
Waqas Amin* - Abdul Rauf[†], Muhammad Kaleem Khan[‡], Zeeshan Fareed[‡]

EFFECT OF OUTREACH ON THE EFFICIENCY OF MFIS IN LATIN
AMERICA: DYNAMIC PANEL DATA ANALYSIS

Abstract

The purpose of this study is to determine the empirical relationship between outreach and efficiency to identify whether these two constructs are compatible or contrary to each other. We have applied the most sophisticated techniques, OLS, random-effect model, and generalized method of moment (GMM), while dealing with dynamic data. Our results indicate a compatible relationship between depth of outreach (ALB) and efficiency and breadth of outreach, measured by the number of active borrowers (NOAB) and showing a negative impact on efficiency. The findings of the study may be helpful in reaching a deep understanding of the relation between outreach and efficiency to form future policies that are consistent with the far-reaching development of MFIs.

JEL CLASSIFICATION: A10, E50.

KEYWORDS: OUTREACH; EFFICIENCY; LATIN AMERICA;
DYNAMIC PANEL DATA ANALYSIS.

* School of Economics, Shandong University, Jinan. P.R. China, 27-Shanda nan lu, Jinan, Shandong, China, Phone: +86 13210541883; *E-mail address:* waqas.amin97@yahoo.com.

[†] School of Economics and Management Sciences, South East University, Nanjing, P.R. China; *E-mail address:* abdulraufhcc@gmail.com.

[‡] School of Economics and Management, Beijing University of Post and Telecommunication, Beijing, P.R. China; *E-mail address:* mkaleemkhan@yahoo.com.

[‡] School of Finance, Zhongnan University of Economics and Law, Wuhan, P.R. China; *E-mail address:* zeeshanfareed@hotmail.com.

1. Introduction

MFIs provide financial services to reduce poverty and improve social and economic conditions (Morduch 1999). Generally, poor people who have no access to formal lending institutions end up at the threshold of informal lenders and saving money under their pillows. MFIs discourage these unsecure and extortive measures of borrowing for poor people, offering them tailor-made financial services for saving and borrowing as per their necessities. Traditional banks and financial institutions discount these people as operating on a small scale, increasing transaction and monitoring costs; they also lack collateral to place against borrowings (Morduch 2000). Governments, NGOs, donors and large financial institutions, noting the significant role of MFIs in rendering financial services to the informal sector, started new microfinance projects (Conning 1999). These projects were encouraged when Muhammad Yunus was awarded the Nobel Prize for microfinance in 2006, and 2005 was proclaimed to be a microfinance year (Hudon 2009).

MFIs have been flourishing since then, attracting greater numbers of borrowers, offering new financial services, and incorporating new ideas to move further. Donations and subsidies are part and parcel of long-term sustainability for MFIs; however, these sources of funds are shortened due to a recent global recession (Pollinger et al. 2007). Therefore, MFIs have shifted their focus from donations to internal sources of finance to becoming sustainable institutions that prioritize durable performance. There appears to be a massive move of MFIs from being subsidized institutions to efficient, financially sustainable and profit-oriented institutions, i.e., institutions that place profit-making as their primary objective. This profit orientation enables the institutions to cover the costs of lending from revenue earned from portfolio advances and to shrink these costs to the greatest possible extent.

This shift in ideology of MFIs is followed by several fundamental changes such as augmented competition, commercialization of MFIs, technological revolution and changes in regulations (Rhyne and Otero 2006). Due to these developments, MFIs are attempting to change their behaviour and increase their product range. However, reaching the poorest of the poor and serving them with smaller loans is more challenging.

Researchers generally believe that these sustainable MFIs provide products so customized to the clients that they provide sufficient return to the MFIs, enabling them to satisfy the lending costs that ultimately make these MFIs sustainable institutions (Rhyne 1998). The sustainable MFIs are better able to eliminate poverty as these institutions charge greater rates of interest on well-off customers. They also visit clients' locations for collection, which simultaneously serves as a check on the progress of the projects. However, MFIs are exposed to distinct challenges for fascinating private investments, improving competence and achieving autonomy when serving the bottom-line poor.

The question that crops up here is whether and to what extent outreach has an impact on the efficiency of MFIs. The commercialization of MFIs may contribute to the outreach of MFIs by extending the amount of loans to the poor, providing them greater access to MFIs. Additionally, augmented competition, technological improvements and governmental policies may improve the efficiency and financial sustainability of MFIs and may increase resources for helping the poor. Thus, it can be argued that outreach and efficiency are compatible.

However, targeting financial sustainability may require sacrificing lending to the poorest of the poor. In some cases, lending to the poor may be very expensive, and therefore, outreach and efficiency may be incompatible. In the literature, particularly that referring to policy making, there is great debate on whether efficiency, sustainability and outreach are compatible or if they have trade-off value with each other (e.g., Kumar and Sensarma 2015; Rehman and Mazlan 2014; Kar 2011 and Hermes 2007). The debate generated two schools of thought, a welfarist view prioritizing outreach and an institutionalist view emphasizing financial sustainability.

Our study aims to go beyond the existing empirical analyses (e.g., Kumar and Sensarma 2015; Kablan 2012; Hermes 2011; Hermes 2007) by providing an in-depth analysis of the potential compatibility or trade-off between the efficiency of MFIs and their outreach by using a large dataset containing information for a large number of MFIs over a longer period of time. For the purpose of analysis, our dataset comprises 405 MFIs over 21 Latin American Countries for the period of 2005 to 2014 collected from the MixMarket database.

2. Literature review and hypothesis development

Many MFIs are functioning on the basis of donations and subsidies, which indicates their dependence on donors' funds. A great emphasis on the issue of sustainability has evolved into two approaches, the welfarist approach and the institutionalist approach (Robinson 2001). The welfarist approach suggests that microfinance institutions serve the poor with government donations and subsidies irrespective of financial sustainability (Morduch 2000; Dichter 1997; Hulme and Mosley 1996). According to this view, outreach and financial sustainability are negatively correlated, as serving the poor with small loans bears high costs. They also argue that the breadth and depth of outreach are reverse-edged as larger breadth can pay off for larger depth (Schreiner 2002).

The approach identifies MFIs as effective for reducing poverty and susceptibility as well as recovering the prosperity of the poor (Bassem 2012) as it highlights the access to the poor with suitable financial services to cater to their needs (Rhyne 1998). In this view, the difference between income and credit costs is curtailed by government subsidies and donors' funds, and the level of success of MFIs is determined by the extent to which poor people are served (Schreiner 2002). The most highlighted practical example of this approach is exercised by Grameen Bank (Robinson 2001).

On the other hand, institutionalists argue that MFIs focus on obtaining financial sustainability through rendering financial services to a greater number of people with greater efficiency, charging high profit rates and operating at a large scale (Bhatt and Tang 2001). The proponents of this approach claim that financially sustainable institutions can operate for longer time periods, serve with broader outreach and thus become capable of serving the poorest people. They argue that the purpose of MFIs is to enlarge the boundaries of financial systems in the long run, while having a greater breadth may cause lower depth (Schreiner 2002; Von Pischke 1991). According to this financial approach, governments and NGOs are merely temporary sources of funding, while welfare can be achieved over the longer run and by deepening financial access for the poor by making MFIs such that private investors find it profitable to invest (Schreiner 2002). According to this approach, MFIs target their financial services to poor people who have productive ideas and want to effectively use these ideas to be financially self-sufficient (Bassem 2012).

The literature does not provide widespread evidence on this issue and is generally subjective. The most recognized study on the issue was conducted by Cull et al. (2007) and determined the relationship between outreach and performance over 49 countries and 124 MFIs. The basic objective of the study is to determine whether there is a trade-off between the depth of outreach and performance. The study shows that the profitability of MFIs focusing on individual loans is better than the MFIs that provide group lending. The study also observed that MFIs focusing on individual lending have a high proportion of clients who are better off and a low proportion of borrowers who are women, which is termed mission drift.

Hence, for policy formulation, it is very important to know whether efficiency and outreach are compatible or incompatible. Unexpectedly, a few studies have been conducted on this issue in an appropriate manner. A majority of studies are merely subjective and are investigated using insufficient datasets, with the exception of a few including Cull, Demirgüç-Kunt, and Morduch (2007). Thus, there is vast room for improving our understanding of this issue. Other important studies on the issue are discussed below:

Hermes et al. (2011) investigated the existence of a trade-off between sustainability and outreach using data from 435 MFIs for the period from 1997 to 2007. The study determines the relationship between cost efficiency as measured by stochastic frontier analysis and depth of outreach as measured by average loan balance (ALB). The study found a significant negative relation between cost efficiency and depth of outreach. Stated more technically, MFIs with a high level of ALB usually have low efficiency. The results are found to be robust after the addition of several control variables. The study of Hermes et al. (2011) is the most acknowledged work on the outreach and efficiency relationship.

Cull et al. (2011) also conducted an important study to add to our insight into the relationship between outreach and efficiency. The study also controlled the relationship between outreach and efficiency by including supervision and regulations in the model. The majority of MFIs, particularly large MFIs, started to obtain deposits from the public (Harsarska et al. 2007), the safety of which has become a pertinent policy issue. The regulations and supervision have increased lending costs for MFIs, which raises the question of whether such incremental costs have implications for profitability/efficiency and outreach. Using data for 245 MFIs, the study shows that supervision has a negative relationship with outreach whereby it

is negatively related with the percentage of borrowers who are women and positively related with the average loan balance.

Wydick, Karp and Hilliker (2011) determined the factors of outreach. In particular, the study examined the role of social networks in determining access to micro-financing. A recent trend of studies has been seen focusing on how social networks determine individual decision making. The study found several reasons for imitation of behaviour among a social network or group: (1) the members of a social network face identical circumstances; (2) they have similar backgrounds; (3) they show consistency with the group by demonstrating similar behaviour; and (4) they imitate the behaviour of others, as this may be contributory to the acquisition of particular goals. The approach of this study was used by Wydick et al. (2011) in determining how to spread MFIs to prospective customers in rural and urban regions. The study used data from 465 households in Guatemala. The empirical results show that the access to credit of households is significantly linked to their church networks. The important implication for the study is that MFIs should consider social networks to broaden or deepen outreach about their financings.

Abate, Borzaga and Getnet (2014) analysed the relation between cost efficiency and depth of outreach using a sample of 107 MFIs in Ethiopia. The study found that obtaining cost efficiency and serving the poor at the bottom are contradictory objectives, and the more cost-efficient MFIs are those with high average loan balances per borrower. Bos and Millone (2015) examined the trade-off between social and financial efficiency. The study suggests that the depth and breadth of outreach both decrease due to mission drift.

Given the above discussion, we may conclude that the relationship between outreach and efficiency has mixed empirical as well as theoretical literature. One group determined access to have a negative relationship with efficiency, as found by Navajas et al. 2000, Cull et al. (2007), Hermes et al. (2011) and Kar (2012), and another group determined access to have a positive relationship with efficiency, as evidenced by Robinson (2001), Zeller and Meyer (2002), Quayes (2012) and Montgomery and Weiss (2011). Therefore, we propose the following hypothesis:

Hypothesis: the breadth of outreach has a positive impact on efficiency, and the depth of outreach has a negative impact on efficiency.

3. Methodology

3.1. Data collection and Measurement of Variables

Data were collected from MixMarket and World Bank Development Indicators (WBDI) for 21 countries in Latin America consisting of 405 MFIs from 2005 to 2014. Variables may have missing values due to MFIs' entry into or exit from industry. We present the following explanation and measurement of selected variables:

Operational efficiency denotes the extent to which MFIs are able to deliver services to the poor at minimum cost (Bhatt and Tang 2001). The foremost purpose of MFIs is to provide services to the low-income class who have no access to banking credit and small-sized loans without any collateral. The provision of such small-sized credits is always costly and inefficient to MFIs. The extension of a few big loans is relatively less expensive than several small-sized loans due to several fixed costs associated with advancing activities such as monitoring and transaction costs (Meyer 2002). Therefore, one of the biggest trials for microfinance is to operate at minimum cost to diminish the charges incurred by borrowers (Gonzalez 2007). Inefficiency is one of the important factors restricting the sustainability of MFIs. Many of the institutions are far flung from obtaining economies of scale for disbursement of these costs (Ledgerwood 1999).

Measurement of efficiency is generally performed using accounting ratios such as operating ratio and cost per borrower (Quayes 2012; Cull et al. 2007). Some recent studies used the latest economic techniques such as stochastic frontier analysis and data envelopment analysis (Servin et al. 2012; Hermes et al. 2011; Hasan and Tufte 2001; Haq et al. 2010; Gutierrez-Nieto et al. 2007). In this study, efficiency is measured by cost per borrower (CPB) (Quayes 2012; Hudan and Traca 2011).

Outreach is defined as the degree to which financial services are provided to the bottom-line poor. It is multi-dimensional, including depth and breadth of outreach. Depth of outreach is measured using the average loan balance (ALB) as a proxy, and the breadth of outreach is measured using the number of active borrowers (NOAB) as previously measured by Ashraf et al. (2014).

Additionally, several controlling variables included in the study are divided into two classes: institutional variables and macroeconomic variables. Institutional variables include regulation status, type of ownership, number of offices, capital ratio, diamonds, and size and age of MFIs.

Macroeconomic variables include real GDP and number of total MFIs in Latin American countries (table 1).

Table 1. Measurement of Variables.

Variables	Notation	Measurement
Outreach Depth	ALB	Average loan balance per borrower
Outreach Breadth	NOAB	Number of active borrowers
Efficiency	CPB	Cost per Borrower
Control Variables		
Regulation status	RG	1 if Regulated & 0 if not regulated
Type of ownership	Bank, NGO, CO, NBF1	1 if concerned ownership, otherwise 0
Number of Offices	OFF	Number of offices in a country
Capital Ratio	ETA	Equity to total assets
Number of diamonds	DM	Number of diamonds earned
Size	SIZE	Total assets
Age	AGE	1 if new, 2 if young and 3 if mature
GDP	GDP	Real GDP
Number of MFIs	COUNT	Number of MFIs in a country

3.2. Econometric Analysis

On the basis of the above discussion, we are able to form the following equation to be estimated in this chapter:

$$E = \alpha_1 + \alpha_2 OR_{it} + \alpha_3 control_{it} + \epsilon_{it}$$

where E denotes efficiency, OR_{it} reflects the vector of outreach and $control_{it}$ refers to the vector of other controlling variables included in the study. Moreover, ϵ_{it} is an idiosyncratic term.

Econometric analysis is conducted using a panel data approach that is effective against multicollinearity and improves the degree of freedom

(Hsiao 2014). Generally, panel data analysis includes a fixed-effect model (FE) and random-effect model (RE).

The model of the study includes time-invariant variables such as ownership status; therefore, we used an RE model when the FE model was not efficient. RE is run with robust standard error clustered at the institution level to control heteroscedasticity and autocorrelation (Wooldridge 2002).

As a base model, we run OLS with robust standard error (SE) that is effective against heteroscedasticity and autocorrelation. To identify the appropriate model between OLS and RE, we found the Breusch-Pagan Lagrange multiplier (LM), which shows that RE is appropriate for the model of the study.

Quayas (2012) states that the model with outreach and efficiency may have problems of endogeneity, as the study claims that outreach is determined by profitability and that simultaneously profitability is determined by outreach. Therefore, we enlarged our estimation to the two-step generalized methods of moment (GMM) of Arellano et al. (1995) together with the Roodman (2006) procedure combined with finite-sample corrected SE suggested by Windmeijer (2005).

4. Results

We present the result of outreach with efficiency while controlling other variables. The LM test shows that the results of RE are more reliable than OLS. Nevertheless, OLS is presented as a threshold model. Finally, we used a dynamic panel data technique that is recognized to be the most powerful approach in cases with panel data.

Table 2 presents the relationship of outreach with efficiency. We found a negative impact of ALB on CPB as previously found by Quayas (2012). It may be because small loans have identical terms that entail diminished costs of MFIs relative to the larger loans that produce high administrative costs and high CPB. However, the coefficient is insignificant. Breadth (NOAB) is also found to have an accelerating effect on efficiency, although diminishing CPB as the coefficient of NOAB is found to be negative and significant using OLS as well as RE. The type of ownership has no effect on efficiency as is found in the case of profitability. OFF is found to have a positive coefficient for CPB, but this is significant only in the case of OLS. The increase in OFF reduces efficiency by increasing CPB. SIZE is found to have a positive impact on CPB as an increase in size increases the cost per

borrower due to agency and dysfunction problems (Karray and Chichti 2013). AGE is found to have a negative coefficient for CPB but only in the case of OLS. This indicates that mature firms are better able to reduce CPB, thus increasing efficiency. RG is found to have a positive coefficient for CPB as RG increases cost per borrower and reduces efficiency. Diamond rating (DM) is significant and has a positive coefficient in the OLS as well as the RE model. ETA is observed to have a negative coefficient, indicating that highly capitalized MFIs are more efficient in reducing CPB and enhancing efficiency. GDP is found to have a positive coefficient, and finally, COUNT reduces cost per borrowers, making MFIs more efficient.

When selected variables are thought to have the problem of endogeneity, the estimations should not be confined to OLS or RE. Therefore, we extended our estimations to the GMM technique to address this issue. Efficiency (CPB) is found to be significantly positively related with ALB and negatively related with NOAB as found using OLS and RE. SIZE and GDP are found to be significantly related as found in the OLS and RE models. AGE has a significantly negative coefficient that is also consistent with previous results found by OLS and RE. Moreover, types of ownership, COUNT, ETA, DM and RG are found to be insignificant. The diagnostic tests also verified the goodness of the model with significant AR(1) and insignificant AR(2). The validity of the instruments is confirmed with Hansen J-statistics that are found to be insignificant (table 3).

Table 2. Outreach and Efficiency.

CPB	OLS		RE	
	Coef.	t	Coef.	z
ALB	-.0298451	-0.81	.1046766	0.98
NOAB	-.6254453	-55.53*	-.6940463	-19.44*
CO	-.338234	-1.07	-.6041314	-4.76*
BANK	.0233782	0.07	-.2228124	-1.88***
NBFI	.116986	0.37	-.1205348	-0.97
NGO	-.0208181	-0.07	-.1919258	-1.44
OFF	.000551	2.23**	.0008842	1.50
SIZE	.5662075	15.32*	.511564	4.67*
AGE	-.1104768	-5.60*	-.0299438	-1.07
RG	.1258969	4.66*	.1383789	2.00**
DM	-.0279966	-2.17**	-.0263941	-1.16
ETA	-.1163331	-2.58**	.1137734	1.45
GDP	.1356963	20.06*	.1825576	12.28*
COUNT	-.2001319	-13.71*	-.1687311	-5.83*
C	-.0412086	-0.11	-2.051865	-4.62*
Observations	2625		2625	
F stat	357.48*			
Wald chi ²			8632.20*	
Adj. R ²	0.65		0.63	
LM test – chi ²		2771.31*		

Table 3. Outreach and Efficiency - Dynamic Panel Data Analysis.

Cpb	Coef.	Corrected Std. Err.	T	P>t
CPB				
L1.CPB	.2138669	.0701599	3.05	0.002
ALB	.2866753	.1487488	1.93	0.055
NOAB	-.6335601	.0802128	-7.90	0.000
OFF	.0116149	.085421	0.14	0.892
SIZE	.3098334	.1150265	2.69	0.007
AGE	-.1904116	.0864955	-2.20	0.028
GR	-.1352925	.1659165	-0.82	0.415
DM	-.051076	.0374184	-1.36	0.173
ETA	.1649877	.1717554	0.96	0.337
GDP	.0777567	.0220573	3.53	0.000
COUNT	-.0696825	.0510918	-1.36	0.173
BANK	.0366286	1.12754	0.03	0.974
NGO	.5885719	1.215051	0.48	0.628
NBFI	.4889812	1.182166	0.41	0.679
CO	-.1138162	1.139694	-0.10	0.921
C	-1.034874	1.56725	-0.66	0.509
F – stat	39.98*			
AR(1)	-3.84(0.000)	Hansen J-stat	307.19(0.155)	
AR(2)	1.33(0.182)			

5. Conclusion

The main objective of MFIs is to provide inexpensive credit to poor people who are not target customers of banks due to their shortage of collateral (Kent and Dacin 2013). Most of the MFIs report their mission as lending to the poorest and/or rural areas or empowering women (Serrano-Cinca and Gutierrez-Nieto 2014). However, recently, financial performance is deemed to be a necessary condition for achieving success as some researchers and practitioners argue that the provision of financial services to poor people over the long term cannot be provided unless MFIs are financially sustainable (Christen 2001). Therefore, Kent and Dacin (2013) note that performance and outreach are complementary to each other as the accomplishment of one reinforces the achievement of the other.

Nevertheless, in an economic condition with inelastic loan demand, charging high interest to strengthen financial performance merely reduces outreach in depth and breadth over the short term.

On the other hand, other groups suggest that the main purpose MFIs of reaching the poorest people, known as outreach, may be halted by focusing on financial sustainability. They suggest a trade-off between financial performance and outreach. The study is an attempt to address ongoing issues in the relationship between efficiency and outreach. The findings of the study will be useful for policy formulation that may provide important insights for the revolutionary development of MFIs.

Data were collected from MixMarket and World Bank Development Indicators (WBDI) for 21 countries in Latin America consisting of 405 MFIs from 2005 to 2014. Variables may have missing values due to MFIs' entry or exit from industry. Efficiency (CPB) is found to be significantly positively related with ALB and negatively related with NOAB. More specifically, efficiency increases with an increasing average loan balance per customer and decreases with an increase in the number of active borrowers.

References

Abate, G.T., Borzaga, C., Getnet, K. (2014), *Cost efficiency and outreach of microfinance institutions in Ethiopia: Do they contrast with financial cooperatives?*, Euricse Working Paper No. 65-14.

Arellano, M., Bover, O. (1995), *Another look at the instrumental variables estimation of error-components models*, Journal of Econometrics, 68(1), 29-51.

Ashraf, M.A., Hassan, K., Hippler, W.J. III (2014), *Performance of microfinance institutions in Muslim*, Humanomics, 30(2), 162-182.

Ayayi, A.G., Sene, M. (2010), *What drives microfinance institution's financial sustainability*, The Journal of Developing Areas, 44(1), 303-324.

Bhatt, N., Tang, S.Y. (2001), *Delivering microfinance in developing countries: Controversies and policy perspective*, Policy Studies Journal, 29(2), 319-333.

Conning, J. (1999), *Outreach, sustainability and leverage in monitored and peermonitored lending*, Journal of Development Economics, 60(1), 51-77.

Cull, R., Demirgu-Kunt, A., Morduch, J. (2007), *Financial performance and outreach: A global analysis of leading microbanks*, *The Economic Journal*, 117(517), 107-133.

Cull, R., Demirgüç-Kunt, A., Morduch, J. (2011), *Does Regulatory Supervision Curtail Microfinance Profitability and Outreach?* *World Development*, 39(6), 949-965.

Gonzalez, A. (2007), *Efficiency drivers of microfinance institutions: the case of operating cost*, *Microbanking Bulletin*, Autumn, 37-42.

Gutiérrez-Nieto, B., Serrano-Cinca, C., Molinero, C.M. (2007), *Microfinance institutions and efficiency*, *International Journal of Management Science*, 35(2), 131-142.

Hartarska, V., Chaudill, S. B., Gropper, D.M. (2007), *The cost structure of microfinance institutions in Eastern Europe and Central Asia*, William Davidson Institute Working Paper No. 809.

Hasan, M.K., Tuft, D.R. (2001), *The X-efficiency of group based lending institution: the case of Grameen Bank*, *World Development*, 29(6), 1071-1082.

Haq, M., Skully, M., Pathan, S. (2010), *Efficiency of microfinance institutions: a data envelopment analysis*, *Asia-Pacific Financial Markets*, 17(1), 63- 97.

Hermes, N., & Lensink, R. (2007), *The empirics of microfinance: what do we know?*, *The Economic Journal*, 117(517).

Hermes, N., Lensink, R., Meesters, A. (2011), *Outreach and efficiency of microfinance institutions*, *World Development*, 39(6), 938-948.

Hoque, M., Chishty, M., Halloway, R. (2011), *Commercialization and changes in capital structure in microfinance institutions: An innovation or wrong turn?* *Managerial Finance*, 37(5), 414-425.

Hsiao, C. (2014), *Analysis of panel data* (No. 54). Cambridge university press, Cambridge.

Hudan, M., Traca, D. (2011), *On the Efficiency Effects of Subsidies in Microfinance: An Empirical Inquiry*, *World Development*, 39(6), 966-973.

Kablan, S. (2012), *Microfinance efficiency in the West African economic and monetary union: have reforms promoted sustainability or outreach?*, MPRA 39955.

Kar, A.K. (2011), *Microfinance institutions: A cross-country empirical investigation of outreach and sustainability*, *Journal of Small Business & Entrepreneurship*, 24(3), 427-446.

Kar, A.S. (2012), *Mission drift in microfinance: are the concerns really worrying? Recent cross-country results*, International Review of Applied Economics, 27(1), 44-60.

Kumar, N., Sensarma, R. (2015), *Efficiency of Micro Finance Institutions in India: A stochastic distance function approach*, Working Paper 184, Indian Institute of Management Kozhikode.

Legderwood, J. (1999), *Microfinance handbook: Sustainable banking with the poor*, Washington, DC: World Bank.

Meyer, R.L. (2002), *Track record of financial institutions in assisting the poor in Asia*, Research Paper No. 49, ADB, Manila.

Montgomery, H., Weiss, J. (2011), *Can commercially- oriented microfinance help meet the millennium development goals? evidence from Pakistan*, World Development, 39(1), 87-109

Morduch, J. (2000), *The microfinance schism*, World Development, 28(4), 617-629.

Navajas, S., Schreiner, M., Meyer, L.R., Gonzalez-Vega, C., Rodriguez-Meza, J. (2000), *Microcredit and the Poorest of the Poor: Theory and Evidence from Bolivia*, World Development, 28(2), 333-346.

Olivares-Polanco, F. (2005), *Commercializing microfinance and deepening outreach? Empirical evidence from Latin America*, Journal of Microfinance, 7(2), 47-69.

Pollinger, J.J., Outhwaite, J., Cordero-Guzman, H. (2007), *The question of sustainability for Microfinance institutions*, Journal of Small Business Management, 45(1), 23-41.

Quayes, S. (2012), *Depth of outreach and financial sustainability of microfinance institutions*, Applied Economics, 44(26), 3421-3433.

Rahman, M.A., Mazlan, A.R. (2014), *Determinants of Financial Sustainability of Microfinance Institutions in Bangladesh*, International Journal of Economics and Finance, 6(9), 107.

Rhyne, E. (1998), *The yin and yang of microfinance: Reaching the poor and financial sustainability*, Microfinance Bulletin, 6-8.

Rhyne, E., Otero, E. (2006), *Microfinance through the next decade: Visioning the who, what where, when and how*, Paper commissioned by the Global Microcredit Summit 2006. Boston, MA, ACCION International.

Robinson, M. S. (2001), *The Microfinance revolution: sustainable finance for the poor*, World Bank, Washington, DC.

Roodman, D. (2006), *How to do xtabond2: an introduction to difference and system GMM in Stata*, Centre for Global Development, Working Paper No. 103.

Schreiner, M. (2001), *Informal finance and the design of microfinance*, *Development in Practice*, 11(5), 637-640.

Schreiner, M. (2002), *Aspects of outreach: a framework for discussion of the social benefits of microfinance*, *Journal of International Development*, 14(5), 591-603.

Servin, R., Lensink, R., Berg, M.V.D. (2012), *ownership and technical efficiency of microfinance institutions: empirical evidence from Latin America*, *Journal of Banking and Finance*, 36(7), 2136-2144.

Von Pischke, J.D. (1996), *Measuring the tradeoff between outreach and sustainability of micro- enterprise lenders*, *Journal of International Development*, 8(2), 225-239.

Windmeijer, F. (2005), *A finite sample correction for the variance of linear efficient two-step GMM estimators*, *Journal of Econometrics*, 126(1), 25-51.

Woller, G. (2002), *The promise and peril of microfinance commercialization*, *Small Enterprise Journal*, 13(4), 12-21.

Wooldridge, J.M. (2002), *Econometric analysis of cross section and panel data*, MIT Press, Cambridge, MA.

Zeller, M., Meyer, R. L. (2002), *The triangle of Microfinance: Financial Sustainability, Outreach and Impact*, The Johns Hopkins University Press, London.

Zerai B., Rani L. (2012), *Is There a Tradeoff between Outreach and Sustainability of Micro finance institutions? Evidence from Indian Microfinance Institutions (MFIs)*, *European Journal of Business and Management*, 4(2), 90-98.