Impact of Demonetization on the Performance of Indian Microfinance Institutions

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ABSTRACT

The paper aims to analyze the impact of demonetization on the performance of Indian microfinance institutions based on four performance indicators, namely portfolio quality, efficiency and productivity, financial management, and profitability. The study used the data sourced from the official website and different reports of Microfinance Institutions Network (MFIN), India, covering the period of January 2014 to September 2019. The investigation was directed by partitioning the examination time frame into two periods-pre-demonetization period and post-demonetization period. For getting a proper induction concerning the effect of demonetization on the performance of the Indian microfinance sector, proper statistical tools were applied, like summary statistics (mean, standard deviation, skewness, and Kurtosis) and paired sample t-test. The necessary examination has been performed utilizing the statistical programming MS-Excel and SPSS 24.0. The results of the study revealed that demonetization altogether affected the portfolio quality and the efficiency and productivity of the Indian MFIs. At the same time, the profitability and the financial management of MFIs were not influenced by the demonetization.

Keywords: Demonetization, Microfinance Institutions, Performance, Profitability

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INTRODUCTION

Demonetization is the procedure wherein the administration pronounces the current cash notes to be illicit tender. It alludes to the withdrawal of a specific type of cash from the course. It is relied upon to have a vast and prompt effect on the condition of the economy (Goel, 2018). The overall significance of demonetization is only pulling back specific cash from the course by the central bank of the nation and supplanting it with new money notes having new plans, denomination, and security highlights. Demonetization is a procedure of wiping out old cash and substitution by new notes and coins. On November 8, 2016, the Government of India demonetized its two most high money notes in the group of Rs. 500 and Rs. 1000. The motivation behind demonetization was to handle the debasement and dark cash circulating in the nation. Fundamentally, demonetization procured the methodology of supplanting existing cash with another one. Seriously, governments have drawn-out the judgments of demonetizing local cash to report the dangers of the underground economy of dark money, defilement, and impersonation money from the market. The critical target behind demonetization was to remove black money and make India cashless. As compared to other global economies, India was the country with the highest currency in circulation, which was equal to 12.1% of GDP. 86% of the money was stopped as the demonetization occurred (Bhardwaj & Bangia, 2019b).

A problematic and game-changing flood of digitization has pushed many rising economies like India to the skirt of a major computerized revolution determined by three P's—people, processes, and products—to make an environment to encourage progress from a money-based economy to the cashless advanced economy by making trustworthy and secure systems, consistent installment arrangements and ensured voluminous exchanges at a rapid speed, a reality (Sobti, 2019). Demonetization hugely affected the Indian market and residents. It set off a large number of residents to move and grasp a computerized installment framework. As indicated by Nielson Report Part II (2016), post the demonetization declaration, there was a fortune for computerized installment framework suppliers like digital wallets. A significant piece was driven by forceful publicizing alongside quick selection by independent micro-venture firms. There was a brisk appropriation of computerized installment frameworks by eateries, bistros, little merchants, auto-cart drivers, and small shops. GOI additionally gave motivations on utilizing digital installment frameworks to advance the pace of reception.
It has been observed everywhere throughout the world that individuals at long last started to confide in the online payment framework since it was the only convenient payment alternative accessible. Penny bank, vault, or storehouse has been changed into savings accounts as opposed to keeping crisis money. Be that as it may, the utilization of online payment framework demonstrated productive just to MNCs and individuals living in urban communities while in reverse regions and far off regions, the online payment framework flopped because of the absence of information and infrastructure. Individuals upheld demonetization as a result of its relationship with evacuating the black money, corruption, and check terror campaign and utilization of counterfeit money notes. Nonetheless, practically 99% of the paper money of 500 and 1000 was returned to RBI, and it had revealed that hoarders made sense of how to legitimize their dull money. The direct tax department clutched INR 4074.37 million in new and old paper money of 500 and 1000 from November 2016 to January 2017. Notwithstanding, there are no announcements if the cash seized of any association for terror campaigning. Be that as it may, most likely, the deception got controlled for a brief period.

Demonetization influenced most of the individuals to cover their assessments and increment the tax bracket arrangements. Government sources report that the pay residents saw an essential improvement in the post-demonetization time; 9.1 million new residents had added to the tax slab, which has an 80% rise over the high yearly rising (Gupta et al., 2019). While India’s informal economy contributes over 60% of India’s GDP, informal workers keep on remaining strategically and desultorily minor. The money exchanges command the working of the informal economy, and the administration’s move prompted 85% of the cash available for use being pulled back. As an outcome of the withdrawal of money, it got hard for a few bosses to pay everyday wage representatives along these lines, influencing work and job inherently (Banerjee, 2016). There have been reports of occupation misfortunes, decreases in ranch livelihoods, and social interruption, particularly in the informal, money impetus parts of the economy (Ministry of Finance, 2017). However, as indicated by that equivalent source, such short-terms costs were brief, momentary blips.

The demonetization has had an incredible effect on the segments with the best utilization of short-term money. The needy individuals are provided microcredit by the microfinance institutions in real money. Microfinance is probably the most grounded instrument accessible to battle poverty and elevates a great many Indians to a superior way of life. The microfinance business is money – escalated,
clients take credits in real money, and they reimburse advances in real money. This has become a significant test for microfinance firms. Abrupt restricted cash supply in the economy has come as a one-two punch for microfinance establishments. Microfinance establishments, providing loans to ladies, and Self Help Groups of private ventures, have been walloped by the abrupt withdrawal of money. The MFI began to overlook the credit defaults because of demonetization. This prompted a brief increment in the foundations’ inefficient exercises. It is not only the nature of assets that are influenced by this chain response, yet besides the capacity to create income from these institutions is a significant danger. Even though there will not be a lot of effect on MFIs over the long haul, the flow stun of the economy is influencing MFI specialist organizations and their clients. The principle change saw in this segment is during the assortment cycles. This prompted an expansion in the quantities, and the default esteems. It is said that the liquidity emergency saw in these MFIs is not auxiliary yet cyclic.

Microfinance Institutions (MFIs), irrespective of the authoritative document, try to advance money related incorporation by offering budgetary types of assistance to customers of monetarily un-served and under-served family units. After some time, the microfinance segment has become a necessary piece of the monetary framework taking into account the vulnerable segments of society in India. The ultimate goal of the current examination is to scrutinize the impact of demonetization on the performance of Indian MFIs.

LITERATURE REVIEW

Advancing the credit only exchanges through the digitization was exceptionally embraced by the administration during the demonetization time frame. The monetary method of reasoning behind demonetization was commonly certified to three elements- one controlling hyperinflation, two eradicating fake monetary standards, and ultimately widening the tax base. In spite of that, individuals all through the nation had languished over supplanting old notes with the upgraded one. Long lines in all banks and ATMs were a typical scene during the demonetization time frame (Jawed, Dhaigude, and Tapar, 2019). Indian policymakers intentionally flung the majority in one of the gravest financial emergencies with an apparent aim of doing a political trick, when in all actuality, the extent of ill-conceived cash flexibly was not so much as 1 percent of the total lawful supply of cash (Roy, 2019). The demonetization of higher worth money notes was planned for drawing out the dark cash and moving the Indian economy to an economy that utilizes online payment strategies as a choice to hard cash. It
was an outside improvement that constrained numerous to move from money to various types of online payments, particularly in the days quickly following the declaration (Mosesjayakumar 2018). Plainly as opposed to focusing on a couple of people who crowd much money, the 2016 demonetization influenced every single Indian resident, including various NRIs. Cutoff points on withdrawals, a deficient financial framework to supplant the old divisions, and the minuscule number of retail location machines in business foundations are said to have debilitated poor people and working classes the same, halfway removing individuals' just decision in the informal economy of having the option to depend on real money for exchanges of different sorts (Midthanpally, 2017).

In India, 92% of money exchanges are in hard cash, which is the most noteworthy on the planet. It also expands the cost of managing paper currency at regular intervals of paper cash employments. Demonetization has expanded noteworthy bank deposits and taxpayer bases in India. It is straightforward money related incorporation and limits budgetary defilement without influencing rural India agribusiness framework. The choice was spontaneous and with no schoolwork in light of the fact that the loaning authority has failed to remove black money from the economy (Gupta et al., 2019). The truth of the matter is that demonetization was more about getting the information than getting genuine money back. Demonetization was the fastest and best approach to get quality information. In any case, the entire procedure from information assortment to real noteworthy outcomes would have been drawn out unnecessarily (Sagar and Gupta, 2017). The demonetization practice unleashed devastation in a great many people's lives as it expanded exchange costs. The top-down arranging brought about unintended results because of information impediments of top-down organizers (Bose, 2019).

Demonetization has fluctuating sectoral impacts, albeit most segments responded contrarily. The banking and finance segment was the most exceedingly awful influenced. At the same time, specific divisions like IT/ITES, Pharmacy, and buyer durables observe a fortune gains in the early days, which was established in the vent window period. Shockingly, segments like Travel and Tourism did not get influenced antagonistically, notwithstanding early hiccups (Jawed et al., 2019). The move of demonetization has influenced the buying force, and this diminishing in buying power had demonstrated its effect on the utilization of different merchandise and services. Rajagopalan (2019) inferred that the demonetization strategy in India was absurd and wretched; numerous individuals accepted that there was dark cash to be uncovered and that demonetization would successfully
charge the dark cash at 100% because those dreading punishments and audits would not restore the denied notes. In reality, 99.3% of the repudiated cash was being returned. The most significant effect of this pointless advancement is that even though the demonetization strategy is presently finished, these systems of illegal tax avoidance will remain and may continue later on, making other approach instruments hard to execute. The demonetization of the enormous central part of the money is not an evil spirit for the Indian travel industry. The concrete strength of the Indian travel industry to unexpected demonetization may, in part, be ascribed to the improved entrance of electronic-exchanges encouraged by GOI activities embraced in the Digital India mission (Ohlan, 2017).

There was an immediate effect of demonetization on the Indian economy. Demonetization has helped with constraining the monetary concerns, moving the economy of India towards the cashless economy, and financial concerns intervene in the effect of demonetization on a cashless economy (Nagdev, Kumar, Rajesh, and Kumar, 2018). The move of demonetization was rushed, and the groundwork for execution was insufficient. The note boycott affected all divisions of the economy, including agriculture. Nonetheless, this decision had a horrible effect on the ordinary public, especially in backward regions (Kumar, Jain, Jhajhria, Bangaraju, and Balaji, 2018). The examination found that demonetization dependent on Adoptability, usage, status, and acknowledgment of new payment techniques fundamentally affected consumer loyalty under the service sector. The impacts of various factors, for example, approach, accessibility, time, conveyance, and foundation, additionally had a huge commitment towards consumer loyalty (Seranmadevi and Senthil Kumar, 2019). Each resident in the nation has experienced the impact of demonetization. Be that as it may, agriculturists confronted numerous issues contrasted with others. Ranchers could not turn the cash in the market because of the money crunch drove by demonetization. A large portion of the ranchers used to get credit from the agents for their day by day necessities, and they could not give money to them considering a money emergency (Murthy, Narasaiah, and Chavan, 2019).

Even though the share variances are not more similar to how everybody accepted, it made a more remarkable effect on the profit of the shares. The profit rate is somewhat down toward the finish of the budgetary year. Since there are no market changes of war declaration, downturn, misfortune on GDP, and some other new changes reported by RBI, it is believed that there is a loss on benefit registered in the Domestic Appliance, Transport, and coordinations and Hotel enterprises. At any rate, one organization from these ventures has
been influenced because of the demonetization and GST (Kiruba and Vasantha, 2019). The financial experts overall visioned that because of this move, the Indian economy may see a descending pattern for quite a while. In any case, presently following not many months after demonetization, the share market of India is performing truly well. All the financial specialists are putting their cash in the equities and the share market with a similar conclusion previously. It has additionally assisted with building the digital economy in India (Bhardwaj and Bangia, 2019b). The investigation affirmed that the declaration of demonetization impacted Indian sectoral indices. In this manner, speculators ought to know about monetary occasions while putting resources into the securities exchange (Babu, Gayathri, Indhumathi, and Hariharan, 2019). Bhardwaj and Bangia (2019a) directed an examination on the impact of demonetization on NSE for the ordinary calendar data of opening expenses of NSE Nifty India consumption from April 1, 2016, to July 31, 2017. The double cross edges in regards to the pre and post demonetization were mulled over. Artificial Neural Network (ANN) and Adaptive Neuro-Fuzzy Inference System (ANFIS) were utilized to examine the time arrangement examination of the opening cost of the stock exchange. The outcomes show a transitory impact of demonetization on the stock exchange as speculators will, in general, look past the current emergency.

Demonetization of 85% money in 2016 was a significant monetary choice, which alongside digitization of the whole financial framework along, is relied upon to improve tax to GDP proportion considerably while upgrading drove levels of financial inclusion (Pandey and Banwet, 2018). Advancing monetary consideration for the poor was done by employing the PMJDY in August 2014. About 97% of the ledgers were opened in government upheld public sector banks. Notwithstanding, the vast majority of them had zero equalization or an inconsiderable sum. About 43% of the records were lethargic. Post-demonetization, the equalization in the PMJDY accounts expanded extensively. The equalization remaining in these records only a day after demonetization, i.e., November 9, 2016, was Rs 456.37 billion. By November 30, 2016, this figure had expanded to Rs 743.22 billion. Most records observed the first historically speaking exchange in almost two years as individuals raced to store the old notes (Ajwani-Ramchandani, 2017). The social message in demonetization is connected with the impacts of a more formalized economy. Expanded utilization of banking administrations ought to quicken financial inclusion, which is a significant part of the Modi government’s push to move the advantages of government assistance programs legitimately to recipient accounts (Deshpande, 2017).
RESEARCH METHODOLOGY

Data Collection

The current study is centered around dissecting the effect of demonetization on the performance of Indian MFIs. The examination considers processed information which has been drawn from the official website and different reports of Microfinance Institutions Network (MFIN), India. The investigation was directed by partitioning the examination time frame into two periods-pre-demonetization period and post-demonetization period. The complete timespan chosen for the current examination ranges from January 1, 2014, to September 30, 2019. The pre-demonetization period comprises eleven quarters beginning from March 2014 to September 2016, while the post-demonetization period covers 11 quarters beginning from March 2017 to September 2019. The quarter of December 2016 was not contemplated as the demonetization occurred in the same quarter. This methodology of periodical occasion investigation has been utilized by various analysts like Kesimli and Gunay (2011), who investigated the effect of the worldwide economic crisis on working capital, Pillai (2013), who assessed the effect of the financial crisis on UAE land and the development area and Al-Ahdal, Farhan, Tabash, and Prusty (2018) who contemplated the effect of demonetization on the performance of Indian firms. Yearly fiscal summaries like the accounting report and income statements and the quarterly reports of MFIN have been broken down for the current examination, and seven factors have been determined to figure out the portfolio quality, efficiency, and productivity, money financial management, and profitability conditions during the pre and post demonetization periods.

Variables of the study

The current study utilizes seven factors that have been determined for breaking down the general performance of the MFIs pre and post demonetization. These factors have been assembled under the four classes of portfolio quality, efficiency and productivity, financial management, and profitability to comprehend which part of performance needs more consideration with respect to the board to take restorative measures if essential.

**Portfolio quality:** The essential earning generating resource in an MFI's position statement is the credit portfolio. The total income of MFIs incorporates interest income, which establishes typically over 90% of the total earnings. The Inherent Risk of reimbursement default is commonly incorporated in the loaning of cash.
In this manner, to guarantee the gainfulness and budgetary wellbeing of an MFI, it is essential to limit the Risk of reimbursement defaults associated with credit portfolios. The current examination quantifies the performance of credit portfolio quality pre and posts demonetization through Portfolio at Risk (PAR 30 days). This proportion is the most generally acknowledged as it quantifies the segment of the portfolio that is being sullied by overdue debts and along these lines in danger of not being reimbursed. The more seasoned the misconduct, the credits are more averse to be reimbursed.

**Portfolio at Risk:** So as to figure Portfolio at Risk (PAR), the exceptional offset of all credits with overdue debts more than 30 days, in addition to all renegotiated or rebuilt advances, is divided by the remarkable gross portfolio starting at a specific date. While estimating PAR, the number of days must be expressed as the proportion is regularly used to quantify credits influenced by unfulfilled obligations of more than 60, 90, 120, and 180 days. The subjective translations that plague other portfolio quality markers; for example, the reimbursement rate does not influence the estimation of Portfolio at Risk. Besides, the outstanding balance is considered for both the numerator and denominator, which quantifies the total Risk and not just the immediate impact, subsequently makes the Portfolio at Risk a more moderate proportion of the institutional Risk than reimbursement rate or back payments.

**Efficiency and Productivity**

Efficiency in MFIs alludes to how well the input assets, for example, resources, personnel, and endowments, are dispensed to deliver yield by MFIs estimated regarding the destitution outreach and advance portfolio (Bassem, 2008). Microfinance administrations have a nearby human touch with customers on the ground by its very nature. For following viable conveyance, these facilities still overwhelmingly rely upon human resources even in the time of consistent improvements in data and innovation. Considering the way that the generous measure of the total costs of MFIs comprises of personnel costs, the staff productivity of a foundation assumes a crucial job in deciding their cost-effectiveness. Some key pointers, for example, borrowers per credit official, borrowers per MFI staff, and so forth, are utilized to gauge the staff's productivity. The data about the rate at which MFIs create income to cover their costs is acquired through Productivity and efficiency ratios. The count and examination of productivity and efficiency ratios after some time encourages the MFIs to decide if they are augmenting their utilization of assets or not. Efficiency alludes to the
expense per unit of yield though productivity is the volume of business that is produced for a given asset. The examination of performance after some time and the estimation of enhancements in an MFI’s activities should be possible through both the productivity and efficiency ratios (Yadav and Narwal, 2014). In the current investigation, the efficiency and productivity of MFIs are estimated by two proxy factors - workforce productivity and loan official productivity.

**Personal Productivity:** One of the most exceptional ratios that characterize MFIs is personnel productivity. This ratio catches the productivity of the institution’s staff- the higher the ratio, the more beneficial the institution. This proportion checks the reasonableness of procedures and methodology adjusted by an MFI in loaning cash for business purposes. The staff who are tied up in little administrative work and methodology, for the most part, work less, which prompts low staff productivity. To ascertain Personnel productivity, the quantity of dynamic borrowers of an organization is divided by the total number of staff. The aggregate of exclusively recognizable borrowers who have, at any rate, one current outstanding credit with the organization, speak to the dynamic number of borrowers. In this manner, a solidarity loan with four numbers is considered as four borrowers. The borrower who is given credit on various occasions is considered as one borrower. The quantity of borrowers is utilized in the numerator rather than advances because of the way that the quantity of individuals who were served advances decides the outstanding burden more than the quantity of credits does. Assume if a borrower is given two credits at the same time, it doesn’t require double the exertion of one advance. A few advances like Pawn advances and purchaser advances that require far less screening and examination endeavors are commonly avoided from this estimation. In an MFI, entire staff alludes to the total number of individuals that work all day. For whatever length of time that the agreement staff, for example, experts work all day, they are additionally considered for the entire staff.

**Loan Officer Productivity:** Loan Officer Productivity is one of the most perceived performance ratios in the microfinance business that is utilized to decide the efficiency of loan officials in an institution- the higher the ratio, the more effective the credit officials of an organization. Like the personnel productivity ratio, the loan officer productivity ratio says about the reasonableness of procedures and systems adjusted by MFIs in loaning of cash for business purposes. So as to calculate this proportion, the quantity of dynamic borrowers of an organization is divided by the absolute number of loan officials. Dynamic borrowers allude to the independently recognizable borrowers who have, in any event, one current
outstanding credit with the organization. Credit officials allude to the personnel who are primarily engaged with the action of direct administration of a bit of the loan portfolio. The field faculty or line officials are incorporated among loan officials who interface with the customers, while managerial staff or examiners whose primary job is to process advances without direct customer contact are excluded. The agreement representatives who chip away at a customary premise in the limit of advance official, however, may not be a piece of the permanent staff are likewise included among advance officials.

**Financial Management**

The primary reason for financial management inside the microfinance establishment is to keep up the most elevated level of financial uprightness and superior performance. Monetary administration helps an association in assessing the performance, getting ready for the future, and settling on the correct choices at the perfect time. Money related reports help the administrator in altering, arranging, introducing, and sorting out all the data produced into a vital system. Financial data is a blueprint that precisely determines what is going on in an MFI and where it is going.

**Debt Equity Ratio:** The debt to equity ratio is one of the ordinary, most popular, and most comfortable ratios of an MFI’s capital sufficiency and quality at a specific purpose of time. The debt-equity ratio in an MFI is determined by dividing the aggregate sum of liabilities with the aggregate sum of equity. Everything that an MFI owes to others, for example, deposits, creditor liabilities, borrowings, and other obligation accounts, are taken in total liabilities. Total equity is determined by subtracting liabilities from total assets. The debt-equity ratio demonstrates that to assimilate loses the amount of a safety cushion (as equity) there is in the establishment and is by and large of extraordinary enthusiasm to the lenders of an MFI. Generally, MFIs as NGOs had constrained capacity to borrow from business lenders that brought about a low debt-equity ratio. In any case, the debt-equity ratio of MFIs ordinarily rises quickly as they changed into controlled intermediaries. Hazard, future vulnerabilities, and unpredictability of the MFI were utilized as pointers to decide how much obligation can be conveyed for a given measure of equity.

Indeed, even the most profoundly utilized MFIs still convey less debt than traditional banks because microloan portfolios are supported by less guarantee, and their hazard profiles are still not too comprehended as those of traditional banks. Variations in the debt-equity ratio are frequently more significant than,
without a doubt, the degree of that marker. If the debt-equity ratio increments quickly, the MFI might be moving toward its getting limits, which thus will compel it to shorten development. Likewise, quick increments under debt funding will undoubtedly squeeze overall revenues. The terms on which the MFI obtains loan likewise impact how much debt it can securely accept. If quite a bit of its liabilities comprises of too long haul contributor financing, a high debt-equity ratio speaks to a lesser extent a hazard than if the MFI depends on momentary credit extensions.

**Cost of Funds Ratio:** This ratio gauges the average expense of the organization’s acquired finances. In looking at MFIs, the cost of funds ratio shows whether they have accessed minimal effort financing sources, for example, reserve funds. MFIs that can activate investment funds will, in general, have a moderately minimal expense of funds. Notwithstanding, this bit of leeway is counterbalanced somewhat by the higher authoritative expense of mobilizing saving funds. The cost of funds ratio is determined by dividing interest and charge costs on financing liabilities by period average funding liabilities. The denominator contains all financing liabilities of the organization, including deposits, business reserves, sponsored reserves, and semi capital. It does exclude different liabilities, for example, creditor liabilities or a home loan advance an MFI may have gotten to back its workplaces. Much of the time, the financing liabilities of MFIs incorporate sponsored reserves. Such subsidies will drive the cost of funds down when, in actuality, the actual cost of acquiring financing for the organization is far higher. As sponsored MFIs develop, and as they progressively resort to businesses getting to support their development, quickly increasing the cost of funds can prompt serious weight on edges, which the board should counter by reducing different expenses or raising the pace of loaning.

**Profitability**

Manageability of an association is a vital factor, and in MFIs, it is estimated through self-sufficiency and profitability. Operational Self-sufficiency (OSS), Return on Assets (ROA) and Return on Equity (ROE), and so on are a ratio of the critical proportions that are utilized to decide the benefit and independence of MFIs. In the present study, ROA and ROE are taken to determine the profitability before and after demonetization.
**ROE:** Return on equity shows the profitability of the organization. This ratio is especially pertinent for a private revenue-driven element with genuine fragile living creature and-blood proprietors. For them, ROE is a determinant of paramount significance since it quantifies the return on their investment in the organization. In any case, given that numerous MFIs are not-revenue driven associations, the ROE pointer is frequently utilized as a proxy for business reasonableness. A single year's ROE can, on occasion, distort the organization's actual profitability. Phenomenal salary or misfortunes can significantly affect the primary concern. In different conditions, the organization may seriously under-arrangement and, in this manner, incidentally record higher total income figures. ROE is determined by dividing overall gain (after assessments and barring any awards or gifts) by standard period value.

**ROA:** Profit for Assets (ROA) is a general appraisal of benefits that reflects both the overall revenue and the productivity of the foundation. It quantifies how well the organization utilizes every one of its benefits. ROA is determined by dividing net gain (after charges and barring any awards or gifts) by period average assets. ROA is a genuinely direct measure. In any case, as on account of ROE, the accurate evaluation of ROA relies upon the examination of the parts that decide net gain, basically portfolio yield, cost of funds, and operational proficiency. In what appears to be a paradox, NGOs, for the most part, accomplish a higher ROA than licenses and administered MFIs. This situation is clarified by the way that microfinance NGOs, with low Debt-Equity ratios and restricted prospects to support themselves in monetary and capital markets, need to depend vigorously on held profit to finance future development.

**Tools for Analysis**

For getting a proper induction concerning the effect of demonetization on the performance of the Indian microfinance sector, proper statistical tools were applied, for example, Graphical examination, summary statistics (mean, standard deviation, skewness, and Kurtosis), and paired sample t-test. The necessary examination has been performed utilizing the statistical programming MS-Excel and SPSS 24.0. A formal statistical test was utilized to have deductions about the effect of the demonetization on the exhibition of MFIs in India dependent on our sample. The paired sample t-test has been led to see whether the determined values vary between the two-time frames (pre and post demonetization). A paired sample t-test is a statistical tool to choose if the mean contrast between the two arrangements of perceptions is zero. A paired sample t-test is a parametric test.
and relies upon a couple of suppositions. Regardless of the way that t-tests are vigorous, it is fitting to survey the degree of deviation from these suppositions to assess the idea of the results. In a paired sample t-test, the perceptions are portrayed as the complexities between the two arrangements of qualities, and each presumption implies these differentiations, not the primary data values. The paired sample t-test has four standard suppositions—Firstly, the response variable must be invariable. Secondly, the perceptions are autonomous of one another. Thirdly, the response variable should be normally distributed. Ultimately, the response variable should not contain any irregularities.

Hypotheses

To end this, the null and the alternate theories to be tried for the seven variables under the examination are states as follows:

H0: The population means (for specific values) pre and post demonetization is similar.

H1: The population means (for specific values) pre and post demonetization vary.

RESULTS AND DISCUSSIONS

Descriptive Statistics

Table I show the Mean, standard deviation, skewness, and Kurtosis for the picked factors pre and post demonetization. The mean gauges the performance, and the standard deviation measures the assortment in the information. The lower the assortment, the lower will be the standard deviation worth, and it is treated as positive. The outcomes show that the mean value and standard deviation of the portfolio at Risk (30 days) before demonetization was 0.2955 and 0.083, while after demonetization, it was 2.05 and 1.949 separately. Personnel productivity and loan officer productivity are the two intermediary measures of efficiency and productivity, which show the most significant mean and standard deviation. The mean and standard deviation of PP before demonetization was 377.56 and 18.03. After demonetization, it was 316.13 and 17.77, while the pre-demonetization mean and standard deviation of LOP was 593.88 and 52.47, and after demonetization, it was 522.48 and 28.59. DER AND COFR are the two proxy measures of the financial management of MFIs. The investigation further shows that the mean and standard deviation of DER before demonetization was 2.89 and 0.455, though, after demonetization, it was recorded as 3.52 and 1.022.
COFR shows mean and standard deviation before demonetization as 12.91 and 0.89, and after demonetization, the mean and standard deviation of COFR was recorded as 13.62 and 0.577.

Moreover, the outcomes show the mean and standard deviation of ROE and ROA, which are the two significant proportions of profitability of MFIs. The mean and standard deviation of ROE before demonetization was 10.00 and 1.94, and after demonetization, it was 9.58 and 1.474. In contrast, the ROA shows mean and standard deviation equivalent to 1.99 and 0.447 before demonetization, and after trashing, it was 1.99 and 0.545.

Skewness evaluates the degree to which a distribution of a variable is balanced. On the off chance that the distribution of reactions for a variable stretches towards the left or right tail of the distribution, at that point, the dissemination is alluded to as slanted. At the point when skewness is zero, the pattern of reactions is viewed as a normal distribution. A general rule for skewness is that if the number is more noteworthy than +1 or lower than -1, this means that significantly skewed distribution. On account of the present examination, all estimations of skewness are between -1 and +1. Aside from the skewness values, the sample distribution was watched through the Histograms and plots. Visual showcases like histograms and plots give effortlessly comprehended impressions of skewness when contrasted with test mean and median. In any case, which measurement one uses to evaluate skewness, huge skewness measurement gives occasion to feel qualms about the normality of the population (Doane and Seward, 2011).

Kurtosis is a ratio of whether the data is substantial or light-followed near with a normal distribution. That is, enlightening assortments with high Kurtosis will, in general, have high tails or outliers. Informational index with low Kurtosis will, in general, have light tails or nonappearance of irregularities. A uniform distribution would be an unusual case. Kurtosis is a measurement of the joined sizes of the two tails. It gauges the measure of likelihood in the tails. The value is frequently contrasted with the Kurtosis of the normal distribution, which is equivalent to 3. In the current investigation, the kurtosis values are between the scope of +3 and -3. Be that as it may, the examinations show this is not the right idea that Kurtosis some way or another measures peakedness (levelness, pointiness, or methodology) of a distribution (Taylor and Westfall, 2014). Based on the above discussion and the analysis of visual illustrations and the skewness and kurtosis values, it was inferred that the information is following a normal distribution.
Table I: Descriptive Statistics

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<thead>
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<th>variables</th>
<th>Pre- demonetization period</th>
<th>Post demonetization period</th>
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<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
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<td>PAR</td>
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<td>LOP</td>
<td>593.88</td>
<td>52.47</td>
</tr>
<tr>
<td>DER</td>
<td>2.89</td>
<td>0.455</td>
</tr>
<tr>
<td>COFR</td>
<td>12.91</td>
<td>0.89</td>
</tr>
<tr>
<td>ROE</td>
<td>10.00</td>
<td>1.94</td>
</tr>
<tr>
<td>ROA</td>
<td>1.99</td>
<td>0.447</td>
</tr>
</tbody>
</table>

Notes:
PAR= Portfolio at Risk, PP = Personnel Productivity, LOP= Loan Officer Productivity, DER= Debt Equity Ratio, COFR= Cost of Funds Ratio, ROE= Return on Equity, and ROA= Return on Assets.

DATA ANALYSIS
Portfolio quality

Portfolio at Risk (30 days)
Table II shows that the Mean PAR (30 days) is - 1.754, and the standard deviation is 1.905. The p-value is 0.012 at a 5 percent level of significance. Since the p-value is under 0.05, it proposes that the PAR at 30 days before demonetization is factually and altogether unique in relation to the PAR after demonetization. Along these lines, the H1 is upheld at the 5 percent level of significance, which expresses that there is a critical contrast in the mean portfolio at Risk of MFIs pre and post demonetization. This infers demonetization as fundamentally affected the portfolio quality of the MFIs.

Efficiency and Productivity

Personnel Productivity
Table II shows that the Mean PP is 61.431, and the standard deviation is 11.576. The p-value is 0.000 at a 5 percent level of significance. Since the p-value is under 0.05, it proposes that the PP before demonetization is factually and fundamentally not the same as the PP after demonetization. Hence, the H1, which expresses that there is a massive distinction in the mean personal productivity of MFIs pre and post demonetization, was bolstered. This infers demonetization radically affected the workforce profitability of the MFIs.
Loan Officer Productivity

Table II shows that the Mean LOP is 71.408, and the standard deviation is 55.171. The p-value is 0.002 at a 5 percent level of significance. Since the p-value is under 0.05, it proposes that the LOP before demonetization is measurably and altogether unique in relation to the LOP after demonetization. Consequently, the H1, which expresses that there is critical contrast in mean LOP of MFIs pre and post demonetization, was bolstered. This infers demonetization radically affected the Loan Officer Productivity of the MFIs.

Financial Management

Debt Equity Ratio

Table II shows that the Mean DER is -0.627, and the standard deviation is 1.195. The p-value is 0.113 at a 5 percent level of significance. Since the p-value is more prominent than 0.05, it proposes that the DER before demonetization and after demonetization are the same. Along these lines, the H1, which expresses that there is a massive distinction in mean DER of MFIs pre and post demonetization, was not bolstered. This suggests demonetization has not affected the Debt-Equity proportion of the MFIs.

Cost of Funds Ratio

Table II shows that the Mean COFR is -0.7100, and the standard deviation is 1.05356. The p-value is 0.049 at a 5 percent level of significance. Since the p-value is under 0.05, it recommends that the COFR before demonetization is factually and altogether not quite the same as the COFR after demonetization. In this way, the H1, which expresses that there is a critical distinction in mean COFR pre and post demonetization, was bolstered. This suggests demonetization altogether affected the COFR of the MFIs.

Profitability

ROE

Table II shows that the Mean ROE is 0.41909, and the standard deviation is 2.51370. The p-value is 0.592 at a 5 percent level of significance. Since the p-value is more prominent than 0.05, it proposes that the ROE before demonetization and after demonetization is the same. In this manner, the H1, which expresses that there is a critical contrast in mean ROE of MFIs pre and post demonetization, was not bolstered. This suggests demonetization has not affected the ROE of the MFIs.
Table II shows that the Mean ROA is 0.00091 and the standard deviation is 0.63844. The p-value is 0.996 at a 5 percent level of significance. Since the p-value is more prominent than 0.05, it recommends that the ROA before demonetization and after demonetization is the same. Subsequently, the H1, which expresses that there is a noteworthy distinction in mean ROA of MFIs pre and post demonetization, was not bolstered. This suggests demonetization has not affected the ROA of the MFIs.

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Paired Differences</th>
<th>Paired Differences</th>
<th>Paired Differences</th>
<th>Paired Differences</th>
</tr>
</thead>
<tbody>
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<td>1.905</td>
<td>-3.053</td>
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<tr>
<td>Pair 2 PRE_PP - POST_PP</td>
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<td>11.576</td>
<td>17.600</td>
<td>10</td>
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<tr>
<td>Pair 3 PRE_LOP - POST_LOP</td>
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<td>17.600</td>
<td>10</td>
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<tr>
<td>Pair 4 PRE_DER - POST_DER</td>
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<td>10</td>
</tr>
<tr>
<td>Pair 5 PRE_COFR - POST_COFR</td>
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<td>2.51370</td>
<td>.553</td>
<td>10</td>
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<tr>
<td>Pair 6 PRE_ROE - POST_ROE</td>
<td>.00091</td>
<td>.63844</td>
<td>.005</td>
<td>10</td>
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</tbody>
</table>

CONCLUSION AND RECOMMENDATIONS

Demonetization implies abolishing a specific type of money from the stream and trades it with the fresh out of the plastic new cash. Demonetization involves expelling the progression of particular money from the economy and supplant it with the new cash. It is a procedure by which the arrangement of cash will not stay a lawful delicate. The critical target behind demonetization was to annihilate defilement from India. The current investigation was centered around analyzing the effect of demonetization on the performance of Indian MFIs. The period chose for the current investigation ran from January 2014 to September 2019. For the current investigation, 11 quarters previously and 11 quarters after demonetization had been taken into consideration. To break down the information, statistical methods have been utilized, for example, Graphical investigation, Summary statistics (Mean, Standard deviation, Skewness, and Kurtosis), and Paired sample t-test. The aftereffects of the t-test demonstrated a remarkable effect of demonetization on the portfolio quality and efficiency and productivity of MFIs. At the same time, there was no effect of demonetization.
found on the profitability of MFIs. Financial Management of MFIs was, in part, affected by the demonetization.

The current investigation is helpful for the government to analyze the effect of demonetization on the microfinance segment in India and, in this way, outline fundamental strategies. The examination will add to scholastics and educating as demonetization is a marvel which does not happen much of the time. A nation demonetizes its money for some specific reason. As demonetization in India is of a late root, the scholarly community can comprehend the effect of it on the microfinance division through the present examination. Likewise, this study will help microfinance advocates and policymakers for framing venture and exchanging strategies. There exists an extension for additional examination. The time of study can be broadened, and more variables can be incorporated into the study.

REFERENCES


