# Institutional Authority or Powers of Human Proximity ? Impact of Chosen Macroeconomic Indicators on Quality of Microfinance Portfolios

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*GJMBR-B Classification: JEL Code: B22*

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# Institutional Authority or Powers of Human Proximity ? Impact of Chosen Macroeconomic Indicators on Quality of Microfinance Portfolios

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*Abstract-* Portfolio quality is the lighthouse indicator of the finance– macro economy nexus, even more important in unstructured immature environments of development finance sector such as microfinance. Growing over indebtedness indicated by deteriorating portfolio quality seems to signalup coming stress in most microfinance markets, becoming a ricocheting specter of a global repayment crisis lurking in the shades of the past repayment crisis. The question what factors are important for the portfolio quality thus acquires new significance as resources demarginalizing microfinance including regulatory attention are to be directed to most efficient directions. Is it rather the microeconomic forces at arm's length within village banks such as the musketeer principle or rather macroeconomic powers that can be traced to impact of the aggregate portfolio quality? The work studies in a cross-sectional analysis influence of several macroeconomic factors on quality of microfinance portfolio and concludes that despite theories that highlight the prosperity of MFIs in weak institutional environment, certain institutional repercussions such as voice and accountability as well as the strength of the regulatory framework, are more important than human development level or penetration of corruption on the capacity of microcredit debtors to repay their debts in time.

*Keywords: microfinance, cooperatives, conservation, population growth, poverty, musketeer principle.*

## I. Relationship of Portfolio Quality to Macroeconomic Indicators

Financial infrastructure is the economic spine of advanced human communities. Access to capital permits better capital allocation, mitigates risks and transforms savings into productive assets, increasing life standards. Microfinance is one of the tools for such creative process of infrastructural evolution and as such can be propelled or led astray under specific macroeconomic conditions. While the potential of domestic financial reforms on financial deepening is undoubtable, the link between financial reforms and impact on poverty alleviation programs is less clear (Barr, 2003). Some scholars recommend seeing the sector as an integral component of the financial sector considering market failure as the principal cause for poverty rather than a less market related phenomenon (Stiglitz, 2003). Others recommend creation of separate institutional windows. Both families however, view institutional environment as a key influence on the sectorial performance. The question is what subsystems are the key ones, within the institutional framework.

We propose to study the portfolio quality from three angles or three classes of phenomenon with an expected important influence on loans in arrears: the institutional environment, social cohesion and individual prosperity and microfinance outreach.

A research written by Faria and Mauro (2009) mentions several studies that analyze relations between indicators related to portfolio quality and to chosen macroeconomic and macro institutional variables, including economic growth, FDIs, economic and political instability as well as impact of economic crisis. They point out that equity-like liabilities as a share of countries' total external liabilities are positively and significantly associated with especially institutional quality. Ahlinet al. (2010) concluded in a study of the macro institutional impact on MFIs, concluded that performance of MFIs might function in a better way under advanced institutional conditions. Chikalipah confirmed this view on sample of 291 sub-saharan MFIs (2017). The study by Awaworyi (2015) examined the performance of microfinance institutions (MFIs) in the macroeconomic and institutional context, the country-level determinants of the performance of 563 MFIs, through the lens of the index of institutional quality defined by Kaufmann et al. in 2009, and in consistence with Ahlin et al. (2011), confirmed that growth positively impacted the financial performance of MFIs, while pointing at rivalrous relationship between microfinance and wage employment opportunities and complementarity between higher unemployment levels and MFI performance. Concerning institutional factors, according to Awaworyi (2015), weak institutional performance, except for political stability,is however rather promoting microfinance performance including high corruption levels as well as low regulations, as certain features of a high growth economy are likely to impede the performance of MFIs. Evidently, microfinance benefits from strong institutions yet in some cases, they thrive in an institutionally weak

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environment. The success of fitting microfinance as part of the development process in developing countries is dependent on the macroeconomic environment within which MFIs operate. These effects are also likely to change depending on geographical location and may also be affected significantly by other MFI-specific factors such as operational strategies. According to Fisman and Svensson (2007), corruption significantly reduces firm growth, much more so than taxation and higher corruption may hinder microenterprises' ability to operate and grow. According to Ahlin et al. (2010) reduced corruption is related to faster extensive MFI growth, but has no significant relationship with intensive growth as corruption acts as a barrier to microenterprise endeavors, at least to start-up if not to subsequent growth. Gull, Podder & Shahriar (2017) consider government ideology is an important determinant of MFI performance and consider left-wing regimes as a cause for higher portfolio growth and lower annual expenses.Despite having lower costs, these MFIs are not more sustainable relative to those operating in right wing or centrist regimes.Also MFIs operating in a left wingregime generate lower levels of financial revenue. Political stability is considered by Fernandez et al. (2015) as one of the factors that reduce the likelihood of a MFIs crisis in study analysing the reasons for crises in microfinance institutions.

As to microfinance outreach, it can be considered a function of market maturity and a fundamental influence on the portfolio due to improved mechanisms of peer selection that leads to better portfolio quality (Zeller, 1998; Ghatak, 2000), better peer monitoring and close joint liability (Wydick, 1999; Stiglitz, 1990;Besley and Coate, 1995), thus being a motive for success success of micro-lending (Dixon et al., 2007) due to polished processes and more frequent village bank encounters (Armendariz and Morduch, 2005).

As to the third field of interest of this paper, which is the relationship between HDI and microfinance, there exists abundant research literature on how microfinance increases HDI (Brenner, 2012) as this is one of the justifying answers to the questioning of existence of the microfinance sector, yet surprisingly little research on how increased levels of HDI influence the portfolio quality on microfinance institutions. The answer for the question possibly lies in the lack of reasonable justification for such research, due to the nature of microfinance as a development tool, aiming at development and naturally expecting improvement of portfolio quality in the course of improvement and development. The little research focused on how to increase the financial sustainability of the MFI yields less rigorous evidence such as the results of Javoy and Rozas in 2013, employing HDI as one of three components within the Mimosa index methodology, searching for a correlation between credit provision and HDI from the point of view of financial access, yet also including other macroeconomic indicators without clear distilled relationship between HDI and portfolio quality.

## II. Data, Methods and Materials

Data on the microfinance sector performance reduced to PAR 30+ and write-off ratio averages in microfinance sector stemming from 55 countries in 2010 of was obtainedfrom Microfinance Information Exchange (MIX) database available to scholars. Data on government effectiveness[1], corruption control, political stability[2], rule of law[3], regulatory quality[4] and voice and accountability[5]in 2010 was obtained from WDI as well as from 2010 UNDP Human Development Report (Kaufmann et al., 2010)

The paper observes microfinance through the positivist lens and within this framework postulates several hypothesis that analyze a potential correlation between quality of microfinance portfolioand chosen macroeconomic indicators In this set of hypothesis $H_1$ and $H_2$ we propose the understanding of microfinance sector as a sector heavily influenced by existential stress, pressures derived from personal relationships in their community, Musketeer Principle related forces (Hesrather then by macroeconomic and meso-institutional conditions in developing markets. In such environment, the motivation of debtors to repay is caused by their prosperity and high transaction costs in case of non-repayment rather than by macro and meso-institutional conditions such as The Human Development Index (HDI), used as oneoftheregressor, isa composite measure of normalized indices of life longevity, income and education reducing the importance of income to general understanding of quality of human lifewas used as a complementary measure. There are three important dimensions captured in HDI, which represent gender related issues

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[1] Government effectiveness means capturing perceptions of the quality of public services, the quality of civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and credibility of the government's commitment to such policies (Kaufmann et al., 2009).
[2] Political stability and absence ofviolenceisthe probability of destabilization of government through unconstitutional means that include politically-motivated terrorism (Kaufmann et al., 2009).
[3] Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence (World Bank, 2017)
[4] The traditions and institutions by which authority in a country is exercised, including the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions (World Bank, 2017).
[5] Voice and accountability captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media (World Bank, 2017).

such as reproductive health (lifetime risk of maternal death in %)[6], empowerment represented by female secondary school enrollment (%, gross), and labor market participation of women (% of total labor force) which are relevent for microfinance due to its women focused orientation. As to the MPI indicator, it is a measure related to Microfinance Intensity or Microfinance Outreach. Bothof these indicatorswere used by economists in the past, yet can be considered as not well developed (Meyer *et al.*, 2000; Vanroose, 2008). Yarons suggested in 1992 that microfinance outreach should be using more variables than loan portfolio value, average loan size, amount of savings or as Christen, Rhyne, and Vogel proposed in 1995, outreach should be categorizedby defining along quality of service, scale and depth of outreach to the poor. A major flaw of these indicators is that they use microfinance outreach assessing the number of clients with active loans as well as loan portfolio as principal pillars, yet do not take into account the savings northe number of savers or users of other microfinance products. Both indicators can be thus considered as partially misleading. This situation is further strengthened by thedata collection methodology done by Mixmarket (MIX), CGAP and Rating Fund which are based on voluntary contributions of MFIs that in most cases are leverage based, mature MFIs registering in the quest for external funding, rather than by savings based informal players not interested in public presentation. General estimates speak of volume of savings as a multiple of loan volume and for this reason, once savings are explicitly considered in the microfinance outreach, the absence of the abovementioned indicator can be considered as a serious econometric fault. For this reason a newly introduced indicator, which is the Microfinance Penetration Indicator (MPI) is employed, calculated in the following way:

$$MPI = \log\left[\frac{(Savings + Gross\,Loan\,Portfolio)}{(Savers + Borrowers)}\right]$$

*Figure 6:* MPI calculation

In response to the abovementioned shortcomings, the proposed MPI involves to the intensity – outreach concept also the number of savers and savings volume. It can be expected that developing countries with higher microfinance penetration and more people participating in microfinance programs will have as a consequence a greater share of the poor with access to financial services with higher social and economic development expressed by HDI, but also would have an impact on the repayment discipline which would be rather negative due to availability of other sources to clientele that permit to repay the credit with credit. The statistical model in this study employscross-sectional observations of 55 countries recorded in 2010, as stated in the descriptive statistical table below, within which we explain the dependent variables through a set of independent socio-economic variables and one microfinance variable. Existing correlation of the cross sectional data analyzed through OLS simple regression analysis justifies the expected impact of macroeconomic indicators on the quality of microfinance portfolios.

## III. Hypotheses and Statistical Model

The assumption that quality of microfinance portfolio is influenced rather by institutional environment than by the personal well-being of the debtors and by outreach leads to a formulation of the following hypothesis:

$H_1$: Portfolio quality expressed as PAR30+ is rather dependent on the existential stress then on macro and meso institutional conditions in developing markets. The debt in arrears as a function of social capital thus diminishes with the development of personal welfare than by microfinance outreach or the development of state institutions that regulate microfinance sector.

$H_2$: Portfolio quality expressed as Write-off ratio is rather dependent on the existential stress then on macro and meso institutional conditions in developing markets. The capital written off is thus rather influenced by personal welfare than by microfinance outreach or development of the state institutions than welfare.

### a) Estimation method
Our descriptive analysis model consists of the following variables:

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[6] Life time risk of maternal death: the probability that a 15-year-old female will die from a maternal cause assuming that present levels of fertility / mortality do not change in the future (World Bank, 2013).

$$y_i = \alpha + \beta_1 X_{it} + \beta_2 H_{it} + \beta_3 E_{it} + \beta_4 L_{it} + \beta_5 M_{it} + \varepsilon_{it}$$

$Y$ bethe portfolio quality ( PAR 30+, default rate)

$A$ be the intercept of the regression line and the Y axis

$X_{it}$ be the government effectiveness in market $I$ and tim e$t$

$H_{it}$ be the political stability in market $i$and time$t$

$E_{it}$ be the regulatory quality describing in market $I$ and time$t$

$L_{it}$ be the MPI describing in market $i$and time$t$

$M_{it}$ be the voice and accountability in market $i$and time$t$

$V_{it}$ be the HDI in market $i$and time$t$

$\varepsilon_{it}$ e a residual value describing market $i$and time$t$

*Table 2:* Summary of Objectives and Methodology of H1 – H2

| Research Outline | | |
|---|---|---|
| | Set of Hypothesis 1 | Set of Hypothesis 2 |
| Empirical method | Relationship between PAR30+ and chosen macroeconomic indicators | Relationship between write-off ration and chosen macroeconomic indicators |
| Regression type | Least squares, cross-sectional data, multiple regression model. | |
| Regression function | PAR30+ = f( MPI,HDI, CI, GE,PS,RQ,RL,VA) | WRITE-OFF RATIO = f(MPI,HDI, CI, GE,PS,RQ,RL,VA) |
| Dependent Variable | PAR30+ | WRITE-OFF RATIO |
| Independent Variable | MPI,HDI, CI, GE,PS,RQ,RL,VA | |
| Expected Results | PAR30+ and Write-off ratio are influencedby both development indices HDI and MGDPI, as dependent variables | |

*b) Interpretation of results*

Our statistic model show weak coefficients of determination R2 in case of H1 test, explaining 31.7% of the variability observed of PAR30+. In case of H2 test we can demonstrate 9.9 % of the variability observed in Write-off ratio. We cannot accept either of the hypothesis H1 and H2, on the influence of microfinance on PAR30+ and Write-off rations as p-values of Voice And Accountability and in the first case and of Regulatory Quality show statistically significant results (Tab. 1 and Tab. 2), which cannot be said about HDI nor MPI which are not significant on the level of confidence of 95%. The data was tested for heteroscedasticity, employing the White test as well as Breusch-Pagan-Godfrey test, which resulted in satisfactory output allowing the acceptance of the chosen statistical model, due to non- heteroscedasticity of the data.

Table 1: Model 1 - OLS, using observations 1-55 Dependent variable: PAR30+

|  | Coefficient | Std. Error | t-ratio | p-value |  |
|---|---|---|---|---|---|
| const | 8.40098 | 4.25321 | 1.9752 | 0.0544 | * |
| MPI | −0.23479 | 0.424671 | −0.5529 | 0.5831 | |
| HDI | −4.59988 | 6.40972 | −0.7176 | 0.4767 | |
| Corruption Index | 2.12665 | 2.96953 | 0.7162 | 0.4776 | |
| Gov Effectiveness | −6.00354 | 3.67717 | −1.6327 | 0.1095 | |
| Political Stability | −0.957275 | 1.06494 | −0.8989 | 0.3735 | |
| Regulatory Quality | 3.23664 | 2.37163 | 1.3647 | 0.1791 | |
| Ruleo flaw | −2.01748 | 3.07062 | −0.6570 | 0.5145 | |
| Voice and Accountability | 2.7707 | 1.41843 | 1.9534 | 0.0570 | * |

Table 2: Model 2 - OLS, using observations 1-55 Dependent variable: Write-off ratio

| Mean dependent var | 7.623636 |  | S.D. dependent var | 5.296027 |
|---|---|---|---|---|
| Sum squared resid | 1034.572 |  | S.E. of regression | 4.794839 |
| R-squared | 0.316928 |  | Adjusted R-squared | 0.180314 |
| F(9, 45) | 2.319873 |  | P-value(F) | 0.030617 |
| Log-likelihood | −158.7379 |  | Akaike criterion | 337.4758 |
| Schwarz criterion | 357.5491 |  | Hannan-Quinn | 345.2383 |

Table 3

|  | Coefficient | Std. Error | t-ratio | p-value |  |
|---|---|---|---|---|---|
| const | 2.44738 | 2.96284 | 0.8260 | 0.4131 | |
| MPI | 0.118169 | 0.232888 | 0.5074 | 0.6143 | |
| HDI | 0.241194 | 4.54803 | 0.0530 | 0.9579 | |
| Corruption Index | 2.50122 | 2.22931 | 1.1220 | 0.2677 | |
| Gov Effectiveness | −3.65554 | 2.60408 | −1.4038 | 0.1671 | |
| Political Stability | −0.0882338 | 0.541605 | −0.1629 | 0.8713 | |
| Regulatory Quality | 1.56153 | 0.903843 | 1.7277 | 0.0908 | * |
| Ruleo flaw | −0.716671 | 1.91436 | −0.3744 | 0.7099 | |
| Voice and Accountability | 0.185635 | 0.795312 | 0.2334 | 0.8165 | |

Table 4

| Mean dependent var | 2.935455 |  | S.D. dependent var | 2.917319 |
|---|---|---|---|---|
| Sum squared resid | 413.9722 |  | S.E. of regression | 2.999899 |
| R-squared | 0.099239 |  | Adjusted R-squared | -0.057415 |
| F(8, 46) | 1.354027 |  | P-value(F) | 0.241990 |
| Log-likelihood | −133.5494 |  | Akaike criterion | 285.0988 |
| Schwarz criterion | 303.1648 |  | Hannan-Quinn | 292.0851 |

The results can be interpreted as the confirmation of the impact of meso-institutional influences on the repayment capacity and determination of the microfinance clientele rather than of microfinance outreach or human development level. In other words, powerful institutional infrastructures seem to have a stronger influence on the write-off ratio as well as on the PAR30+ of the microfinance clients than depth and outreach of the sector or the human development.

## IV. Conclusion

The rather surprising finding of the study rejects the view of microfinance sector as a sector financing shadow economy co-existing in a parallel niche to institutional environment and thriving in the absence of institutions. On the contrary, it provides elements to the findings are aligned with the results of Vanroose (2008), who claims that wealthier countries with better institutions serve more clients.

Even though the generalizability of this research is limited due to the lack of longitudinal dimension of the cross-sectional measurement, the research provides a clue that possibly the view of microfinance as an embryotic sector isolated from mainstream developments is wrong. What if the view of microfinance as an immature financial sector considered as a promising development tool yet a source of credit risk born in uncontrollable environments may be more dependent on the need of assistance provided actively by regulators? What if the need for free expression and respectable accountable institutions may have an important microeconomic impact as the voice and accountability in the combination with the regulatory coherence could be even more important than political stability, microfinance outreach meaning the mature sectorial development and general prosperity level. The question raised by this research is what socio-economic mechanism and macro-microeconomic transforming subsystem lies behind this relationship and how this mechanism makes such voice and accountability in combination with the societal regulatory jacket impact the loans in arrears and the repayment capacity in microfinance portfolios. Understanding of the impact of the abovementioned macro institutional forces on the intimacy of repayment behavior in village banks may offer a new and a vast field of complexities and dependencies between the notion of citizenship, institutional development and finance.

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