased application of new technologies including artificial intelligence and machine learning. Fintech companies have come out as enablers of financial inclusion providing niche services to the underbanked population and transforming payment systems through platforms like UPI (Kaka et al., 2019). This expansion has been further bolstered by partnership between banks and Fintech companies, where the major beneficiary of these partnerships have been the underbanked regions and small businesses. Evidence of this includes the Pradhan Mantri Jan Dhan Yojana through which the government has shown its willingness to enhance financial inclusion. In the future, the relationship between fintechs and various economic indicators is expected to revolutionize commercial banking, lending practices, consumption patterns and digital transactions, which would herald India’s financial sector to become far more inclusive and digitized.

Research Methodology

To analyze the relationship between fintechs and financial inclusion in India, this study used a descriptive, longitudinal research design. An exploratory research design was used and the study incorporated multiple types of data to enrich the knowledge of the phenomenon under study. To evaluate the usage and application of UPI and its benefit in the field of financial inclusion, NPCI UPI product data for consumers were collected from the publicly accessible marketing database. Consumer lending and the Findex data of the World Bank database was also examined. Data on the amount of investment in fintechs in India, obtained from relevant industry reports and news articles was also integrated to analyze the evolving fintech landscape and its potential impact on financial inclusion.

Data Analysis and Discussion

The researchers performed regression analysis of UPI data from NPCI. The analysis led to the formulation of a regression equation with great scope of deployability of 96.8% with a smaller standard error of 639.53 (Table 1).

P value of No. of Banks Live on UPI is less than 0.05, indicating corresponding beta as significant. Hence, No of banks live on UPI is a significant variable to estimate Volume of UPI transactions, resulting into following expression:

$$\mathbf{Y = \beta_1 X + \beta_0}$$

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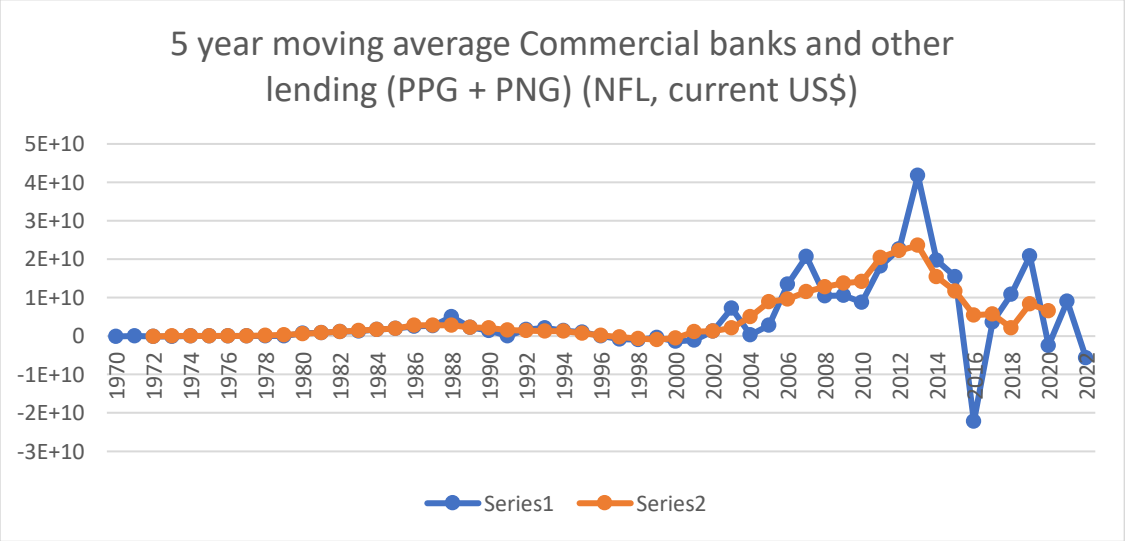
Volume of UPI transaction = 24.98703867(No. of Banks Live on UPI) - 2155.61213

This equation unveils a critical finding: a statistically significant positive relationship exists between the number of banks participating in UPI and the volume of UPI transactions. The coefficient associated with the independent variable (X), which is 24.987, indicates that for every additional bank joining the UPI platform, the volume of UPI transactions increases by an average of 24.987 times. This positive coefficient underscores the crucial role of bank participation in fostering the adoption and usage of UPI.

Furthermore, the model suggests that a higher volume of UPI transactions can contribute significantly to achieving greater financial inclusion. Increased utilization of UPI signifies a broader engagement with the formal financial system, potentially leading to financial empowerment and economic participation for a wider segment of the population. This finding aligns with prior research highlighting the positive correlation between financial inclusion and access to digital payment mechanisms (Tarigan & Mawardi, 2023).



By analyzing lending patterns across different periods (blue lines showing actual data, orange lines tracing the average), the researchers can gain insights into the factors influencing credit availability for both established businesses and individuals.

Early Years and Limited Financial Inclusion (Up to 2003): The initial phase, observed up to 2003, is characterized by a relatively flat line, indicating minimal lending activity by commercial banks. This stagnation in lending coincided with limited financial inclusion efforts in India. A large portion of the population, particularly in rural areas, lacked access to basic banking services like savings accounts and credit facilities. This limited access to financial services likely contributed to the low demand for loans, as many potential borrowers remained outside the formal credit system. Priority sector lending also did not reap much benefits.

Economic Boom and Evolving Financial Inclusion (2003-2005): In the year 2003, Phase 1 of growth for commercial bank lending initiates a major change. This chapter corresponds with a period of economic growth that probably created increased loan demand from established companies. Nonetheless, the effect on efforts for financial inclusion may have been rather modest. The economic rebound promoted slightly more interest in organized financial services, but serious problems remained with respect to financial literacy, rural area infrastructure restrictions, and the deficiency of tailored financial inclusion strategies. Stable Growth and Expanding Financial Inclusion (2006-2013): Between 2006 and 2013, there existed an epoch of reliable growth in commercial bank lending. During this time, financial inclusion drew increasing attention in India. The 1999 launch of the Pradhan Mantri Gram Swaraj Yojana, an initiative aimed at empowering gram panchayats (village councils), may have obliquely contributed to financial inclusion by encouraging rural development and possibly increasing demand for financial services in these locations. But, a more direct approach came into being with the 2014 introduction of the Pradhan Mantri Jan Dhan Yojana (PMJDY). This scheme was to give basic bank accounts to people who had no banking facilities. In concurrence with measures to advance banking access in rural locales through the Financial Inclusion Plan (initiated in 2014), these actions steadily raised access to financial services and contributed to a greater number of loan applications from formerly unbanked segments.

Challenges and Reassessments (2013-2018): A troubling trend in commercial bank lending arises from 2013 forward. A slowdown in lending is happening during this time, which may be related to an economic slump, an increase in NPAs, or tougher lending requirements. It's likely that this decline took place alongside a rethinking of financial inclusion strategies. The early excitement surrounding the establishment of bank accounts may not have resulted in considerable loan uptake because of factors, such as limited creditworthiness or a loss of fitting loan products for the newly incorporated segments. Recovery and Redefined Financial Inclusion (2018 Onwards): In spite of these hurdles, a favorable recovery is obvious in commercial bank lending starting from 2018. This new wave of growth may stem from improved economic conditions and programs from the government that initiate support for specified sectors or entrepreneurship itself. Worth noting, financial inclusion strategies may be advancing during this time. Greater focus has been placed on the concept of financial literacy alongside microfinance initiatives and the development of new loan products for the unbanked, which has led to a rise in the credit appetite from these markets. Government initiatives gaining momentum during this period include: The Stand Up India Scheme was launched in 2015 and in the same year it linked with the Pradhan Mantri Mudra Yojana. The Pradhan Mantri Mudra Yojana was launched in response to the need for micro finance in the unbanked areas. This scheme categorizes microfinance loans into three categories based on loan amount: These are Shishu (up to Rs. The target group for PMMY loans includes people living in the rural and urban areas who have an interest in income earning activities. The primary goal of the program was to assist these people to initiate or expand small businesses by offering collateral based loans and faster access to the loans.

These schemes alongside the Pradhan Mantri Jan Dhan Yojana (PMJDY), a scheme that offered basic banking services, was a clear testament to the shift in Hence, while the two forms of schemes differed in focus, they all had the common goal of expanding access to effective banking services, including both accounts and credit, to hitherto financially excluded population segments in order to thereby enable their economic inclusion. The measures aligned with the Pradhan Mantri Jan Dhan Yojana (PMJDY) have paved way for a substantial shift in the way government perceives financial inclusion. With the aim of extending the reach of financial services to those who have been excluded from the formal financial sector and improving their economic inclusion, these schemes developed a more comprehensive model that focused on access to bank accounts and credit. The analysis done here is an ANOVA single factor on the Findex (a database that contains many independent variables including the percentage of people who have a mobile money account, a financial institution account, make digital payments, receive wages in an account etc.) to show the growth in financial inclusion from the year 2011 to 2021.

Our analysis leverages a single-factor ANOVA, a statistical technique that allows us to assess the impact of a single independent variable ("Year" in this case, representing the rise of financial inclusion) on multiple dependent variables. These dependent variables encompass a diverse range of financial inclusion indicators, including account ownership, mobile money usage, access to digital payments, and more. The results are particularly intriguing (Table 2).

A remarkably high F-value (23.477) is observed, significantly exceeding the critical F-value (2.609). This statistically significant outcome ($p < 0.05$) leads us to strongly reject the null hypothesis (H_0 which indicates that there is no statistically significant difference in the financial inclusion indicators across the years). This outcome, characterized by a statistical significance level of p less than 0.05, implies that the observed variations in financial inclusion cannot be attributed solely to random chance. The high F-value suggests a strong likelihood that there has been financial inclusion in India throughout these years as suggested by the indicators and ANOVA analysis.

Conclusion

Financial inclusion has undergone significant changes in the recent past, with focus being on the aspects of innovation brought about by fintech organizations as well as governments. The analysis produced the following findings that has tremendous policy implications:

While analysing the data of UPI integration the author has constructed a regression model that showed a positive relation in the number of banks live on UPI and overall UPI payments volume. This implies that the banking which seeks to operate on UPI has the significance of boosting the financial inclusive status. This finding can be utilised by policy makers to encourage greater participation in UPI amongst banks, especially in geographically less penetrated areas.

The fluctuating trend of the commercial lending moving averages helped in understanding the effects of other institutional facilities such as PMJDY or Mudra Yojana(jj). Based on the observed increase in lending activity, it is possible to conclude that there is a positive link between such programs and financial access. This goes a long way in supporting the argument made in this paper that government policies work in ensuring that credit is extended to socially excluded groups. On this

basis, there is much that policymakers can learn to build on, and possibly fine-tune, these sorts of schemes, and extend their applicability.

The ANOVA analysis of FINDEX data also supports the fact that financial inclusion is a continuous process in the context of India. This supports further efforts in controlling variables that cause the separation of populations that will be included and the excluded ones. Hence, by giving emphasis on financial literacy, on the development of the digital infrastructure, and on supporting the adequate entrepreneurial environment for fintech development, the policymakers can aggravate this process and guarantee the fair financial inclusion for all the citizens of India.

Appendix

Table 1:

Regression Statistics	
Multiple R	**0.983878521**
R Square	**0.968016943**
Adjusted R Square	**0.967645047**
Standard Error	**639.531653**
Observations	**88**

ANOVA								
	df	***SS***	***MS***	***F***	***Significance F***			
Regression	**1**	**1064597724**	**1064597724**	**2602.923742**	**4.48624E-66**			
Residual	**86**	**35174063.23**	**409000.7352**					
Total	**87**	**1099771787**						
	Coefficients	***Standard Error***	***t Stat***	***P-value***	***Lower 95%***	***Upper 95%***	***Lower 95.0%***	***Upper 95.0%***
Volume	**-2155.61213**	**124.2198486**	**-17.353202**	**7.79823E-30**	**-2402.55302**	**-1908.67**	**-2402.55**	**-1908.67**
No. of Banks live on UPI	**24.98703867**	**0.489760851**	**51.01885673**	**4.48624E-66**	**24.01342632**	**25.96065**	**24.01343**	**25.96065**

Table 2:

ANOVA: Single Factor						
SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Row 1	113	16.57705811	0.1467	0.01961402		
Row 2	460	81.51965613	0.17722	0.025846109		
Row 3	503	91.9708197	0.18284	0.036055311		
Row 4	1052	257.0130984	0.24431	0.04275292		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*

Between Groups	2.556389288	3	0.85213	23.47707919	6.01284E-15	2.6090922
Within Groups	77.09321935	2124	0.0363			
Total	79.64960864	2127				

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