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1.1 BACKGROUND OF THE STUDY

“The actual requirement of financial inclusion came in 2005 when the Central Bank of India i.e. Reserve Bank of India (RBI) specifically spotlighted its importance in its annual policy statement of 2005-06. It forced banks to work with a goal to reach out to the masses, offering crucial banking services which are required on daily basis. One of the biggest worrying fact was the mass exclusion of people from the formal banking system that curbed economic growth at the very bottom of the pyramid from that period onwards RBI began to influence banks to make financial inclusion as their main business objective because then only the banks can have their prime focus on financial inclusion.”

“Globally, Financial Inclusion is considered as one of the most crucial indicator of growth and development and well-being of the society. As a result of recommenced thrust of financial inclusion, an adequate financial inclusive system is globally recognized in decision making table as a proactive measure and now it became a foremost priority in many countries- including India. In India, financial inclusion is considered as an effective means for a sustainable economic growth, and is calculated to ensure that each and every citizen of the country must be able to use their earnings in the productive sectors of the economy which can generate returns and it will also be used as a resource of redeployment. These resources can work as a fuel to nation’s progress.”

“Comprehensive Financial Inclusion subsumed safeguarding an easy ingress to financial services and to provide enough required credit (say in terms of loan) to the financially excluded sector of the Indian society especially weaker sector and lower earning groups. It is known details that in India, that one section/sector of the population can easily ingress to variety of banking/financial services encompassing financial solutions.”

“On the additional side, the other section/segment of deprived and lower earnings section is totally excluded from even very basic financial amenity. When the larger section of the society is being financially excluded then it directly affects the overall growth of the economy of the country. Therefore, financial inclusion is one of the major concerns nowadays.”

“Different countries have their different ways to make their people financially included just like in Some of the countries; banks are legally bounded to open a bank account for masses who come towards them and in some other countries; the law urges banks to provide bank accounts with base balance to all the citizens of that country regardless of their income level, nature of occupation or their past credit history.”

“In United States, the Community Reinvestment Act (1977) is planned to motivate depository institutions to match the credit needs and requirements of various communities in which they operate, including middle and low income neighborhoods.”

Whereas in India; the finance industry has grown exceptionally well i.e. horizontally as well as vertically but in rural areas the penetration of bank has not kept that pace according to the increase in population and their essential need for those financial services.

1. FINANCIAL INCLUSION

“Financial Inclusion basically means that all segments of population-even the segment with lowest level income groups – can also have that ease of ingress of financial sector’s products and services. The financially excluded person doesn’t mean only unbanked people but it also includes under banked. Financial Inclusion was generally measured as

the percentage of the population having a bank account; in fact various dimensions should be considered while measuring financial inclusion.”

“In simple terms, financial inclusion means that each and every citizen of the country must have an ingress to required and useful financial sector’s products and services so that they can meet their needs and requirements just like transactions at the earliest, payments, savings, credit and insurance and all the financial products and services should be delivered to the user in a responsible and sustainable manner. Financially included groups are those who have their own account i.e. on their own name with a formal institution from financial sector.”

- “Access to formal financial services does not necessarily indicate that to make use of those services. More than half (54%) of the adults remain unbanked as well as under banked. Access to credit from formal channels and use of insurance services are significantly lower. For receiving wages and for payment of utility bills only 18% of adults use their bank accounts. Similarly, just 27% of adults save their earnings formally and only 11% of adults borrow funds formally.”
- There are some significant imbalances in financial inclusion which exist within the economy. There are several differences on various basis just like difference between regions like between urban and rural areas; gender differences like difference between men and women: Data shows that on global level only 58% of women have their bank accounts in comparison to that 65% of men have their bank account.

“In almost every developing country, a large population particularly of low earnings/ income has a very minimal ingress to the financial services. Due to the fact that most of them don’t have their access to financial services so they have to be dependent upon their own informal ways of financing themselves to operate and that too at an unreasonably high cost. A report of National Sample Survey Organization (NSSO)

mentions that a major portion of rural households in the country (76%) depends on borrowings from informal moneylenders as their source of finance.”

“As far as financial institutions are bothered then financial inclusion looked liked to be geographically précised to some specific segments of the country. In order to measure the spread of banking services most often two ratios are being used”:

- “State Wise Banks Credit – Deposit Ratio”
- “Amount of bank credit with the State GDP”

“In some of the states of India it is being observed that, the ¹ credit-deposit ratios are highly low which means that their funds are not being utilized by the state people. Perhaps, the major reason behind this could be financial exclusion. For say the credit ratio of some states are as follows: Tamil Nadu (114%), Maharashtra (81%), Uttar Pradesh (44%) and the lowest one is in Arunachal Pradesh. Thus it is cleared that some parts of India are still under-banked especially the North-East Region. On the other hand, the Southern States are widely known as Strong Bank Branch Network Region and because of this their CD Ratio is very high.- as per the sources

“If we talk about the Gross Domestic Product (GDP) of some of the regions of India and try to compare it with the amount of credit provided by the bank then what was observed is that the ratio of both should be more or less equal which clearly means that the banks are lending their money/funds according to the magnitude of the economy of the state. But now there is a huge difference in the credit/state GDP Ratio where North East states are at the bottom line with Credit/State GDP Ratio which is less than 18% and Bihar is even below North East States i.e. 16% whereas in Maharashtra, Tamil-Nadu, Karnataka the ratio is very high.”

1.1.1.1 How Financial Inclusion is being measured?

“Basically, we try to access financial inclusion as the percentage of adults (15+ years old) who report that he/she has at least one account on their own name with a financial institution which offers a full portfolio of financial services, and that too recognized from any government agency.”

1.1.1.2 How financial inclusion is created?

“Financial Inclusion is created with the help of using up of individual/group accounts with formal financial institutions who would be providing a full set of portfolio of the financial products and services- deposits, borrowings, interbank money sharing, mobile money facilities with non-banking financial institutions, such as payment banks, e-wallets.”

1.1.1.3 Major Factors affecting the ingress to Services provided by financial institutions

“The financial inclusion can be seen in two categories of barriers which are demand and supply side barriers.” Factors associated with those obstacles ¹ are listed as follows:

- **DEMAND SIDE BARRIERS:** “The obstacle arising out of demand side factors may be characterized by the following features”
 - Difficulty: Those sections of society who are financially excluded, they find it difficult or say complex in nature to access. According to them it is time consuming and costly to go to banks for just small transactions.
 - Place of Living: The major motive to run a branch by a bank is to generate profits so generally commercial banks likes to operate their branches in commercially profitable areas to generate more profits so that’s why it becomes unviable for those banks to open their new bank branches in remote areas. Due to the fact, it becomes difficult for the people who live in underdeveloped areas or remote areas to reach to their nearest bank due to

transportation cost, lot of time waste in transportation and most importantly because of the ¹ wages lost in travelling to bank.

- “Limited Literacy: One of the most crucial factors going towards non-access to services offered by financial sector is Financial Illiteracy and lack of basic education.”
- “Comfortability and empathy in favor of Informal Sector”: As financially excluded section of the society finds informal sectors more users friendly and easily accessible and they have developed empathy towards that sector for credit purposes even on high cost as well for a simple that it is easily accessible in tougher situations.
- SUPPLY SIDE BARRIERS: The supply side barriers of non-accessing of financial services are as followed:
 - “Legal Identity: When there is incapacity to provide legal identity card such as Voter ID Card, Residence Proof, Birth Certificates, etc.”
 - Issue of Outreaching: Due to too long distances for services and to support the accounts at a very reasonable costs and that too even if a person is bankable.

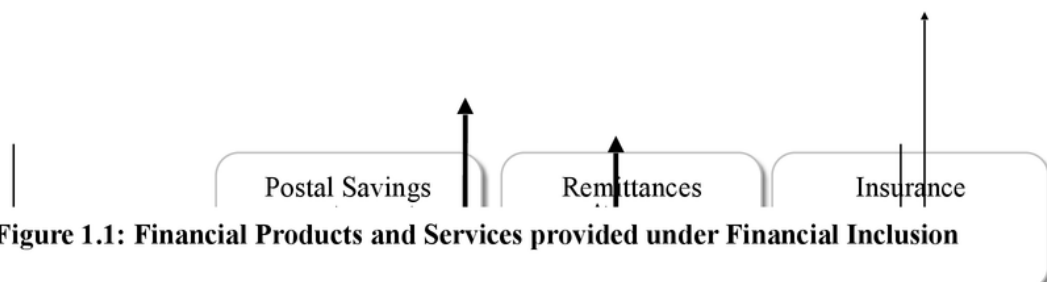
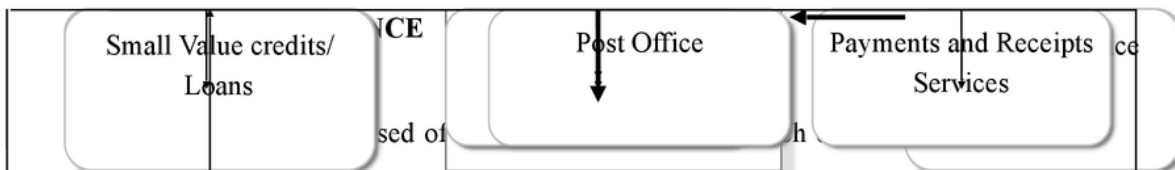


Figure 1.1: Financial Products and Services provided under Financial Inclusion



help of mobile phones, personal computers, and the internet facility or any of those cards which are linked with a reliable digital payment system or institution. Digital finance encloses the dimensions of a new financial product, financial businesses, Software associated to finance and paperback form of information delivery and interactivity delivered especially by FinTech Companies, especially from innovative service provider agents or institutions. As there is no specific well defined standardized definition of digital finance, there was some consensus that digital finance encloses all products, services, technology and/or infrastructure that helps all those individuals or groups or companies to have that easy access to payments, savings, and credit facilities with the help of internet and that too without visiting to a bank branch or in simpler terms without dealing with the financial service provider.”

“Generally, financial services are said to be a lifeline of an economy as it permit the households as well as businesses to save, invest and protect themselves against the risk associated with it. Yet in almost every emerging and developing economy today, the mass population of individuals and the small businesses lack their access to basic financial services such as savings and borrowing products which somehow affects the economic development and it also extends the poverty as well. In this developing and growing world there are about two billion people all across the globe who doesn’t have their access to bank and about 200 small businesses across the globe cannot get the credit (for funds to operate) due to which they are unable to grow.”

“The only solution which comes to mind for more financial inclusion sums in two words which are Digital Finance with an idea that comes up with more benefits such as it helps individuals and companies to had that easy ingress to receipts and expenditure without even stepping into the bank branch. Digital Finance enables us to turn our mobile phones

into a digitalized platform such as a wallet, a cheque book, a branch/pass book or in simpler terms it makes our smart phones into all in one.”

“The major aim of financial services which are being made available with the help of digital platforms is to make some contribution in reducing poverty and to participate towards the most crucial objective i.e. financial inclusion. But the point is that to use Digital Financial Services (DFS), the user of DFS should had his bank account in existence which he/she should own or they must have a permission to use a third-party bank account; and then there should have an adequate amount of funds available or overdraft facility in those bank accounts to make payments in monetary terms or to collect receipts or in simpler terms for outflow or inflow of cash in their respective accounts with the help of digital platforms consists of mobiles (smart phones), personal computers, Internet.”

“Digital finance has a significant role in promoting financial inclusion through providing that access of financial services to most of the 80% of poor adults which were said to financially excluded.” It just doesn’t only promotes financial inclusion but it also gave that big booster to the efficiency of the services; it also helped in dropping the cost of the financial transactions; and it also increased the speed and convenience of the financial transactions. And the major part is that it led to some big innovations in the financial sector of the economy and those innovations are majorly emerged in developing countries. From business perspective, it makes business more productive and it also allows individuals to make more advantage from the opportunity in the world of digitization or digital world.

“Each and everything has its own pros as well and cons as well same in the case of digital finance as it comes up with the reward but at the same time it also comes up with the risk part as well. Like the thing which makes online financial transactions so easy and compatible for users to use, also created them receptive to the agency of online

fraud determination as well. The entry of non-traditional players brings up with new challenges for policy, regulation and supervision as well.”

1.1.2.1 “BENEFITS OF DIGITAL FINANCE”

“Practically, Digital Finance consists of various benefits listed down as follows:”

- “Digital Finance helps in encouraging Financial Inclusion”

“More than 2 Billion people didn’t have their ingress to any of the services provided by financial institutions. Generally, on an estimate about 50% of women and 59% of men have their own account in a recognized/regulated financial institution or a bank. Generally, small business, poor adults, women often was being dependent upon their informal sources of financial services, even in the case of receiving public transfers or remittances as well.”

“Digital payment systems helped the user by providing an easy ingress to financial services by overcoming from barriers so that they can access those financial services. It also provides an opportunity to those who doesn’t have their bank accounts to make and receive payments and that too by using their mobile phone only. If the systems are appropriately used in a right environment and in a right direction then it can lead to massive increase in size in a very short span of time. Digital finance also leads to reduction in cost for the beneficiary. Digital payments lead to increase in control since the senders of remittances holds have their greater influence that how the receiver will use the money, including for their savings also. Digital payments through digital

platforms also made an improvement in risk management by making it convenient to receive greater amount of support from social networks that can act as a safety agent.”

- Financial Inclusion being prompted by Digital Finance:

“The financial sector is that sector in the economy which is always been a front liner to adopt a new emerging technology. There is a significant reduction in the cost of financial transactions because of Automation. Emerging Automating process allows new Fin-Tech firms to offer more and new services and that too on a lower cost in comparison to the traditional players/providers.”

Another major innovations made by the internet is emergence of digital currencies such as BitCoin, the most well known digital currency. It consists of a huge variation in its value if we talk about it in terms of national currency for a simple reason that it doesn't widely accepted as a means of exchange and it also increases the scope of fraud.

- Digital Finance leads to increase in efficiency:

“The cost of most of the financial transactions is being reduced with the help of internet by allowing their decoupling of services into small-small individual parts that can be automated. There are several components or stages involved in a retail payment i.e. pre-transaction, clearing, settlement and final stage is post-transaction and each stage also involves several steps to perform.”

1.1.3 EFFECT OF DIGITAL FINANCE ON FINANCIAL INCLUSION

Nowadays, as “mobile and digital technologies” are widely spreading all across the globe and that too in an extraordinary speed and also with a very turbulent power which can change the whole scenario of financial inclusion.

“For most of the people, the picture begins in palm of our own hands with the help of mobile phone which they carry on their palm. These smart phones can provide a direct and easy ingress to digital wallets or say e-wallets that could be easily used for all utility payment transactions, just like electricity bills, utility bills, school fees, while purchasing at stores and on various other payment types. Instead of using cash usage of mobile phones leads to savage of travel time, cost and most importantly it reduces the risk of theft, and boosts that easy access”. This also provides wider range of services offered by financial sector, portfolio to access which can be delivered/provided digitally.”

But now the usage of mobile phones becomes universal because of which more often or not their network coverage and quality is increasing. Now, mobile networks have been reached to more than 90% of the population especially in emerging countries. Ownership of phone is still lag behind the network coverage, but that too also increasing very rapidly. “In the year 2014, nearly 80% of the adults in developing countries had their own mobile plans in comparison to that only 55% of the adults have their own financial accounts.

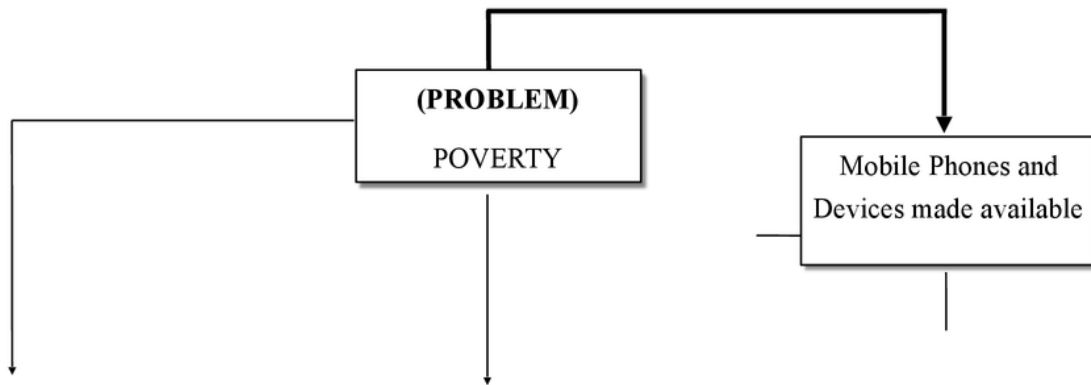
For all the financial service partners basically, the amount involved in the offering digital accounts to customers can be “80-90%” lower in comparison if they use physical branches. This gives an opportunity to the service provider to serve their customers with a greater profit margin and that too with a wider portfolio and lower prices. “Over a period of time, most of the users may begin to use their digitally made accounts to save more money in the future.”

“Now individual users and businesses also making payments digitally, they created their own data set of their receipts and payments that sanction their financial service providers to ingress their credit risk associated with them. The information provided by the dataset allows those providers to underwrite their loans and insurance policies for a huge

number of borrowers with higher motivation level. Service providers can also collect their repayments very conveniently on an automated basis only- just like to send a text message to make their borrower aware that they have missed their payment.”

“Digital financial services are held out as a key money related answers for enhancing monetary consideration”-Buckley & Malady, 2015. “The methodology of Digital Financial Services has presented a positive effect on rustic economies by making an expansion in cash dissemination, business developments and working opportunities.” – European Investment Bank, 2014

“Achieving the goal financial inclusion basically requires bridging the gap between cash and digital payments. With the help of digital financial services, poor households now enable themselves to accumulate a specific amount to invest in some micro enterprises and it also helped them to maintain some precautionary cash in the form of savings that can be used in any unexpected situation.”



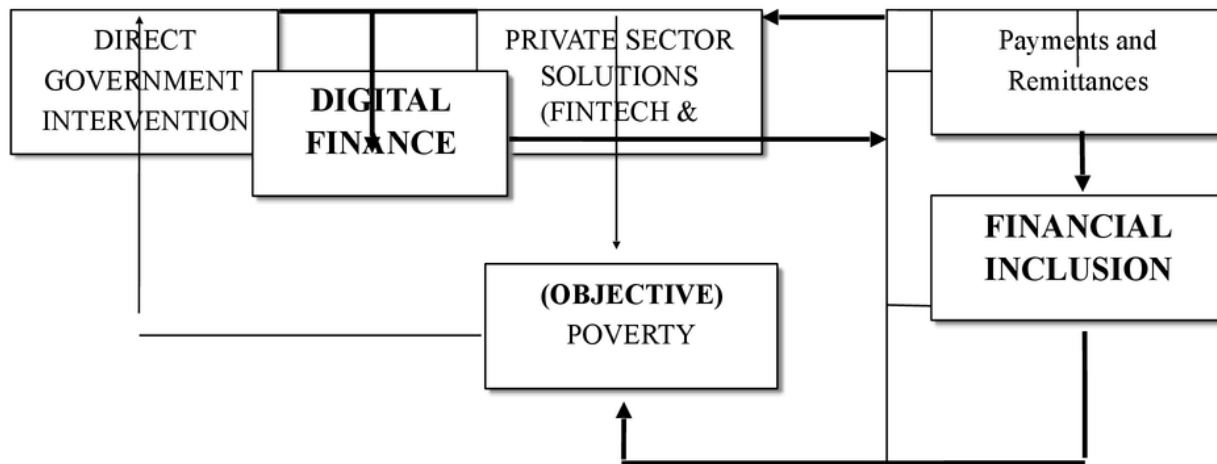


Figure 1.2: “Impact of Digital finance on Financial Inclusion”

“The theoretical promotion for the relationship between digital finance and financial inclusion is the premise that a huge of financially excluded population owns or having a mobile phone and the services accessible through mobile phones or related devices can definitely improve their access to financial services. It is a well known fact that a greater supply of digital finance will lead to a positive effect on financial inclusion provided that the financially excluded population should have a mobile phone with a internet connectivity then only it can happen, which implies a positive correlation between digital finance and financial inclusion (theoretically).”

“The positive effects of digital finance on financial inclusion is varying in nature due to the fact that when greater digital finance is being applied on the lives of poor and low income level group people so definitely that can increase their access to financial services which leads to a greater financial inclusion especially in rural areas. Secondly, greater digital financial services channelized to the rural and remote areas to improve the access to finance for bank customers in rural and poor communities who cannot easily access their bank branches due to huge transportation and standing in long queues for their turn in bank branches so digital finance will help to reduce the number of

customers in the bank branch that will reduce cost of the customer and that would also help the bank's management to operate more effectively and that too on a lower operating cost which would lead to more profitability and more financial inclusion in those rural and remote areas.”

“There may be a positive relationship between digital finance and financial inclusion but it is important to point out that the implied positive relationship is quiet stronger but only for high and middle level income users of digital finance whereas the relationship may be non linear or may be negative for low income level group people because digital finance in local remote and poor communities can be refused to be used due to”:

- “Religious beliefs which they have about technological advancements and innovations”
- “Unreasonable and unaffordable fees charged by digital financial service providers”
- “Financial Illiteracy”
- “Other reasons”

CHAPTER - 2 RATIONALE OF THE STUDY

“Since 2010, economy of India was growing around 9%, but expansion in the economy didn't include of the financial conditions of the people from rural areas. One of all time reasons for poorness was always being financial exclusion. Although, one segment of

the society are availing the benefits of all kinds of financial services being provided to them through banks or financial institutions like Internet Banking; etc but still there are almost around 40% of the people didn't had that ingress to even basic financial services like deposits, borrowings and insurance facilities. Therefore, run batted in came up with an associative initiative of launching National Pilot Program on Monetary Inclusion in 2005. The uniqueness of this initiative was that the bank accounts were opened by the bank officers and you don't need to go anywhere bank officer will come at your doorstep to open your bank account and they will not demand any minimum balance or deposits for the same. In recent past, Indian markets and economy in general as well as in financial terms had made rapid steps to improve in any possible."

"However, a considerable section of the population i.e. rural people especially the weaker and poor sections and below poverty line groups of the society continued to remain unbanked which means they were still financially excluded that means they were still unable to avail those basic financial studies. So, in order to highlight the issue of financial exclusion in an integrated manner, it is now necessary to make sure that each and every financial service (its varieties) should be available to each and every citizen of the country."

"So, now there is a need to bring in those financially excluded people in the financial sector of economy so that they c an avail at least basic financial services by including them financially with the help of Digital Finance where it impacted Financial Inclusion positively on various parameters such as by increasing efficiency, reducing cost of financial transactions and by providing easy access to the users by making new innovations in the financial sector. This study will help us to understand the impact of digital finance on financial inclusion so that we can understand the role of Digital finance in Financial Inclusion in India."

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CHAPTER – 3 LITERATURE REVIEW

3.1 INTRODUCTION

“This segment of the study had outlined review of the study as well as the major determinants involved in strengthening of Financial Inclusion and the strategies/policies exercised by government and financial institutions and the gaps in the previous studies made.”

3.2 THEORITICAL STUDY

The theory of Financial Inclusion along with that the theoretical study comprises of those essential components to capture those crucial benefits of Digital Finance and the new emerging innovations required in technology for smooth functioning of Digital Financial Services.

3.2.1 THEORY OF FINANCIAL INCLUSION

“Nationalization of banks in India was marked as a prototype change in the mission of the banking sector in India. The significance of Financial Inclusion, based on the principle of justness and comprehensive growth, had been engaged with the recognition of international policy makers. Achieving, global financial inclusion is one of the major universal objective nowadays and consisting of various dimensions. Many countries across the globe now looking towards the financial inclusion as the only means for a complete growth, wherein, each and every citizen of the country would be able to utilize his/her earnings as their own financial resource that they could put that resource (earnings) on a work which will eventually help them to protect and improve their future financial conditions and at the same time it would also help in Nation’s progress as well.”

From theoretical perspective, as such there is no specific, clear and well defined definition of financial inclusion. A few are mentioned below:

“**Shetty (2006)** insists that Financial Inclusion rests on three major pillars, viz: access to financial services, affordability of such services and actual utilization of such services. Financial Inclusion can be achieved only if all the three pillars show affirmative results. Thus, the ABC of Financial Inclusion is Advice, Banking and Credit.”

“Financial Inclusion means delivery of financial services at affordable costs to sections of disadvantaged and low income segments of the society. Defining financial inclusion is considered crucial for identifying the factors that lead to be low level of access to the financial to the financial system. As measuring inclusion is perceived to be difficult, financial inclusion is generally defined in terms of exclusion from the financial system. As measuring inclusion is perceived to be difficult, financial inclusion is generally defined in terms of exclusion from the financial system. However, financial inclusion is not just about physical access caused by the changing topography of financial services. Therefore, the debate has now broadened to include all types of people who make little or no use of financial services and processes of financial inclusion. **(Ford and Rowlingson, 1996; Kampson and Whyley, 1998)**”

“The process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost – **The Committee on Financial Inclusion (Chairman: Dr. C. Rangarajan, 2008)**”

Traits of Financial Inclusion

“Typically, Financial Inclusion in India is being traited by the following points listed below”:

- Financial Institutions/MFIs/SHG Bank Linkage Programme had a low outreach in India in comparison to weak section of the society i.e. Below Poverty Line (BPL) and lower income level population group.
- In most of the states in India, the norm of 18% Priority Sector Lending advances to the agricultural sector had not been fulfilled and in Priority Sector Lending the share of agriculture is also diminishing.
- Major characteristics of Financial Inclusion are to either have an access to loans or access to savings/deposit account of the user. On small holder producers the availability of risk management and vulnerability reduced products are very few in numbers.
- “Providing ingress to finance is generally a resource that would bridge the gap for many low income groups.”

“India is being ranked second 2nd in the world in terms of financial exclusion in terms of households whereas China has got first 1st rank in the world for financial inclusion. India is the place in the world where unbanked as well as under banked population where only 35% of adults having their own account in any recognized/regulated bank which clearly outlines that the account penetration’s percentage in India is quiet below in comparison to rest of the developing countries in the world and around 145 million people are excluded from financial sector of the economy.”

Financial Inclusion was a universal cure for India in order to attain that sort of balanced economic growth in the country. However, the realities are quite different from ground level perspective as it shows that financial inclusion in India will not be a easy task to achieve not only for today but for coming decades as well. Need of financial inclusion came into existence because of global financial crisis because it was believed that the major reason behind the crisis was financial inclusion.

“The review of previous studies in the context of the study reveals the impact of digital finance on financial inclusion or in context of only financial inclusion or digital finance. This is the fact that financial inclusion will always be a win-win situation for both the parties i.e. for financially excluded population and at the same time for the banks or financial institutions in the financial sector of the economy. In recognition of recent technologies and various business models for increasing FI, G20 came up with an innovative model named as 2010 Principles with an objective of strengthening financial inclusion which induced policy actions and national efforts towards facilitating or introducing innovation in financial services.”

“According to various researches, notably mobile devices have become a crucial tool to promote financial inclusion for the previously unbanked population in developing countries. Due to their unique characteristics such as mobility, always on availability and personalized small devices, mobile phones have diffused not only in developed countries but also in most of the developing and emerging nations/countries to overcome from socio – economic and geographical barriers. Nowadays, Digital finance has been internationally regarded as an adequate means of providing numerous opportunities to promote financial inclusion in various geographical locations through reduction of cost of providing these automated services. Basically, the expansion of digital payment platforms has offered the opportunity to link poor people or financially excluded people with providers of savings, credit, insurance products and many other digitally associated products. The full potential/aim of FinTech for financial inclusion may be realized with a strategic framework of underlying infrastructure and an enabling policy and regulatory environment to support digital finance transformation.”

“In this study the highlight will be the gaps in the literature in earlier studies on financial inclusion or on the impact of digital finance on financial inclusions or studies related to the similar kind of discussion”. Those studies majorly focused on:

YEAR	TOPIC/TITLE	AUTHOR	COUNTRY	OBJECTIVE
2014	“Perspective of Technology in Achieving Financial Inclusion in Rural India”	“SHASHA NK BANSAL”	INDIA	“Contribution of ICT towards financial inclusion in the country especially in rural areas and analyzing different application of ICT which banks are adopting.”
2017	“Role of technology in financial inclusion”	ALKA SINGH	INDIA	“There is a need to invest in technology by banks and financial institutions in order to provide delivery of financial services in a transparent, righteous and equitable manner”.

2013	“Financial Inclusion through Digital Financial Services”	² GRAHAM A.N. WRIGHT, PUNEET CHOPRA, SWATI MEHTA AND VARTIKA SHUKLA	INDIA	“The demand and supply of financial services for the poor is pretty unbalanced with the supply being constrained by lack of viability and sustainability of business models and here technology comes into the picture in the form of digital financial services to improve the supply side of financial services and also to drive the balance between consumer needs, expectations and product delivery.”
2018	“Digitalized Financial Inclusion: A Cause of Development of India”	“ANCHIT JHAMB AND SWATI AGGARW AL”	INDIA	To understand the importance and usage of mobile phones and internet in rural areas. To know the financial services which are available for the Indian population and that too in a digitalized form

2018	“Mobile financial services, financial inclusion, and development: A systematic review of academic literature”	MINJIN KIM, HANAH ZOO, HEEJIN LEE AND JUHEE KANG (WILLEY)	SOUTH KOREA, CHINA	The objective of this study was to contribute towards understanding the existing research on mobile financial services for financial inclusion especially in developing countries and finding research gaps for future study that what are the key factors affecting MFS as a means to provide inclusive financial services in developing countries
2016	Digital Finance for all; Powering inclusive Growth in Emerging Economies (MCKINSEY GLOBAL INSTITUTE)	JAMES MANYIKA, SUSSAN LUND, MARC SINGER, OLIVIA WHITE AND CHRIS BERRY		A comprehensive approach to quantifying the economic as well as social impact of digital finance on emerging/ developing countries. There is a use of McKinsey proprietary general equilibrium model and detailed inputs from field research in seven emerging countries such as Brazil, China, Ethiopia, India, Mexico, Nigeria and Pakistan.

2011	Financial Inclusion – IT as an enabler (Reserve Bank of India Occasional Papers)	SANJEEV KUMAR GUPTA	INDIA	<p>The major efforts of RBI were aimed at promoting electronic payment, role of ICT with focus on Mobile banking and finally the Unique Identification (UID).</p> <p>The entire emphasis is to more open accounts with the help of technology and enrolment to UID and UID enabled bank accounts will be</p>
2017	Impact of Digital Finance on Financial Inclusion and Stability	PETERSON K. OZILI	UK	<p>Digital finance and financial inclusion are those two aspects which has several benefits for the financial services users, digital finance providers, government and economy.</p> <p>The major discussion was all about various benefits, risks associated with digital finance, digital financial inclusion and financial inclusion.</p>

Table 3.1: Previous Studies

3.2.2 ESSENTIAL INGREDIENTS FOR GAINING THE BENEFITS OF DIGITAL FINANCE

To seize the potential value of digital finance, three major components which needs to be at the place: widespread digitalized infrastructure, dynamic and sustainable financial -

services markets and the products should be according to the existing requirement of the people. Addressing all the essential components will definitely lead to broad and rapid adoption of digital finance and that too by the majority of the individuals and business groups in the emerging countries across the globe.

- BUILDING A ROBUST AND BROAD DIGITALIZED INFRASTRUCTURE

The infrastructure that is being required to provide digital finance that backend support on existing lot or could be implemented as well at lower cost and much faster than the other types of infrastructure, like power of transportation. The three primary components are very crucial.

Firstly, the establishment of extensive mobile connectivity and ownership. To come up with a broad access to a wider range of financial services where each and everyone must own their own mobile phones and to access that phone they should also have the affordable data plans to operate. Network coverage, smart phones ownerships are either already high or increasing at a very fast rate across all emerging economies. However, private sector financial institutions, NDGOs and governmental organizations have to intervene a lot because of the fact that in rural areas and the other remote areas markets are not generating expected returns.

A digital payment infrastructure at national level is the second most priority element. A “robust” payments backend should support safely and with low transaction cost between any two parties while accommodating innovation through providers. The infrastructure must support during wide network transactions of cash inflow and outflow using simple agent networks so that the people/user can have that easy access to their cash whenever required and that too with a wider range of merchants or dealers or business groups who accept digital payments.

The third essential component is the existence of a well-disseminated personal ID system. Individuals are required with some sort of personal ID to show and verify from the digital financial service provider. In advanced/developed economies there will be one individual out of ten who is unregistered whereas in emerging economies there will be one from five individuals who will be unregistered. Nowadays IDs need to be with you to fulfill essential required criteria like in India now there are National Digital IDs with chips or with your Biometric Identification in the form of AADHAR (UIDAI) whereas driving licenses, Voter ID could be other feasible options.

- ENSURING DYNAMIC AND SUSTAINABLE FINANCIAL SERVICES MARKETS

If a digital infrastructure is in existence then it should be well supported by a sustainable health environment that includes banks and other financial institutions and also involves telecom companies, handset providers as well as manufacturers, finTech companies and other groups of businesses.

Another essential requirement is risk-proportionate financial services rules and regulations. Financial rules and regulations needs to create an adequate amount of balance between protecting customers, investors and government officials and that can be done by eliminating cost and troublesome banking crisis and providing that sufficient space to digital financial service providers so that they can think, innovate and execute their idea.

Beyond all these issues of rules and regulations, countries should also need to focus on to create an environment that is helpful for completion on time and it also encourages the providers to offer a broad variety of new financial products and services to access. Among the elements which were required to brace innovation in a competitive market structure, to create business friendly environment and regulations for the new entrants in

the market, financial are open too for foreign investments and talent and financial capital is available for the purpose of innovation.

3.2.3 MOST CONVINCING INNOVATIONS IN TECHNOLOGICAL SECTOR FOR ALLOWING INTEGRATED DIGITAL FINANCIAL SERVICES

- Technology as market Trainer: In particular, governments and regulators are the ones who used to provide space for “regulatory Sandbox” testing of new digital financial services. Basically, a regulatory sandbox is established by financial regulatory authority bodies in some countries to create a “safe space zone” in which financial service players can test of their innovated new financial product and services, business models without immediately incurring all the normal costs and lengthy module procedures. This leads to increase in speed in financial innovation and allows a wider range of financial products and services to be tested and introduced into the economy. Generally, we see that more often there is a use of cloud-based services which are training or driving the market along with the delivery channels associated with it and especially the use of biometric identification for the purpose of attracting new customers and to verify them as well so that they can facilitate their digital financial transactions. So, the new models and new channels are also leads to create an improvement in efficiency and bringing down the cost of the model.
- Freemium Models and Cross-Selling of other financial Services: Basically, there are ways of convincing customers by giving them attractive offers and offering transactions for free whenever they make use of money cross selling other services. This had been a very popular for mobile e-money operations which offer free cash in services to their customers while charging later for transfers and cash out services.
- Alternative data for small and medium-sized enterprise (SME) lending: This is just a showing promise as most of the clients transact online with the help of mobile

phones, and social networks. These are the new digital footprints which are providing new ways to develop innovative credit scores based on alternative data.

- Role of social media network payment options: This is basically a new business model which is helping to make mobile payments using applications that customers already use on daily routine basis and social media companies are also offering new revenue stream models like WeChatPay already has over 300 million users and is growing rapidly.
- E-commerce: This is the model which allows their potential customers to sell and transact anywhere at any time and the model will increasingly drive financial inclusion and, more importantly, comprehensive economic growth. Examples include Alibaba in the People's Republic of China, which is reaching even small clients who want to buy and sell products online.

3.3 MAJOR DETERMINANTS OF FINANCIAL INCLUSION

This section of the study will help us to outline and explore financial innovations, accessibility to financial services, intermediation efficiency and financial literacy as the main determinants of financial inclusion.

3.3.1 FINANCIAL INNOVATIONS

“Financial innovations are portrayed as any new progressions in money related instruments (altogether new instruments, change of conventional instruments, joining of customary instruments, new use of existing instruments” **(Blach, 2011)**.

“Monetary advancements in the money related segment allude to improvement of new items like arrangement of new administrations like web saving money, phone managing

an account, new generation process like electronic record keeping or new hierarchical structures” (Njenga, Kiragu & Opiyo, 2015).

“In the monetary administrations industry, advancement is seen as the demonstration of making and promoting new money related instruments, advances, markets and establishments, which encourage access to data, exchanging and method for installment” (Korir et al., 2015).

“Money related developments are perceived as a basic wellspring of financial development and of enhancements in social welfare. Monetary developments have been perceived as having awesome potential for building social and atmosphere versatility” (Terfa, 2015)

3.3.2 INTELLIGIBILITY OF FINANCIAL SERVICES

“Access to financial administrations is characterized by the supply of the same and is an important condition for money related incorporation” (Tuesta et al., 2015).

“Obstructions to get to ordinarily reflect contortions identified with lack of physical managing an account base, key documentation necessities by banks for opening, keeping up, and shutting accounts, advance application, and additionally diverse types of boundless proportioning, including formality and the requirement for casual underwriters as associations with access fund” (Karpowicz, 2014).

“In that capacity, there is a positive relationship between more prominent money related consideration and better access to formal budgetary administrations as lower managing

an account costs, more prominent nearness to bank offices and less printed material” (Tuesta et al., 2015)

3.3.3 MATCHMAKING EFFICIENCY

“Matchmaking efficiency is usually connected with the condition of rivalry and the level of data confronting money related foundations, and is displayed in premium spreads and banks' overhead costs” (Karpowicz, 2014).

Monetary intermediation process includes the change in assets obtained from savers (surplus spending units) and providing those assets on loan to borrowers (deficiency spending units). Budgetary matchmaking additionally assumed that an essential part in the distribution of liquidity in present day economy is quite important. In this way, the matchmaking technique subsequently respects stores, capital and work as inputs, which are utilized for delivering the other managing an account yields. For example, credits and ventures.

3.3.4 FINANCIAL LITERACY

“Financial literacy as defined as the blend of mindfulness, information, aptitudes, mentalities and practices important to settle on strong money related choices and in the long run accomplish individual monetary prosperity” (Lewis and Lindley, 2015).

“Money related education is a foremost element for settling on sound monetary choices and influences the apparent expense of budgetary administrations. Budgetary learning likewise influences the impression of expenses and tradeoffs in various money related items supporting sound monetary choices” (Karpowicz, 2014).

Literacy related to money is the underlying steps towards accomplishing monetary consideration. It is considered to be an attracting side of monetary incorporation and is respected as an indispensable help for advancing budgetary consideration, money related

improvement and eventually money related dependability. Proficiency related to money additionally provides fundamental devices for planning to people, help them to gain the order to spare and in this way this is for sure that they can sustain a appreciable life post retirement.

3.4 INITIATIVES MADE BY THE GOVERNMENT AND PRIVATE FINANCIAL INSTITUTIONS FOR FINANCIAL INCLUSION

Since from the time when Financial Inclusion was highlighted as a global concern from that point of time policy makers realized that one of the major reason behind economic disturbances and unstable economy was Financial Inclusion after which the Government of India and the Central Bank of India i.e. Reserve Bank of India (RBI) took some serious initiatives to strengthen the Financial Inclusion in India and they are:

- MINIMUM BALANCE ACCOUNT: This is one of the basic accounts made for the users where there is no as such minimum balance is required to keep it with the account your minimum balance for the account can be zero as well or with a very low balance as per user's convenience
- BSBDA (Basic Savings Bank Deposit Account): In this the point to notice was that in this account there was no minimum balance account facility and all minimum balance accounts were also converted into BSBDA from minimum balance account. But, in this account user was able to avail many services provided by the bank and these services also include deposit and withdrawal of cash either by visiting to the bank branch or by using ATM of the bank through ATM card or Debit Card. Additionally, receipts and credits of money could also be done with the means of electronic payments or by using cheque as well.

- LBS (Lead Banking Scheme): This initiative from the policy makers foresees the lead role for each bank which includes private as well as public sector banks. This was done with respect to the districts allotted to them now here in this case the lead role will act as a common point of contact. It is for the purpose of coordinating with credit institutions which perform their role towards districts people.
- PMJDY (Pradhan Mantri Jan Dhan Yojna): One of the most attractive scheme introduced by government as well as RBI which made a huge impact in Indian economy where its slogan was “Mera Khata – Bhagya Vidhata” now it means that my account is my god. Its main objective was to make sure that each and every citizen should have an access to Banking/Savings, Deposit Accounts, Remittance, Credit, Insurance, and Pension in a convenient manner.

3.5 GAPS IN THE LITERATURE

Basically, previous academic research made on Impact of Digital Finance is surprisingly quiet because what we had observed was that no one had made their research on this study significantly. Mostly, previous studies were done only on either on financial inclusion, its impact; benefits etc or on digital finance its impact; benefits etc.

It had been observed that there is no as such research made in the context of India specifically; most of the times the research’s made were made with respect to global effect. There has been no attempt made to study after the evolution of digitalization or after the time when the concept of digital finance was evolved as an emerging technological advancement in financial sector of the economy in India. The present study is a modest attempt to fill the gaps existing in the literature.

CHAPTER – 4 RESEARCH METHODOLOGY

4.1 INTRODUCTION

This section of the study helps us to outline the study design, the methods of data collection and the analytical procedure of the study.

4.2 RESEARCH DESIGN

The study employed with a descriptive study research design. A descriptive research design is the one which is used to describe the characteristics of a population. Additionally, it guarantees complete description of the situation and that too ensuring that there is a minimum bias in the collection of the data. It generally precedes explanatory variables.

4.2.1 RESEARCH QUESTIONS

- What are the major factors affecting access to financial services?
- What are the initiatives made by government, private financial institutions for Financial Inclusion?
- What is the role of Digital Finance in Financial Inclusion?
- What is the relationship between Digital Finance and Financial Inclusion?

4.2.2 RESEARCH OBJECTIVES

- To identify the factors affecting access to financial services
- To analyze the initiatives made by the government and private financial institutions for Financial Inclusion

- To identify the role of Digital Finance in Financial Inclusion
- To establish the relationship between adoption of Digital Financial Services and Increase in Financial Inclusion.

4.3 DATA COLLECTION

The research employed with secondary data. Data on digital finance comprised of comprised of various services which is more often used in banking sector such as Debit/ Credit Card, E-Money, UPI, NACH, other digital financial services and mobile financial services. The data on digital financial services and financial inclusion was obtained from Reserve Bank of India (RBI), CRISIL Inclusix, Global Findex, NPCL for a period of 5 years i.e. from 2013-2018.

4.4 DATA ANALYSIS

The data collected was analyzed using regression and correlation analysis via statistical package for social sciences. Correlation analysis was used to determine the nature and degree of the relationship between the studies of various variables while regression analysis was used to establish the existing relationship between the dependent and independent variable

4.4.1 ANALYTICAL MODEL

Mathematically, the regression equation should be expressed as follows (where X1 will be varying according to the case)

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where,

Y: Financial Inclusion

X1: E money per 1000 adults

X2: Debit cards per 1000 results

X3: NACH National Automated Clearing House

X4: CTS Cheque Clearing

X5: IMPS

X6: UPI

X7: APES InterBank Transaction over Micro ATM

B0: Constant

β_1 β_2 , β_3 , β_4 , β_5 , β_6 , β_7 : Regression Coefficient

ϵ : Probable Error Term

4.4.2 TEST OF SIGNIFICANCE

In this study we used the F-Test and T-Test to determine the Statistical Significance. The F-Test was utilized to test the significance of whole model, i.e. the goodness of fit while the T-Test was used to basically test the significance of the regression coefficients at 5% level of significance

CHAPTER – 5 HYPOTHESIS

For the purpose of making analysis, hypothesis was made:

H0: There is no relationship between financial inclusion and digital financial services.

H1: There is a relationship between financial inclusion and digital financial services.

CASE 1

H0: There is no relationship between financial inclusion and E-money.

H1: There is a relationship between financial inclusion and E-Money.

CASE 2

H0: There is no relationship between financial inclusion and Debit Cards.

H1: There is a relationship between financial inclusion and Debit Cards.

CASE 3

H0: There is no relationship between financial inclusion and NACH.

H1: There is a relationship between financial inclusion and NACH.

CASE 4

H0: There is no relationship between financial inclusion and CTS Cheque Clearing.

H1: There is a relationship between financial inclusion and CTS Cheque Clearing.

CASE 5

H0: There is no relationship between financial inclusion and IMPS.

H1: There is a relationship between financial inclusion and IMPS.

CASE 6

H0: There is no relationship between financial inclusion and UPI.

H1: There is a relationship between financial inclusion and UPI.

CASE 7

H0: There is no relationship between financial inclusion and AEPS (Interbank) transaction over Micro ATM.

H1: There is a relationship between financial inclusion and AEPS (Interbank) transaction over Micro ATM

CHAPTER – 6 DATA ANALYSIS AND INTERPRETATIONS

6.1 INTRODUCTION

This chapter of the study helps us to make analysis of the research findings and presents the results we got from the analysis. The chapter presents the descriptive statistics, correlation analysis, regression analysis and the interpretations of the analysis made.

6.2 DESCRIPTIVE STATISTICS

The study actually targeted various majorly known digital financial services including E-Money, Debit Card, NACH (National Automated Clearing House), CTS Cheque Clearing, IMPS (Immediate Payment Service), UPI (Unified Payments Interface), AEPS Interbank Transaction over Micro ATM which we obtained from Reserve Bank of India (RBI), Global Financial Inclusion G20 Indicators (INDIA) and in this we also targeted Financial Inclusion (%) which we obtained from CRISIL Inclusix. The study also explored the summary of descriptive studies of financial inclusion of with each digital financial service.

CASE 1: Descriptive Statistics of Financial Inclusion with E-Money

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	57.217	5.2140	6
E-Money	.275632483	.0954764561	6

Table 4.1: Descriptive Statistics of Financial Inclusion and E-Money

Table (4.1) indicates that financial inclusion had a mean value of 57.217 whereas the average value of E-Money per 1000 adults was .275632483. The standard Deviation of

financial inclusion was 5.2140 whereas the Standard Deviation of E-Money was 0.954764561.

CASE 2: Descriptive Statistics of Financial Inclusion with Debit Card

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	57.217	5.2140	6
Debit Cards	664.889350	241.0352301	6

Table 4.2: Descriptive Statistics of Financial Inclusion and Debit Cards

Table (4.2) indicates that financial inclusion had a mean value of 57.217 whereas the average value of Debit Cards per 1000 adults was 664.9. The standard Deviation of financial inclusion was 5.2140 whereas the Standard Deviation of Debit Cards was 241.0352301.

CASE 3: Descriptive Statistics of Financial Inclusion with NACH

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	57.060	5.8136	5
NACH-National Automated Clearing House	5640.1800	3061.62220	5

Table 4.3: Descriptive Statistics of Financial Inclusion and NACH

Table (4.3) indicates that financial inclusion had a mean value of 57.060 whereas the average value of NACH (National Automated Clearing House) was 5640.1800. The standard Deviation of financial inclusion was 5.8136 whereas the Standard Deviation of NACH was 3061.62220.

CASE 4: Descriptive Statistics of Financial Inclusion with CTS Cheque Clearing

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	57.060	5.8136	5
CTS Cheque Clearing	75069.0520	7680.40883	5

Table 4.4: Descriptive Statistics of Financial Inclusion and CTS

Table (4.4) indicates that financial inclusion had a mean value of 57.060 whereas the average value of CTS Cheque Clearing adults was 75069.0520. The standard Deviation of financial inclusion was 5.8136 whereas the Standard Deviation of CTS Cheque Clearing was 7680.40883.

CASE 5: Descriptive Statistics of Financial Inclusion with IMPS

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	57.060	5.8136	5
IMPS	3591.72580	2424.965143	5

Table 4.5: Descriptive Statistics of Financial Inclusion and IMPS

Table (4.5) indicates that financial inclusion had a mean value of 57.060 whereas the average value of IMPS (Immediate Payment Service) was 3591.72580. The standard

Deviation of financial inclusion was 5.8136 whereas the Standard Deviation of IMPS was 2424.965143.

CASE 6: Descriptive Statistics of Financial Inclusion with UPI

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	58.633	7.4875	3
UPI	392.7000	346.55857	3

Table 4.6: Descriptive Statistics of Financial Inclusion and UPI

Table (4.6) indicates that financial inclusion had a mean value of 58.633 whereas the average value of UPI (Unified Payment Interface) was 392.7000. The standard Deviation of financial inclusion was 7.4875 whereas the Standard Deviation of UPI was 346.55857.

CASE 7: Descriptive Statistics of Financial Inclusion with AEPS

Descriptive Statistics			
	Mean	Std. Deviation	N
Financial Inclusion (Ratio)	57.275	6.6900	4
AEPS(Inter Bank) Txn over Micro ATM	23.4400	16.51166	4

Table 4.7: Descriptive Statistics of Financial Inclusion and AEPS

Table (4.7) indicates that financial inclusion had a mean value of 57.217 whereas the average value of AEPS (Interbank) Transaction over Micro ATM was 23.4400. The standard Deviation of financial inclusion was 6.6900 whereas the Standard Deviation of AEPS (Interbank) transaction over Micro ATM was 16.51166.

6.3 INFRENTIAL STATISTICS

Basically, Inferential Statistics contains the results of correlation analysis, the model summary, the regression coefficients and the findings of ANOVA.

6.3.1 CORRELATION ANALYSIS

The below provided tables i.e. Correlation Matrixes shows the correlation between following variables:

CASE 1: Financial inclusion and E-Money:

Correlations			
		Financial Inclusion (Ratio)	E-Money
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.362
	E-Money	.362	1.000
Sig. (1- tailed)	Financial Inclusion (Ratio)	.	.240
	E-Money	.240	.
N	Financial Inclusion (Ratio)	6	6
	E-Money	6	6

Table 4.8: Correlation between Financial Inclusion and E-Money

Above table (4.8) shows that there is a positive correlation between financial inclusion and E-Money as 'r' (correlation coefficient) is 0.362 which shows a positive linear correlation between both the variables but as 'r' is less than 0.4 so it denotes a weak positive linear correlation.

CASE 2: Financial Inclusion and Debit Card

Correlations			
		Financial Inclusion (Ratio)	Debit Cards
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.384
	Debit Cards	.384	1.000
Sig. (1-tailed)	Financial Inclusion (Ratio)	.	.226
	Debit Cards	.226	.
N	Financial Inclusion (Ratio)	6	6
	Debit Cards	6	6

Table 4.9: Correlation between Financial Inclusion and Debit Cards

Above table (4.9) shows that there is a positive correlation between financial inclusion and debit cards as 'r' (correlation coefficient) is 0.384 which shows a positive linear correlation between both the variables but as 'r' is less than 0.4 so it denotes a weak positive linear correlation.

CASE 3: Financial Inclusion and NACH

Correlations			
		Financial Inclusion (Ratio)	NACH-National Automated Clearing House
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.406

	NACH-National Automated Clearing House	.406	1.000
Sig. (1-tailed)	Financial Inclusion (Ratio)	.	.249
	NACH-National Automated Clearing House	.249	.
N	Financial Inclusion (Ratio)	5	5
	NACH-National Automated Clearing House	5	5

Table 4.10: Correlation between Financial Inclusion and NACH

Above table (4.10) shows that there is a positive correlation between financial inclusion and NACH as 'r' (correlation coefficient) is 0.406 which shows a positive linear correlation between both the variables but as 'r' is less than 0.6 so it denotes a moderate positive linear correlation.

CASE 4: Financial Inclusion and CTS cheque clearing

Correlations			
		Financial Inclusion (Ratio)	CTS Cheque Clearing
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.730
	CTS Cheque Clearing	.730	1.000
Sig. (1-tailed)	Financial Inclusion (Ratio)	.	.081
	CTS Cheque Clearing	.081	.

N	Financial Inclusion (Ratio)	5	5
	CTS Cheque Clearing	5	5

Table 4.11: Correlation between Financial Inclusion and CTS

Above table (4.11) shows that there is a positive correlation between financial inclusion and CTS as 'r' (correlation coefficient) is 0.730 which shows a positive linear correlation between both the variables and as 'r' is greater than 0.6 so it denotes a strong positive linear correlation.

CASE 5: Financial Inclusion and IMPS

Correlations			
		Financial Inclusion (Ratio)	IMPS
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.600
	IMPS	.600	1.000
Sig. (1-tailed)	Financial Inclusion (Ratio)	.	.142
	IMPS	.142	.
N	Financial Inclusion (Ratio)	5	5
	IMPS	5	5

Table 4.12: Correlation between Financial Inclusion and IMPS

Above table (4.12) shows that there is a positive correlation between financial inclusion and IMPS as 'r' (correlation coefficient) is 0.600 which shows a positive linear correlation between both the variables and as 'r' is equal to 0.60 so it denotes a strong positive linear correlation.

CASE 6: Financial Inclusion and UPI

Correlations			
		Financial Inclusion (Ratio)	UPI
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.918
	UPI	.918	1.000
Sig. (1- tailed)	Financial Inclusion (Ratio)	.	.130
	UPI	.130	.
N	Financial Inclusion (Ratio)	3	3
	UPI	3	3

Table 4.13: Correlation between Financial Inclusion and UPI

Above table (4.13) shows that there is a positive correlation between financial inclusion and UPI as 'r' (correlation coefficient) is 0.918 which shows a positive linear correlation between both the variables and as 'r' is greater than 0.8 so it denotes a very strong positive linear correlation.

CASE 7: Financial Inclusion and AEPS

Correlations			
		Financial Inclusion (Ratio)	AEPS(Inter Bank) Txn over Micro ATM
Pearson Correlation	Financial Inclusion (Ratio)	1.000	.725
	AEPS(Inter Bank) Txn over Micro ATM	.725	1.000

Sig. (1-tailed)	Financial Inclusion (Ratio)	.	.138
	AEPS(Inter Bank) Txn over Micro ATM	.138	.
N	Financial Inclusion (Ratio)	4	4
	AEPS(Inter Bank) Txn over Micro ATM	4	4

Table 4.14: Correlation between Financial Inclusion and AEPS

Above table (4.14) shows that there is a positive correlation between financial inclusion and AEPS as 'r' (correlation coefficient) is 0.725 which shows a positive linear correlation between both the variables and as 'r' is greater than 0.6 so it denotes a strong positive linear correlation.

6.3.2 MODEL SUMMARY

CASE 1: Financial inclusion and E-Money:

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.362 ^a	.131	-.086	5.4330
a. Predictors: (Constant), E-Money				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.15: Model Summary of Financial Inclusion and E-Money

Above table (4.15) indicates that the R square (Coefficient of Determination) is .131, which means that E- money explains only 13.1% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 86.9% is explained by other factors which are not considered by the research.

CASE 2: Financial Inclusion and Debit Card

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.384 ^a	.148	-.065	5.3819
a. Predictors: (Constant), Debit Cards				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.16: Model Summary of Financial Inclusion and Debit Cards

Above table (4.16) indicates that the R square (Coefficient of Determination) is .148, which means that Debit Cards explains only 14.8% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 85.2% is explained by other factors which are not considered by the research.

CASE 3: Financial Inclusion and NACH

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.406 ^a	.164	-.114	6.1362
a. Predictors: (Constant), NACH-National Automated Clearing House				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.17: Model Summary of Financial Inclusion and NACH

Above table (4.17.) indicates that the R square (Coefficient of Determination) is .164, which means that NACH – National Automated Clearing House explains only 16.4% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 83.6% is explained by other factors which are not considered by the research.

CASE 4: Financial Inclusion and CTS cheque clearing

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.730 ^a	.533	.378	4.5856
a. Predictors: (Constant), CTS Cheque Clearing				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.18: Model Summary of Financial Inclusion and CTS

Above table (4.18) indicates that the R square (Coefficient of Determination) is .533, which means that CTS Cheque Clearing explains only 53.3% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 46.7% is explained by other factors which are not considered by the research.

CASE 5: Financial Inclusion and IMPS

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.600 ^a	.360	.147	5.3703
a. Predictors: (Constant), IMPS				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.19: Model Summary of Financial Inclusion and IMPS

Above table (4.19) indicates that the R square (Coefficient of Determination) is .360, which means that IMPS explains only 36.0% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 64% is explained by other factors which are not considered by the research.

CASE 6: Financial Inclusion and UPI

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.918 ^a	.842	.685	4.2045
a. Predictors: (Constant), UPI				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.20: Model Summary of Financial Inclusion and UPI

Above table (4.20) indicates that the R square (Coefficient of Determination) is .842, which means that UPI explains 84.2% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 15.8% is explained by other factors which are not considered by the research.

CASE 7: Financial Inclusion and AEPS

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725 ^a	.525	.288	5.6440
a. Predictors: (Constant), AEPS(Inter Bank) Transaction over Micro ATM				
b. Dependent Variable: Financial Inclusion (Ratio)				

Table 4.21: Model Summary of Financial Inclusion and AEPS

Above table (4.21) indicates that the R square (Coefficient of Determination) is .525, which means that AEPS (Interbank) transactions over MICRO ATM explains only 52.5% of the variation in the dependent variable (Financial Inclusion). Thus it clearly specifies that remaining 47.5% is explained by other factors which are not considered by the research.

6.3.3 REGRESSION COEFFICIENTS

CASE 1: Financial inclusion and E-Money:

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	51.761	7.357		7.036	.002	31.335	72.186
	E-Money	19.794	25.448	.362	.778	.480	-50.862	90.450

a. Dependent Variable: Financial Inclusion (Ratio)

Table 4.22: Regression Coefficients of Financial Inclusion and E-Money

Above table (4.22) indicates that there is a positive relationship between E-Money and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.480 which is much more greater than 0.05. Thus, the resultant regression equation was as follows:

$$Y = 51.761 + 19.794X_1 + \varepsilon$$

CASE 2: Financial Inclusion and Debit Card

Coefficients								
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Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	51.690	6.993		7.391	.002	32.273	71.107
	Debit Cards	.008	.010	.384	.832	.452	-.019	.036

a. Dependent Variable: Financial Inclusion (Ratio)

Table 4.23: Regression Coefficients of Financial Inclusion and Debit Cards

Above table (4.23) indicates that there is a positive relationship between Debit Card and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.452 which is much more greater than 0.05. Thus, the resultant regression equation was as follows:

$$Y = 51.690 + 0.008X_i + \varepsilon$$

CASE 3: Financial Inclusion and NACH

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	52.717	6.283		8.390	.004	32.721	72.712

	NACH-National Automated Clearing House	.001	.001	.406	.768	.498	-.002	.004
a. Dependent Variable: Financial Inclusion (Ratio)								

Table 4.24: Regression Coefficients of Financial Inclusion and NACH

Above table (4.24) indicates that there is a positive relationship between NACH and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.498 which is much more greater than 0.05.. Thus, the resultant regression equation was as follows:

$$Y = 52.717 + 0.001X_i + \varepsilon$$

CASE 4: Financial Inclusion and CTS cheque clearing

		Coefficients						
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model		B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)	15.561	22.504		.691	.539	-56.056	87.177
	CTS Cheque Clearing	.001	.000	.730	1.852	.161	.000	.002
a. Dependent Variable: Financial Inclusion (Ratio)								

Table 4.25: Regression Coefficients of Financial Inclusion and CTS

Above table (4.25) indicates that there is a positive relationship between CTS Cheque Clearing and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.161 which is much more greater than 0.05. Thus, the resultant regression equation was as follows:

$$Y = 15.561 + 22.504X_1 + \varepsilon$$

CASE 5: Financial Inclusion and IMPS

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	51.893	4.646		11.170	.002	37.108	66.679
	IMPS	.001	.001	.600	1.299	.285	-.002	.005

a. Dependent Variable: Financial Inclusion (Ratio)

Table 4.26: Regression Coefficients of Financial Inclusion and IMPS

Above table (4.26) indicates that there is a positive relationship between IMPS and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.285 which is much more greater than 0.05.. Thus, the resultant regression equation was as follows:

$$Y = 51.893 + 0.001X_1 + \varepsilon$$

CASE 6: Financial Inclusion and UPI

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	50.846	4.152		12.245	.052	-1.914	103.607
	UPI	.020	.009	.918	2.311	.260	-.089	.129

a. Dependent Variable: Financial Inclusion (Ratio)

Table 4.27: Regression Coefficients of Financial Inclusion and UPI

Above table (4.27) indicates that there is a positive relationship between UPI and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.260 which is much more greater than 0.05.. Thus, the resultant regression equation was as follows:

$$Y = 50.846 + 0.020X_1 + \varepsilon$$

CASE 7: Financial Inclusion and AEPS

Coefficients					
	Unstandardized Coefficients	Standardized Coefficients			95.0% Confidence Interval for B

	Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	50.390	5.419		9.299	.011	27.075	73.705
	AEPS(Inter Bank Txn. over Micro ATM)	.294	.197	.725	1.488	.275	-.555	1.143

a. Dependent Variable: Financial Inclusion (Ratio)

Table 4.28: Regression Coefficients of Financial Inclusion and AEPS

Above table (4.28) indicates that there is a positive relationship between AEPS and financial inclusion but the relationship between the two is statistically insignificant as the significance value is 0.275 which is much more greater than 0.05. Thus, the resultant regression equation was as follows:

$$Y = 50.390 + 0.294X_i + \varepsilon$$

6.3.4 ANOVA

CASE 1: Financial inclusion and E-Money:

ANOVA						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	17.857	1	17.857	.605	.480 ^b

	Residual	118.071	4	29.518		
	Total	135.928	5			
a. Dependent Variable: Financial Inclusion (Ratio)						
b. Predictors: (Constant), E-Money						

Table 4.29: ANOVA of Financial Inclusion and E-Money

Above table (4.29) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.480 which is greater than 0.05 that means the model is statistically insignificant.

CASE 2: Financial Inclusion and Debit Card

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	20.069	1	20.069	.693	.452 ^b
	Residual	115.859	4	28.965		
	Total	135.928	5			
a. Dependent Variable: Financial Inclusion (Ratio)						
b. Predictors: (Constant), Debit Cards						

Table 4.30: ANOVA of Financial Inclusion and Debit Cards

Above table (4.30) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.452 which is greater than 0.05 that means the model is statistically insignificant.

CASE 3: Financial Inclusion and NACH

ANOVA						
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Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	22.235	1	22.235	.591	.498 ^b
	Residual	112.957	3	37.652		
	Total	135.192	4			
a. Dependent Variable: Financial Inclusion (Ratio)						
b. Predictors: (Constant), NACH-National Automated Clearing House						

Table 4.31: ANOVA of Financial Inclusion and NACH

Above table (4.31) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.498 which is greater than 0.05 that means the model is statistically insignificant.

CASE 4: Financial Inclusion and CTS cheque clearing

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	72.109	1	72.109	3.429	.161 ^b
	Residual	63.083	3	21.028		
	Total	135.192	4			
a. Dependent Variable: Financial Inclusion (Ratio)						
b. Predictors: (Constant), CTS Cheque Clearing						

Table 4.32: ANOVA of Financial Inclusion and CTS

Above table (4.32) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.161 which is greater than 0.05 that means the model is statistically insignificant.

CASE 5: Financial Inclusion and IMPS

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	48.673	1	48.673	1.688	.285 ^b
	Residual	86.519	3	28.840		
	Total	135.192	4			
a. Dependent Variable: Financial Inclusion (Ratio)						
b. Predictors: (Constant), IMPS						

Table 4.33: ANOVA of Financial Inclusion and IMPS

Above table (4.33) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.285 which is greater than 0.05 that means the model is statistically insignificant.

CASE 6: Financial Inclusion and UPI

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	94.449	1	94.449	5.343	.260 ^b
	Residual	17.678	1	17.678		
	Total	112.127	2			

a. Dependent Variable: Financial Inclusion (Ratio)
b. Predictors: (Constant), UPI

Table 4.34: ANOVA of Financial Inclusion and UPI

Above table (4.34) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.260 which is greater than 0.05 that means the model is statistically insignificant.

CASE 7: Financial Inclusion and AEPS

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	70.557	1	70.557	2.215	.275 ^b
	Residual	63.710	2	31.855		
	Total	134.267	3			
a. Dependent Variable: Financial Inclusion (Ratio)						
b. Predictors: (Constant), AEPS(Inter Bank) Txn over Micro ATM						

Table 4.35: ANOVA of Financial Inclusion and AEPS

Above table (4.35) shows that the relationship provided by F statistic is insignificant as the significance value provided by F statistic is 0.275 which is greater than 0.05 that means the model is statistically insignificant.

6.4 ACCEPTANCE/REJECTION OF HYPOTHESIS

CASES	HYPOTHESIS	ACCEPTANCE/ REJECTION
CASE1.	<p>H0: There is no relationship between financial inclusion and E-money.</p> <p>H1: There is a relationship between financial inclusion and E-Money.</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.480 > 0.05$</p>
CASE 2.	<p>H0: There is no relationship between financial inclusion and Debit Cards.</p> <p>H1: There is a relationship between financial inclusion and Debit Cards.</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.452 > 0.05$</p>
CASE 3.	<p>H0: There is no relationship between financial inclusion and NACH.</p> <p>H1: There is a relationship between financial inclusion and NACH.</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.498 > 0.05$</p>
CASE 4.	<p>H0: There is no relationship between financial inclusion and CTS Cheque Clearing.</p> <p>H1: There is a relationship between financial inclusion and CTS Cheque Clearing</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.161 > 0.05$</p>

CASE 5.	<p>H₀: There is no relationship between financial inclusion and IMPS.</p> <p>H₁: There is a relationship between financial inclusion and IMPS.</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.285 > 0.05$</p>
CASE 6.	<p>H₀: There is no relationship between financial inclusion and UPI.</p> <p>H₁: There is a relationship between financial inclusion and UPI.</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.260 > 0.05$</p>
CASE 7.	<p>H₀: There is no relationship between financial inclusion and AEPS (Interbank) transaction over Micro ATM.</p> <p>H₁: There is a relationship between financial inclusion and AEPS (Interbank) transaction over Micro ATM</p>	<p>Do Not Reject Null Hypothesis as the relationship between the two is highly statistically insignificant relationship because $0.275 > 0.05$</p>

Table 4.36: Acceptance/ Rejection of Null Hypothesis

6.5 INTERPRETATIONS OF THE RESULTS OF THE FINDINGS

The study found that:

- E-money positively but statistically insignificantly influences financial inclusion in India where it means that if e money increases by say 1 unit then financial inclusion will increase by 19.794 units.
- Debit Cards positively but statistically insignificantly influences financial inclusion in India that means that if the value of Debit Cards increases by say 1 unit then the financial inclusion will increase by 0.008 units.
- NACH positively but statistically insignificantly influences financial inclusion in India that means that if the NACH increases by say 1 unit then the financial inclusion will increase by 0.001 units.
- CTS Cheque Clearing positively but statistically insignificantly influences financial inclusion in India that means that if CTS Cheque Clearing increases by say 1 unit then the financial inclusion will increase by 0.001 units.
- IMPS positively but statistically insignificantly influences financial inclusion in India that means that if the IMPS increases by say 1 unit then the financial inclusion will increase by 0.001 units.

- UPI positively but statistically insignificantly influences financial inclusion in India that means that if the UPI increases by say 1 unit then the financial inclusion will increase by 0.020 units.
- AEPS Interbank Transaction over Micro ATM positively and but statistically insignificantly influences financial inclusion in India that means that if AEPS Interbank Transaction over Micro ATM increases by says 1 unit then the financial inclusion will increase by 0.294 units.

This also indicates that all the digital financial services (E-Money, Debit Card, NACH (National Automated Clearing House), CTS Cheque Clearing, IMPS (Immediate Payment Service), UPI (Unified Payments Interface), AEPS Interbank Transaction over Micro ATM) affected financial inclusion positively. The study also helped us to found that in every case (cases of correlation of each digital financial service with financial inclusion) there is a positive correlation between each and every digital financial service and financial inclusion which means that both digital financial services and financial inclusion both moves in a similar direction.

The study also helped us to understand that there is a huge difference between digital financial inclusion and access to finance in simpler terms it means that opening more branches doesn't lead to financial inclusion the motive behind opening more branches of banks is mainly to pursue more profits instead of making people financially included and there are cluster of branches which are being underutilized in numerous location. Digital finance is accessible to all and that too without bias; basically digital finance also helps to improve the welfare of the individuals that have formal bank accounts and they want to carry out their accounts via personal digital financial services.

But there is an another side of the picture as well that the banks which are coming up with online banking services does not necessarily means that access to digital banking

financial services is cheap especially for poor people or for people with low level income group. Still, spread of mobile phones strengthens the influence of financial inclusion in the country where mobile financial services take hold.

CHAPTER – 7 LIMITATIONS OF THE STUDY

The findings of the study specifically outlines that there is no specific FINDEX for India is available by the Government of India or by the Central Bank of India i.e. Reserve Bank of India (RBI). Due to unavailability of FINDEX we limited ourselves to only one developed FINDEX inclusix provided by CRISIL and that too was not available beyond last five years due to which we had to limit our study on last five years findings i.e. from 2013-2019.

There was a lack of information support in context of ease of access of financial services while using various digital financial services neither RBI has released an annual report for the ease of access nor Government of India had made any press release regarding the same.

The FINDEX inclusix made by CRISIL didn't mentioned that they had considered while preparing the FINDEX for all across the globe due to which there was a constraint in terms of data findings.

CHAPTER – 8 SUMMARY

8.2 SUMMARY

This study basically sought to examine the impact of digital finance on financial inclusion in India. The study adopted the theory of financial inclusion, the innovation or technological model used for enabling inclusive digital financial services and hypothesis was established for the purpose of explanation of financial inclusion and adoption of digital financial services in India. The study considered majorly seven digital financial services which are- E-Money, Debit Card, NACH (National Automated Clearing House), CTS Cheque Clearing, IMPS (Immediate Payment Service), UPI (Unified Payments Interface), AEPS Interbank Transaction over Micro ATM to establish their impact on financial inclusion.

The descriptive statistics results revealed the mean value of financial inclusion with respect to each and every digital financial service (reference). The results of correlation analysis helped us to let us know that there is a positive relationship of financial inclusion with each and every digital financial service.

The regression results established that how much each independent variable explained the variation in the dependent variable (Financial Inclusion). Finally, the ANOVA results established there was a highly statistically insignificant relationship between digital financial services and financial inclusion in India.

CHAPTER – 9 CONCLUSION

The finding of the study found that all the digital financial services positively and insignificantly influences financial inclusion on a massive note in India.

Overall, the study concludes that digital finance did a positive but insignificant impact on financial inclusion in India. So, the banking and financial institutions majorly adopt digital financial services to make people financially included and at the same time their motive is also to operate at a lower cost and to grow and improve their performance. So the idea of digital financial services is a competitive and competent strategy to increase financial inclusion in the country.

Digital finance provides win-win situation for both the associated parties i.e. for the users as now it provides them that ease of access to financial services and at the same time it also helps banks or financial institutions by boosting their efficiency, by reducing their cost of financial transactions and by innovating new products which eventually helps them to increase their portfolio of finance services provided by them

This study also highlighted that financial inclusion is one of the major factor to create financial stability in the economy as they are interrelated with each other and financial stability can only be improved when the rate of financial exclusion goes down in the economy and that can be done through making people financially included with the help of digital finance which is nowadays a major component to make people financially included in the financial sector of the economy.

Though this study also highlights that private financial institution needs to change their working patterns they need come on to the ground level to check the actual condition and by reaching to those excluded customers and try to understand their exidsitng needs

and requirements from the financial sector of the economy and try to fulfill those needs as quickly as possible which eventually leads to turn around the things.

CHAPTER – 10 RECOMMENDATIONS FOR FURTHER RESEARCH

The study combined for only seven major digital financial services to judge an impact of those services on financial inclusion. But an interesting direction for future research work would be to explore the relationship between the digital finance and the economic crisis to determine that whether digital finance helps to overcome from economic crisis and make economy move into the right direction.

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