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Micro-credit delinquency and it's determinants: An empirical analysis

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Abstract: *This study interpret the causes or dynamics which may root the debt delinquency in microcredit field. This study reflect the particular sample area (Lahore, Pakistan) for the data collection. Through questioner data collection methodology with simple random sample of size 200, we involved econometrics techniques using SPSS software. Overall model summery estimation consequence revealed that, 28% of the total variation of dependent variable in our model can be explained by the independent variables. No autocorrelation, multicollinearity and homogeneity exist among the residual. Model fitness also confirmed through ANOVA analysis. Likewise, negative and non-significant relationship detected between preferred cash or asset loan and loan delinquency in our study. It is conclude that, nature of business (sole/partnership business) having positive and significant association with loan types (individual/SHG) and loan delinquency while having positive and non-significant connection. Preferred cash loan or asset loan revealing positive non-significant connection with nature of business and loan type whereas negative and non-significant with loan delinquency. The loan type showing positive and significant relationship with nature of business and loan delinquency however positive nevertheless non-significant relation with preferred cash loan or asset loan. Finally, loan delinquency exposed the significant and positive relationship with nature of business and loan type while negative and non-significant relationship with preferred cash based loan or asset based loan.*

Key Words: *Microcredit, Debt Delinquency, Microfinance, Debt Default.*

1. INTRODUCTION:

Philosophies concerning to microcredit can be originate at several times in history, such as the "Starr-Bowkett Society". In the 1950s, "Akhtar Hameed Khan" initiated distributing group-oriented credit in East Pakistan (Now Bangladesh). Akhtar Hameed Khan used the 'Comilla Model'. Even in Asia, it has very deep-rooted history. However, modern microfinance introduced in formal way during the mid of 1976 in Bangladesh. "Dr. Muhammad Yunus" who was frustrated with the theories of economics and failed to describe why so many poor were hungry in Bangladesh.

According to Prof. Dr. Yunus, the story of microfinance starts when he visits the local village 'Jobra' (Bangladesh). Usually microfinance related with small, working capital that are capitalized in micro initiatives. Felder-Kuzu (2005) discussed that, microfinance activities are interrelated with poor persons which are not obliged or accommodated from any conventional commercial banks. In early days, the amount that was borrowed to deprived community were called micro-credits or micro-lending, but after few time it come to know that additional financial facilities were used cluster desirable by the poor which become more extensive the micro-credits to microfinance. CGAP experts described that about 500 million families' benefits from these small debts making new business possible. In a gathering at a Microcredit Summit in Washington DC (2005) the goal was reaching 100 million of the world´s pitiable people by credits from the world leaders and major financial institutions. The year 2005 was proclaimed as the "International year of Microcredit" by "The Economic and Social Council of the United Nations" in a call for the financial and building sector to "fuel" the strong entrepreneurial essence or spirit of the poor people all over the world.

Ajonakoh, Aaron, & Martin (2016) argued that, the primary issues that are acknowledged to variability and downfall of different microfinance institutions (MFI's) are debt delinquency. Debt delinquency found to be very destructive and terrible in the sector of microfinance in Cameroon. It is observed that debt delinquency is common concern in MFIs and must be resolved for the subsistence of institutions. According to Warue (2012), possibilities are there that MFIs not get back their debts and it's common in MFI sector. Delinquency and default of debts are very risky and alarming for microfinance institutions survival. According to Warue, typically micro-debts are unsecured, so intensions of delinquency and debt default having significant portfolio in MFIs sector. It is also studied that numerous borrowers confronted external threats such as lack of demand for borrower products, sickness of livestock, bad weather etc. McNaughton (1996) argue that all the actions and struggles for collection of debts from borrowers which are taken from MFIs side having very significant impact to decline in debt delinquency and default. The fundamental intention or goal of any NGO, microfinance institute (MFI) and microfinance banks (MFB) is to provide the debts to the poor community for the purpose of poverty alleviation and empowering the deprived people as well as to boost their micro-entrepreneurial activities, living standards and income level. The history of debt default and delinquency is deep-rooted as long as the microcredit history.

According to Rosenberg (1999), MFI are increasingly central source of credit for the poor people in developing countries. Weekly collections or repayments instalments is one of key feature of microfinance that is believed to reduce the default risk in the absence of collateral. As microfinance facilitate to poor within formal lending policies without collateral is very high risky business. No doubt, MFIs are producing high profit through micro-lending, at the same time bearing high level of risk in the form of debt default and debt delinquency. It is prerequisite to realize the particular foremost differences between terms microfinance', microcredit, debt delinquent and debt default.

Basharat, Arshad, & Haq (2013) argued that microfinance usually reflect low PAR (Portfolio at Risk) rate of delinquency as well as debt default. Similarly, it is considered in Pakistan. It is publicized by global statistics that average PAR on world level for 30 days is 2.6%. But, for deliberate choice making, continuing the high quality portfolio of debts are very essential. Research shows the previous three years delinquency tendencies in Pakistan microfinance industry. Researcher associate risk across the gender, geography, institution type, lending methodology and debt purposes. The delinquency ratio in Pakistani microfinance industry during the year 2006 was 10.76%, 8.58% in 2007 and 6.78% in 2008. Lahore is on first position consider in delinquency in largest five districts by numbers of debt in 2007 for PAR>30 day was 0.65 % and it increase up to 1.02% in 2008 for 30 days. According to MicroWatch-PMN, key indicators of microfinance banks reveals that during 2016, PAR>30 days was 1.7% in Pakistan. In CGAP Focus-Note 61 (Feb 2010), discussed four microfinance markets, Nicaragua, Morocco, Bosnia and Herzegovina (BiH) and Pakistan. According to focus-note, all these four countries experienced a micro-debt repayment experienced after a period of high growth. CGAP combined all four cases, compiled data analysis through extensive range interviews with MFIs managers, investors and industry analyst and experts. This research indicate the credit delinquency problem occur in all countries due to three reasons, focused on market competition and multiple borrowing, overstressed MFI systems and controls and destruction or loss of MFI lending discipline. For Pakistan, on the basis of MIX data 2004-2008, CGAP estimate for June 2009, PAR exceed 10%. The write-off ratio in Pakistan was 3.66% as per estimation in June 2009 which was second highest after the BiH. Debt delinquency PAR>30 days was 13% in Pakistan. Lot of efforts have been done in Africa, especially in Kenya and India with concerns of determining the factors for identification of causes for debt default. Many researchers determine the number of factors which becomes the reasons for debt default and delinquency. Little work have been done in Pakistan in regards of default and delinquency measurement of micro-debts and very little work on factors identification for default.

1.1. RESEARCH OBJECTIVES:

The main objective of the research is to find the:-

i. Dynamic forces (factors) which make the causes of debt default and/or debt delinquency of micro loans.
ii. From which category (nature of business) clients get default or delinquent in microfinance institutions and banks as well, located in the city of Lahore, Pakistan.

1.2. RESEARCH QUESTIONS:

i. What are the causes of loan delinquency in microfinance institutions in Pakistan?
ii. Which are the categories of clients who normally delinquent?

1.3. PROBLEM STATEMENT:

During 2014-15, KB (Khushhali Bank) PAR rate increase 0.92% to 1.93%, loan write-off increase from 1.17% to 1.30%. FINCA 0.88% to 2.27% during 2014-15 and write-off increase 0.70% to 2.03% in 2015-16. NRSP 0.55% to 1.24% and write-off increase 0.24% to 0.34%. NRSP-B write-off increased 0.15% to 1.68% during 2014-15. AKHU 0.29% to 0.33% and FMFB 0.83% to 1.59%. As per PACRA (Pakistan Credit Rating Agency) microfinance sector – March 2013 (end of December 2011), PAR>30 (%) world overall average rate was 3.8% and Pakistan was overall at 3.2% by PACRA (2013). More MFP-X's (it denote the specific microfinance practitioner which clients default in very high rate due to roomer in market that owner of organization died and client's loans are settled) PAR>30-days increased from less than 1% before October 2008 to more than 20% by February 2009. As per Burki (2009), feedback in April 2009 from borrowers in Punjab suggests that the borrowers believed that around 80% of MFP-Xs borrowers were still withholding repayments. As per reported by JCR-VIS Microfinance sector update June 2017, PAR>30, increased from 1.3% (2015) to 1.7% (2016). During 2014-15, KB PAR rate increase 0.92% to 1.93%, FINCA 088% to 2.27%, NRSP 0.55% to 1.24%, AKHU 0.29% 50 0.33% and FMFB .83% to 1.59%. On the behalf of above microfinance statics, there is fluctuations in Pakistan microfinance industry and its need of time to determine the dynamic forces which make the cause of loan delinquency and default as well.

1.4. RESEARCH NEED:

In Pakistan, according to SBP website, about ten (10) microfinance banks and about twenty one (21) NGOs are involved in microcredit activities (Microfinance Connect). All microfinance institutions (MFIs) are providing microcredit facilities to poor people with (loan against gold) and/or without any collateral and all facing the credit default and/or credit delinquency (themix). During 2016, FINCA declared write-off ratio for loan about 2.03%. FMFB declared 3.09% in 2014, NRSP-B 1.68% in 2015, KB 10.12% in 2013. The average PAR >30 rate of 2013, 2014 and 2015 was 3.85%, 1.78% and 4.53% respectively and write-off average rate for the above same years was 3.51%, 4.18% and 2.30% (calculation based on themix website database). So, it is need of the time to find out the reason and factors which are the cause of default and delinquency in Lahore city, Punjab, Pakistan.

1.5. IMPORTANT TERMS:

1.5.1. Microcredit and Microfinance

Microfinance deliberate in the term of a broad range of financial services such as deposits, loans, payment services, money transfers, and insurance to deprived and low-income households and, their microenterprises. While, the term 'microcredit' also known as 'micro-lending'. It can be defined as, sequence of comprise small loans to very poor people for self-employment patterns that create income, allowing them to care for themselves and their families.

1.5.2. Debt Delinquency and Debt Default

The term 'delinquent' usually refers to a situation where a borrower is late or overdue on a payment, such as a mortgage, an automobile loan or a credit card account etc. while the term 'default' is the failure to pay interest and/or principal on a loan when it due. According to Balogun and Alimi (1990), loan default is the inability of a borrower to fulfil his or her loan commitment when due.

1.5.3. Self-Help Group

Self Help Group (SHG) consists on 10-20 men or women or both located in same area and founded with purpose of microloans from different MFIs. Members make small saving and funds may be lent back to the members or in case of any member's delinquency, amount paid by the funds of saving etc.

2. LITERATURE REVIEW:

Literature review can be categorized into two types including theoretical and empirical literature review.

2.1 Theoretical Review

Ray (1998), in his famous book '*Development Economics*' discuss about the *Credit market* concept. According to *Roy*, there are two features of credit market; *First*, It is very difficult to monitor that what is being done with loan? And the *Second* is, borrowed amount may be invest on high risky activity that make the cause of default. *Roy* divide the demand for credit into three parts; *first* is credit required for new business startup, *second* is ongoing production activity and *finally* credit demanded by poor individuals who are needy for cash.

2.2 Empirical Review

According to Warue (2012), the foremost intention or objective of any microfinance institution is to accomplish the level of profitability to maintain its operations as well as sustainability in the market and stability and growth for its stability. However, problem of high loans delinquency level generates obstacles and uncertainty in the way of benefactors as well as private stakeholders. Credit risk management success positively imitated on delinquency rate. MFI's internal and external factors viewed as critical drivers of loan delinquency incidence. This study initiate confirmation that there is positive and significant association between loan delinquency and MFI specific factors. Self Help Group (SHG) specific factors also found positive and significant to loan delinquency. The study determines that MFIs and SHG specific factors and external factors significantly distress loan delinquency performance among microfinance institutions in Kenya. This research endorse that MFI must be focused on internal roots of loan delinquency as well as external for pursuing the solution to diminish loan delinquency complications in MFI sector. Multiple regression analysis was used to establish relationship between loan delinquency and microfinance institutions, self-help groups and external factors.

Mwangi (2016) argue crucial objective to find out the factors that are the main cause of loan default in microfinance institution sector Kirinyaga County. This research study exploring on factors which are the reasons of loan default among microfinance institutions in Kirinyaga County. *Cyrus* in his research refer to factors which becomes the cause of loan default in which loan collection procedures, diversion of loan funds, finance management practices and amount of loans included. According to *Cyrus*, the microfinance institutions should be well-organized in process of loan collection measures which are stress-free to follow for both the employees and the borrower. Also there should be prevention of loan diversions, efficiency in financial management and the amount of loan borrowed should be definitely observed and appraised by the micro finance institutions from time to time. The study adopted a descriptive research design.

Field & Pande (2008) discuss in his research study that as per economic theory, the more flexible repayment plan is beneficial for the borrower and frequent meeting of loan officer with clients enhance the potential of repaying capacity. The comprehensive study in development economics is that ideal strategy of credit contract when borrower are deprived and not able to provide the sufficient or robust collateral. This study based on the data collected through field investigation and measure weekly and monthly repayment plan and study conclude that more informal and elastic repayment plans can significantly lower operation cost as well as there is no chance of increasing the loan default rate at all. It is observed that overall rate of on-time-repayment was 99.1%, the late payment within the year was only 1.4% of weekly and 2.9% monthly. In contrast to the general opinion of microfinance experts, with large sample survey in typical urban MFI provides no evidence that lower frequency repayment plans are the vital reasons of loan default. This research is theoretical based study. Only one microfinance institution named 'Village Welfare Society' (VWS) Kolkata, India consider in it.

According to Owusu, Oppong, Agyeiwaa, & Abruquah (2015), there are many other sources for poverty reduction and advancement in income level for the poor. Numerous reason or factors studied by different researchers in esteems of high default rates in microfinance as well as SME sector lending by MFIs. A number of motives have been mentioned as the roots of loan delinquency or default. These comprise lack of willingness to pay loans, diversion of funds by borrowers, deliberate carelessness, and inadequate appraisal or assessment by credit officers. There are factors that are becomes the reasons of loan default such as 'external pressures to divert the money' (Medical emergency, kids' school fee etc.), behavioral 'biases' in decision-making (e.g., present biasedness or inequality, lack of self-control) and the 'nature of the investment required' (e.g., its lumpiness). This research study conclude that if *Ghana* microfinance institutions can reduce the loan defaults through designing financial product that reduce the risk factor of default, sound management practices and effective supervision by poor borrowers. Researcher also discuss the proposed innovative loan products for SME, proposed loan management model and product delivery process for MFIs to reduce the loan defaults. This research study based on theoretical study.

Mpogole, Mwaungulu, Mlasu, & Lubawa (2012) discuss in their research study that multiple loan borrowing and loan repayment effects between loan borrower and viable of MFI indications consequences which are not same all the time. Few research studies indicate the positive possessions of multiple borrowing on repayment of loans and credible of MFIs. On the other hand, few researcher believes that over debt is very harmful for repayment capacity and therefore, default on loans. So, this research scrutinized the frequencies of multiple loan borrowing, motives and special effects of multiple borrowing on loan repayment at *Iriga* in *Tanzania*. Research study conclude that frequency of multiple loans borrowing are extraordinary in Iriga Tanzania. Almost more than 70% of 250 MFI (Micro-Finance Institutions) customers had two loans at least from different MFIs at the same time period and about 16% borrowed from individual moneylenders. The foremost causes for multiple borrowing were insufficient loans from MFIs, recycling and family obligations. Above 70% faulted had complications in loan settlement because of multiple pending loans. It is also observed during the research that education level and number of dependents of the accused significantly unbiased or balanced the number of agreements. This research study was descriptive research.

Nawai & Shariff (2012) described that consequences shows that gender, formal religious education, distance to the lender office, business formality, total sales per month, total loan received, loan monitoring and loan disbursement lag have significantly affected debtor's repayment performance. It is observed during the research that if there is no any pressure imposed on borrowers from MFI side, borrower delay the repayment or installment amount or they paid minimum amount only. Moreover, it is found in research that about 11% clients self-confessed that they certainly not the use the loan amount for business drives and in conclusion defaulted the loan. Researcher propose to MFIs that rebate should be given to the borrowers paying their loan's installments without any deferment and instituting of MFI to accommodate for the financial prerequisite in Malaysia. Research also initiated this melody that when income and aggregate sale will increase, resultantly, repayment performance of clients will also better and on track. In this regards, research suggest that it will occur when borrowers will skilled by MFI that how to market their products, accounting and financial management trainings etc. The study used multinomial logit regression method.

Munene & Guyo (2013) conclude that there are numerous reasons that are the roots of loan default which are due to business characteristics. The factors or reasons comprised type of business, business age or length, numbers of employees and business characteristics. Researcher mention to MFIs for the sufficient training strategies for the poor borrowers with significant to their business nature because training direct and support the poor entrepreneur to choose the precise business and also enable for business start-up positively. Study also conclude that high loan default cases are common in manufacturing division about 67.9%, service industry 64%, agriculture 58.3% trade sector 34.9%. The businesses which have less than two years tenor are more defaulter as compare to have businesses set-ups more than two to five years. Similarly high profit turn-over business are less defaulter as compare to low turnover businesses. Study indicate finally that there is significant relationship between tenor of the business, business type, number of employees and business profits and loan repayment defaults. The relationship between the business characteristics and loan repayment default is examined by testing the stated hypotheses using X^2 (Chi-Square) test at 95% confidence interval.

Angaine & Waari (2014) described in their research study that disposal of microloans is the key to success on the business track. Variety of microloans provided by different MFIs but unfortunately, business entrepreneurs defaulted the loans which are the immoral for economy as a whole and risky for MFI business individually. This paper discuss about the determinants influencing loan repayment in MFIs. The study conclude that education level, number of dependents and hobbies are individual's characteristics that are the cause of repayment default of microfinance loans. Business characteristics with are the cause of loan default are length of operations, management and type of business.

Whereas lender characteristics are groups handled, period taken to qualify new members and the criteria used to evaluate credit worthiness. The consequences contributions to microfinance organizations to take strict measures for eradicating the loan default cases. It is also suggested that governments as well as MFIs need to take revolutionary steps for access to formal education as well as training related to business on management and financing practices. On the other hand, MFI prerequisites to reduce their loan processing time and develop the models or credit process for more operational credit evaluation and client worth. Research results converted into percentages for analyzing the data tool was used SPSS. The researcher also used regression analysis to establish the causal-effect relationship between the variables under study.

Shu-Teng, Zariyawati, Suraya-Hanim, & Annuar (2015) determine that it is ground reality that microfinance plays vital role to reduce the poverty and encourage the entrepreneurial activities. According to them it is very tough to determine the factors to loan repayment performance. Study deliver empirical confirmation of the level to which some determinants affect loan repayment performance between SME in Malaysia. Study outcomes specifies that borrower's characteristics (educational level), business characteristics (business experience) and loan characteristics (amount & tenure) are having incredible conclusion on loan repayment performance. As researcher conclude that amount of loan is very significant factor that having influence on repayment of loan performance. Therefore, through realistic and appropriate amount loan, MFIs can expand repayment performance between borrowers. It is suggested that MFIs must to check and acknowledged their client's educational level as well as their business experience before admiring their microfinance loans submissions. Finally, the results show that there are four main variables having significant relationship towards loan repayment performance includes educational level, business experience, amount of loan & tenure of loan. Descriptive analysis was used for results of the data with SPSS. Multiple regression analysis was used to examine whether there is relationship between independent and dependent variables.

According to Siaw, Ntiamoah, Oteng, & Opoku (2014) it is ground reality that microfinance plays vital role to reduce the poverty and encourage the entrepreneurial activities. According to researcher it is very tough to determine the factors to loan repayment performance. Study deliver empirical confirmation of the level to which some determinants affect loan repayment performance between SME in Malaysia. Study outcomes specifies that borrower's characteristics (educational level), business characteristics (business experience) and loan characteristics (amount & tenure) are having incredible conclusion on loan repayment performance. As researcher conclude that amount of loan is very significant factor that having influence on repayment of loan performance. Therefore, through realistic and appropriate amount loan, MFIs can expand repayment performance between borrowers. It is suggested that MFIs must to check and acknowledged their client's educational level as well as their business experience before admiring their microfinance loans submissions. Finally, the results show that there are four main variables having significant relationship towards loan repayment performance includes educational level, business experience, amount of loan & tenure of loan. SPSS used for to test the hypothesis. Fotabong, Toh, & Aaron (2016) explain about consequence of external factors through field survey to 416 respondents in 78 MFIs located in various regions of Cameroon on the loans delinquency of MFIs. Study determine that the external factors like Legislative Issues (LI), Economic Contagion (EC) and Economic Downturn (EDT) are elementary essence foundations of loan delinquency in MFIs existing in Cameroon. Researcher also establish that there are some other factors like 'Late Disbursements, poor timing, high interest rates, poor training to MFI staff as well as beneficiaries, Management inefficiency etc. are also responsible for loan delinquency other than External factors. Research shows that Legislative Issues (LI) are the vibrant external factor which make the cause of loan delinquency in MFIs as well as Contagion Effects & Economic Downturn also statistically significant. Legislative Issues (LI) impact for loan delinquency indications shocking ratio in MFIs. Researcher propose prerequisite for mutual efforts from regulatory authorities as well as government and banks/MFIs. Research undertake that delinquency management as tool or device not only for MFIs sustainability but as only declining the confidence level of customers. The result obtains through software applications (SPSS, SAS and AMOS)

According to Muthoni (2016), generally, microloans repayments and default remains a major hurdle in the way of microfinance institutions (MFIs) as well as financial intermediaries (FIs). There is very high risk comprise if microcredit field in Sub-Sahara Africa (SSA) which is about more than five percent. The study include to find out or recognized causes of loan default in MFIs and FIs in Keynes. The intentions of the research was to evaluate influence of borrower's characteristics on loan default and business characteristics as well. Investigation conduct on the small scale due to time and cost constraints. Sample taken from 106 MFI and 40 FIs through the questioner (primary data) and descriptive results scrutinized. For studying the data, multiple regression model and Pearson Correlation used for forming relationship among the variables. Ultimate consequences of research specifies that two variables, Borrowers characteristics & Business characteristics were significant among MFI's and FI's but with some variances in the parameters measures for the two variables.

For exploring the loan delinquency and default in Ghana, Addae (2014) conducted and established research study on primary data collected through questioners from 25 MFIs and 250 loan borrowers through directing interviews. Through the research, it is determine that high interest rates, inadequate loan size, poor appraisal and lack of monitoring are the factors which are liable for the delinquency and default in microcredit filed of business. Research also propose that, to reduce or dropout the loan delinquency rate, it is need to comprise the training programs before and after the loan disbursement, interest rates must be rational, client monitoring and meeting necessary and also need to appraise the loan with proper appraisal management system. Study also focused to MFIs that effective and cleared credit policies and processes essential for decline in loans delinquency and defaults and government and banks of Ghana need to notice and control the MFIs for the protection measures of borrowers and depositor's clients of MFIs. Simple frequency and percentage methods used for data analysis and results.

Asongo & Idama (2014) determine the factors which are reasons for loan defaults in Standard Microfinance Bank Limited, Yola, Nigeria. Researcher conclude that there are several causes of loan default comprising high staff turnover, clients drop-out, non-supervision of customers regarding loan utilization, non-reminder to customer concerning their repayment, multiple borrowing by customers, lack of plenty for late payment or default, lack of job experience of staff, lending policies. On the basis of these factors identification which are causes of loan default, study endorsed some processes for microfinance banks to escape the concern of loan default and ensure the microfinance business best conceivable applies and prime concert. Data analyzed with SPSS. The software was used to obtain descriptive and inferential statistics such as tables, frequency and test of relation among variables using chi square.

Kodongo & Kendi (2013) discuss in there research paper that a number of microcredit programs bearing massive losses due to poor loan collection and default. Some of them are reliant on government grants to monetarily cover the losses of loan defaults. The research study intention was to determine the causes and roots of loan default in Trans Nzoia County. Precise goal of research were to study and conclude that how non-supervision of borrowers effect the loan repayment funded by MFIs in Trans-Nzoia County; to conclude effects of reducing economic growth experienced by clients on loan repayment and to form how departure of loan amount by clients to default in loan repayment. The research analysis conclude that the reasons of loan default was non-supervision of loan clients by the MFIs, poor borrowers training and loan amount utilization before they expected. It is also find out during the research study that borrower did not devote loan amount on the projects for which they borrow from MFIs. Generally borrower uses the amount of loan for their individual practices. The study adopted a descriptive survey method (frequency and percentage methods).

2.3 SUMMARY OF LITERATURE REVIEW:

Microcredit facility offered by different MFIs to poor or deprived community is without any collateral and the aim of these institutes and banks is poverty alleviation and empowerment the micro-entrepreneurial activities. The micro-credit borrowers' default and/or delinquent the credit due to different factors and resultantly, MFIs ability of loaning declines. There are numbers of factors which make the cause of loan default or delinquent include; MFI Specific factor (Governance, Loans process, recovery methods) SHG specific factor (member screening process, group governance etc.) and External factors (socio-political instability, economic downturn, weather conditions etc.) and multiple borrowings, seasonal unemployment, diseases, loans diversions, loan amount, delay in loan disbursement, inadequate appraisals, lack of business proposals etc. Mostly researcher use the descriptive method of analysis, fewer uses OLS and Mlogit techniques for analysis. As per literature studied, the factors which are using by me are not studied earlier for studying the relationship with loan delinquency and loan default at a time together.

3. RESEARCH METHODOLOGY:

Research methodology comprises on data source, sample size, target population or survey area, and econometric model.

3.1. DATA SOURCES:

This study will based on primary data survey technique. The primary data will be collected by systematic random sampling technique. Through survey method, researcher gets the purified and firsthand information through questionnaire. The reason of primary data analysis is that almost every MFI frequently never demonstrate their default and delinquency debt rates publically even there is some time too much floatation seen and few MFIs even missed information. PAR>30 (Portfolio at Risk) rates in percentages and write-off in percentages are available which also seems not true because some MFIs provide the figure in zero percentage which is not possible (themix). These information are not enough for my research study. So, primary data collection is crucial.

3.2. SAMPLE SIZE:

As for active borrowers of microcredit in Lahore city are 2, 63,564 by first quarter 2017 (PMN, 2017), the sample size for the given population would be 400. But due to scarce time and finance constraints, we studied 10 organizations and 150 clients (15 from each MFI). From each MFI, we also conduct 05 interviews through questioners one (01) from top management, two (02) from middle and two (02) from low level management (50 Management Employees). So, the total sample size will be 200. The organizations and banks planned to study on the behalf of largest six market share holder banks in term of microcredit (Khushhali Bank (KB) with 25.7% of market share, Telenor Microfinance Bank (TMFB) with 17.7%, NRSPB with 14.8%, FINCA Bank with 11.4%, First Microfinance Bank with

9.1% and Apna Microfinance Bank with 7.1%. I will select four NGOs which are actively working in Lahore city and registered with government of Pakistan, including Kashf Foundation, ASASA, CSC and Akhuwat).

3.3. TARGET POPULATION / SURVEY AREA:

Active borrower in MFI (dist. wise) Lahore are 2, 63,564 and active borrowers in Punjab are 3,699,883. Gross Loan Portfolio (PKR) of Lahore Borrowers is 6,934,099,330 (7 Billion Approx.) and Gross Loan Portfolio (PKR) of Punjab Borrowers is 117,470,990,452 (117.5 Billion Approx.) (PMN, 2017). We studied the large, well-known and registered MFIs/NGOs/MicroBanks located in Lahore zone and at the same time also will study the borrowers of each MFIs for cross check the facts. The data collection process planned to complete in the months of Dec/Jan 2018/19.

3.4. MODEL OF ESTIMATIONS:

There is following model which we need to estimate for the desired result is as following;
$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7)$ OR
$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$
Here,
Y = Loan Delinquency - (Dependent Variable)
β_o = Intercept of the model, ε = Error term
β = Co-efficient of Independent variables
X_1 = Nature of business (Sole Proprietorship or Partnership Business)
X_2 = Preferred Cash Loan or Asset Loan
X_3 = Loan Type (Individual or SHG)

4. ESTIMATIONS TECHNIQUES AND RESULTS:

Through implying SPSS software for empirical estimation of the developed model, we involved the following tests.

4.1. RELIABILITY TEST:

Reliability of data analyse using *Cronbach's Alpha* test which express on scale of 0 to 1. Where, 1 is the most reliable consequence and 0 is the least point of reliability. Optimal reliability typically consider at 0.70 (70%) and more than 70% consider as the data is reliable.

Reliability Statistics	
Cronbach's Alpha	N of Items
0.692	4

Our result indicating the *Cronbach's Alpha* value 0.692 (69.2%) which is very adjacent to 0.70 (70%) therefore, we are supposing that our data is reliable for more analysis.

4.2. HOMOSCEDASTICITY TEST:

This assumption is essential to linear regression model and is provide the impression when the size of the error term vary across values of an independent variable. There are number of methods to measure the homogeneity in which statistical and graphical methods are renowned. We are implying statistical technique known as *Levene Statistic*.

Test of Homogeneity of Variances			
Loan Delinquency			
Levene Statistic	df1	df2	Sig.
1282.362	1	198	.000

The significant value is less than 0.05 (5%) specify that there is no existence of homogeneity problem.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13.556	1	13.556	74.894	.000
Within Groups	35.839	198	.181		
Total	49.395	199			

All the above analysis outcomes indicating that homogeneity does not exist.

4.3. DESCRIPTIVE STATISTICS

Through descriptive study we analysis about the good variables. The smallest values of mean and standard deviation will be considered as good variables.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Nature of business	200	.00	1.00	.2550	.43695
Preferred Cash Loan or Asset Loan	200	.00	1.00	.6600	.47490
Loan Type (Individual/SHG)	200	.00	1.00	.2550	.43695
Loan Delinquency	200	.00	1.00	.5550	.49821
Valid N (listwise)	200				

4.4 CORRELATION ANALYSIS

Through correlation analysis, we can assess the relationship in terms of correlation coefficient. Correlation presence may be positive, negative or no-correlation among the variables. There are following results of our estimation.

Correlations

		Nature of business	Preferred Cash Loan or Asset Loan	Loan Type (Individual/SHG)	Loan Delinquency
Nature of business	Pearson Correlation	1	.057	1.000**	.524**
	Sig. (2-tailed)		.425	.000	.000
	N	200	200	200	200
Preferred Cash Loan or Asset Loan	Pearson Correlation	.057	1	.057	-.048
	Sig. (2-tailed)	.425		.425	.500
	N	200	200	200	200
Loan Type (Individual/SHG)	Pearson Correlation	1.000**	.057	1	.524**
	Sig. (2-tailed)	.000	.425		.000
	N	200	200	200	200
Loan Delinquency	Pearson Correlation	.524**	-.048	.524**	1
	Sig. (2-tailed)	.000	.500	.000	
	N	200	200	200	200

**. Correlation is significant at the 0.01 level (2-tailed).

Nature of business (Sole or Partnership business) having positive and significant relationship with loan types (may be individual or SHG) and loan delinquency while having positive and non-significant relationship. Preferred cash loan or asset loan having positive non-significant relationship with Nature of business and loan type while negative and non-significant with loan delinquency. The loan type having positive and significant relationship with Nature of business and loan delinquency while positive but non-significant relation with preferred cash loan or asset loan. Lastly, loan delinquency revealed the significant and positive relationship with Nature of business and loan type while negative and non-significant relationship with preferred cash loan or asset loan.

4.4. MULTIPLE REGRESSION ANALYSIS

Overall model summery estimation outcome revealed that, 28% of the total variation of dependent variable (Loan Delinquency) in our model can be explained by the independent variables comprises loan type (Individual or SHG), preferred cash or asset loan. The D/W 2.019 indicate that there is no autocorrelation exist among the residual. The ANOVA table also indicating that model is fit for further analysis.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.530[a]	.280	.273	.42474	2.019

a. Predictors: (Constant), Loan Type (Individual/SHG), Preferred Cash Loan or Asset Loan

b. Dependent Variable: Loan Delinquency

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.855	2	6.928	38.400	.000[a]
	Residual	35.540	197	.180		
	Total	49.395	199			

a. Predictors: (Constant), Loan Type (Individual/SHG), Preferred Cash Loan or Asset Loan

b. Dependent Variable: Loan Delinquency

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.455	.054		8.478	.000		
	Preferred Cash or Asset Loan	-.082	.064	-.078	-1.288	.199	.997	1.003
	Loan Type (Individual/SHG)	.602	.069	.528	8.727	.000	.997	1.003

a. Dependent Variable: Loan Delinquency

According to above estimation outcomes, preferred cash or asset loan showing negative and not significant relationship with loan delinquency. More, there is no multicollinearity problem perceived in the outcomes.

5. CONCLUSIONS AND RECOMMENDATIONS:

Inclusively, empirical estimation consequence revealed that, 28% of the total variation of dependent variable in our model can be explained by the independent variables. No autocorrelation, multicollinearity and homogeneity occur among the residual. Model fitness and suitability also confirmed through ANOVA analysis. Likewise, negative and non-significant relationship detected between preferred cash or asset loan and loan delinquency in our study. The consequences direct that, nature of business (sole or Partnership business) having positive and significant relationship with loan types (may be individual or SHG) and loan delinquency while having positive and non-significant relationship. Preferred cash loan or asset loan having positive non-significant relationship with Nature of business and loan type while negative and non-significant with loan delinquency. The loan type having positive and significant relationship with Nature of business and loan delinquency while positive but non-significant relation with preferred cash loan or asset loan. Lastly, loan delinquency revealed the significant and positive relationship with Nature of business and loan type while negative and non-significant relationship with preferred cash loan or asset loan.

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