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Microfinance, Governance and Economic Growth Causality in Cameroon

Microfinance, gouvernance et causalité de la croissance économique au Cameroun

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Abstract:

This paper contributes to the knowledge of development finance by providing a unique opportunity to develop microfinance banks (MFBs) production possibilities frontier (PPF) and a long run equilibrium supply model in order to demonstrate that good governance may lead to efficient economic outcomes and subsequently to economic growth. Due to the lacuna of works on the causal relationship between MFBs activities and economic expansion, we have proposed a specification of the economic development model which is consistent using our PPF Model and the Equilibrium Supply Long Run Models by supporting the hypothesis that there exists a long-run cointegrating relationship between microfinance activities and economic progress. For a robustness test related to our results, the paper has also performed a causality tests which suggest a bidirectional causality between microfinance activities and economic growth in the long run. Our results therefore give credence to the suggestion that the introduction of further compatible governance incentives which allows increases in MFBs efficiency will encourage economic advance.

Key words: Microfinance institutions, governance, economic growth, inadequacy, causality

Résumé :

Cet article contribue à la littérature du financement du développement en offrant une opportunité de développer une frontière des possibilités de production de la microfinance et un modèle d'offre d'équilibre à long terme afin de démontrer que la bonne gouvernance peut conduire à des résultats économiques efficaces et par la suite à la croissance économique. En raison de l'absence des travaux sur la relation causale entre les activités de microfinance et la croissance économique, nous avons proposé une spécification du modèle de croissance économique qui est cohérente avec notre frontière des possibilités de production et les modèles d'offre d'équilibre à long terme en soutenant l'hypothèse qu'il existe une relation de cointégration à long terme entre les activités des microfinances et la croissance économique. Pour la robustesse des résultats, cet article a également effectué des tests de causalité qui suggèrent une causalité bidirectionnelle entre les activités des microfinances et la croissance économique à long terme. Nos résultats donnent donc du crédit à la suggestion selon laquelle l'introduction d'incitations à la gouvernance plus compatibles qui permettent d'augmenter l'efficacité des microfinances stimulera la croissance économique.

Mots clés : Institutions de microfinance, gouvernance, croissance économique, insuffisance, causalité.

Introduction

Microfinance banks (MFBs) hold enormous potential for nationwide economic development as it supports the economic activities of poor people, and contribute in poverty alleviation Adegbola et al (2022), Asma et al (2021), Ogbonna (2022), Edwins (2020), Hala El Hadidi(2021), Muhammad (2020), Wachukwu (2018), Kerstin & Magdalena (2017), Osekhebhen (2014), Prince (2014) and Michael et al (2013). Because of its significance to reduce poverty, the role of MFBs in financial expansion has increased impetus during the last twenty years. MFBs Combining the social mission of facilitating the financial needs of low-income people with the business goals that drive MFBs to achieve self-sufficiency. The inadequate treatment of MFBs contribution to the economy by various economists such as McKinnon and Shaw (1973) is a limitation in their models which show that MFBs do not exert a causal relationship to economic growth.

The present paper breaks new ground in a number of ways. First, it adds value to the existing literature by addressing the importance of MFBs governance in poverty reduction. Several studies on MFBs have focused on its prevalence and contribution to growth. To my knowledge, no published studies on MFBs inefficiencies focus solely on governance and show scientific relevance to poverty reduction. The first and main purpose of this paper is to provide a unique opportunity to examine the link between MFBs effectiveness and poverty reduction through governance. In fact, MFBs governance has become increasingly important after globalization since more and more MFBs now have different sources of capital due to MFBs ability to access markets in increasingly sophisticated ways. The recent influx of investors providing capital to innovative MFBs has also raised important questions about the nature and quality of the governing bodies that run these institutions. This widens the *inadequacy gap* analyzed in this paper. Winning the trust of a whole new class of institutional investors requires significant improvements in best practices and fiduciary governance.

Secondly, we undertake an analysis which aims at filling the lacuna created by no econometric investigation related Cameroon's MFBs and economic expansion. The fieldwork related to MFBs in Cameroon indicated that they contribute to economic

development[1]. More importantly, a positive MFBs effect on economic growth is hypothesised by neostructuralist economists who view MFBs as flexible, dynamic and competitive[2] .

This paper attempts to offer a systematic theoretical analysis related to MFBs supply of services in order to endorse forthcoming guidelines for policy investigation on governance. Regardless of the fact that Kerstin et al (2017) were the pioneer to investigate empirical survey, excluding Cameroon in their Granger causality for economic expansion and MFBs, to my knowledge, the causality between MFBs and economic growth has not yet been determined in Cameroon.

Poverty reduction and its link to the abovementioned principles are the major debate in the present paper which is organised as follows: Section one undertakes a literature and econometrics reviews. Section two presents and investigates the inadequacy gap in a PPF and in a model equilibrium in the long run, section three carries out the causality tests between MFBs and economic growth and section four concludes.

1. Literature and Empirical Surveys

1.1.Literature Survey

One of the main differences in MFBs governance compared to corporate governance is that each member of the MFBs usually has one vote. Corporate shareholders, on the other hand, exercise control on a one-vote-one-share basis. In addition, MFBs are usually required to elect directors from among their members. On the other hand, while a corporation may elect anyone to serve on the board of directors, shareholders typically elect directors nominated by a nominating committee made up of incumbent directors, often on the recommendation of the chief executive officer. Businesses are funded by investors who can bring in varying amounts of capital. An MFB is generally funded by earnings held in proportion to the member's use of her MFBs' services. After all, businesses are typically designed to generate a return on investment, and MFBs are broadly designed to reduce the cost of goods and services. The main differences indicate that MFBs governance principles and practices differ in important ways from those common in investor-owned companies,

[1] See Jacob Tche A and B
[2] Van Wijnbergen (1983)

as explained below. However, there are also many similarities, and therefore many best practices of governance are equally applicable to an investor-owned company and her MFBs.

A MFB whose owner is also a client of the institution represents a form of ownership structure involved in the provision of services to micro-enterprises. MFBs mobilize savings from client members, which are unregulated or minimally regulated in many countries. The lack of regulation of MFBs, combined with ineffective governance by their boards, has led many to bankruptcy. Wamba et al. (2018) proposed, however, to improve performance by implementing differentiated governance mechanisms according to the MFB's legal status. There is a consensus among development finance economists that one of the fundamental requirements for sustainable economic development is good governance. Indeed, capacity building for effective and sound governance is a prerequisite for poverty reduction programmes. Relevant to MFBs is the concept of governance in the context of promoting poverty reduction. Good MFBs governance is participatory, as MFBs members have a say in the decision-making process based on their democratic tradition. Decision-making procedures and methods are transparent to ensure effective participation. Good governance promotes fairness and equal treatment based on the concept of non-discrimination. A fundamental consideration of good governance is the ability to develop governance resources and methods. In this context, the World Council of Credit Unions (WOCCU) formulated in 2005 principles for a tripartite governance system.

The goal of good governance initiatives in MFBs should be to develop capacities that are needed to realise development that gives priority to the poor. Therefore, financial accountability presents an extraordinary challenge seeking immediate and practical solutions in the context of governance. The challenge facing MFBs is to create a system of governance which promotes the process of decision making which directly affect economic growth. Bad governance renders MFBs inefficient and exacerbates poverty. Bad governance raises transaction cost and uncertainty in the economy. Bad governance also leads to inefficient economic outcomes as will be illustrated in the next section of this paper. It affects and inhibits members' investment in MFBs. For example, if potential members lose confidence in MFBs, their investment may be diverted to non-institutions

such as inefficient informal financial systems where interest rates averaging 200 per cent a year are charged to borrowers[3]. Such exorbitant interest rates constrain long-term investment and therefore fail to foster long-term economic growth. The latter will undermine MFBs ability to provide more financial services. This situation reduces the capacity to provide sustainable commodities for the underprivileged sections of the population. Bad governance is unfair and it imposes a regressive tax which falls heavily on small-scale enterprises. Bad governance in MFBs thus contributes to the *inadequacy gap* analysed in the sext section.

1.1.2. Governance Internal to MFBs

In addition to MFBs responsibilities to its members and to the public, there is also responsibility and accountability to the General Assembly, Board of Directors, management and employees. This responsibility and accountability, known as internal governance, is essential for the MFBs to function consistently and productively. In order to govern effectively internally, the General Assembly and Board have a duty to maintain effective structures, strive for continuity in the MFBs, maintain balance within the organisation, and be held accountable for their actions.

1.1.3. Governance for Individual Members

Regardless of the strength of the existing governance system, an MFB's Board of Directors is as strong as its individual members. Directors must have the integrity, competence and commitment to serve the interests of the MFB and ensure that their work is not wasted. The success of the external and internal governance principles is entirely dependent on a board where each member meets standards of integrity, competence and individual governance commitment.

The objective of good governance ingenuities in MFBs should be to boost abilities that are required to encourage progress that provides precedence to the poor. Therefore, immediate and practical solutions in the context of governance are sought due to financial accountability which presents an extraordinary challenge.

[3] See Jacob Tche (2007)

Although there was a substantial amount of literature stressing the importance of financial development in the process of economic growth, relatively little attention was paid to the question of the role of MFBs and growth until the publication of McKinnon (1973) and Shaw's (1973) pioneering work where it is argued that the expansion of MFBs was one the main causes of the financial crisis in developing countries. Indeed, they stated that financial liberalisation will reduce the role of MFBs. The theoretical background to such policies recommendations which neglects the role and importance of MFBs have constituted policy practice in all developing countries including Cameroon. Paradoxically, McKinnon did recognise the effectiveness of MFBs staff and advocated the utilisation of their experience when he noted that 'Alternatively, a rapidly expanding banking system may even exploit the experience of former moneylenders by making them loan officers'. It can therefore be argued that the McKinnon complementarity hypothesis assumes that MFBs are considered as institutions not contributing to economic growth.

Shaw's (1973) debt-intermediation view is also consistent with McKinnon's complementarity hypothesis in the sense that only banks can increase incentives to save and invest. This means that Shaw (1973) does not also consider MFBs as an institution contributing to economic growth. He argued that MFBs is only an imperfect substitute for the formal market . Shaw pointed out that the relative importance of the MFBs depends on the degree of repression applied to the banking system

McKinnon (1973) model and Shaw (1973) model overlooking the role of MFBs is a failure which may prove a limitation as MFBs assets may contribute to economic expansion. The McKinnon-Shaw approach extended by Kapur (1976), Galbis (1977), Matheieson (1980), and Fry (1995) also failed to capture the role specific factors such as MFBs in their models. They therefore add little to the fundamental philosophies but rather formalise the McKinnon model and Shaw model.

The main opponents of the Mckinnon approach and that of Shaw are neostructuralists who suggested that If for instance, people shift mainly out of MFBs assets after an increase in bank deposit interest rates, growth will shrink due to bank reserve requests while MFBs free from reserve requests provide intermediation exactly equal to the amount received.

Taylor, in 1983 utilised a different approach from that of Van Wijnbergen to make a similar conclusion about an opposite relationship between MFBs and growth. He highlighted the distinction of formal money markets and MFBs. If additional money becomes assigned to banks as interest rates increases, loans total supply is likely to decrease since banks are are under reserve requirements obligation while MFBs are not.

1.2.Econometrics Surveys

There have been few econometrics work on the causallity between MFBs and growth. Kerstin et al (2017) for example, based on microfinance-specific data for 952 MFBs from 101 nations related to the 1995-2012 periods, established two ways causal relations for both MFBs' and growth.

Ekpete, Marshall Simon (2017) investigating MFBs and growth in Nigeria during 1992-2014, the test reveals the presence one-way relation causality from growth to MFBs.

Eigbiremolen et al (2014), employed the Granger causality test in their 1992-2012 investigation of microfinance in the Nigerian economy. They concluded that there is a unidirectional causality running from economic growth to microfinance operations.

For the case of Cameroon, Wamba et al (2018) rather investigated if the legal status of MFBs is affected by governance mechanisms. The econometric works indicated that the performance of the MFBs is not significantly and overwhelmingly affected by mechanisms of governance. Their studies also showed that the performance of MFBs is improved when governance mechanisms is differentiated according to the MFBs legal status.

Our econometric tests survey therefore indicates the lacuna of works on the causal relationship between microfinance activities and economic growth in Cameroon. We endeavour to undertake an analysis which aims at filling the gap.

2. The Inadequacy gap in a Long Run Equilibrium Model in a PPF

Gonzalez-Vega (2003) and Gobezie (2005) argue that the *inadequacy gap* separates the existing supply of services and the possible supply of services. Possible supply is the amount of services that could be provided, given factors such as good governance.

The current services' supplied and the possible services' supplied are different because all accessible resources enabling the production related to various types of services are not being used efficiently (Gonzalez-Vega, 2003). Developing countries, where MFBs is found

have a pro-governance possible supply of various types of services. When bounds that describe the frontier are reached, there will be a trade-off between the production of financial services in our PPF.

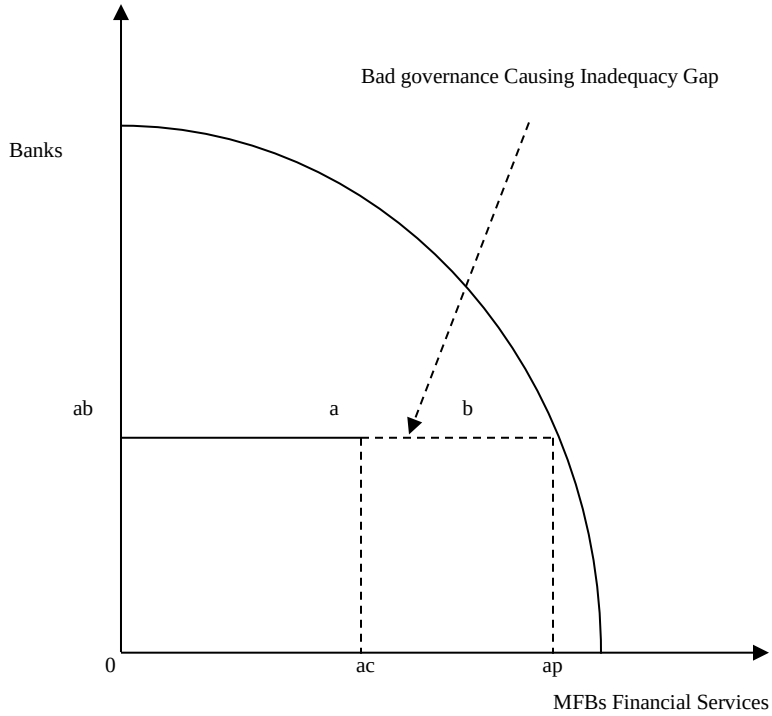
Figure 1 illustrates the highest combinations of banking sector and MFBs activities in the economy. The vertical axis indicated amounts of services of banks activities, while the horizontal shows the amounts of MFBs activities. *a* is an inefficient point on the PPF because it is, for example, possible to provide additional MFBs financial services with no trade-off of banks financial services. Therefore, shifting from combination *a* to combination *b* would boost the efficacy of MFBs. Thus, the PPF shows the coordinate where society produces resourcefully. *b* is said to be a technically efficient combination since at *b* the MFBs potential supply of financial services cannot be increased without decreasing bank potential supply of financial services.

The existence of an *inadequacy gap* is characterised by the current association of banks with MFBs financial activities found at *a*, which is below the PPF as shown in Figure 1. Currently at point *a*, financial services are producing an amount *ab* of bank financial services and an amount *ac* of MFBs. The distance between the current situation at a and a combination at the frontier, at a graphical combination such as *b*, estimated here as the space between *ac* plus *ap*, characterises the *inadequacy gap* in the MFBs financial activities provision, keeping the bank financial activities –*ab*– constant. With features like decent accountability, MFBs markets could offer better outreach and sustainability outcomes in reaching the poor than is currently the case. Because there isn't any technical proficiency and additional financial activities could be produced, there are leakages and wasteful current resources employment.

The above inadequacy gap is due to the absence of appropriate structures of good governance incentives within MFBs. Bad governance must no longer be used to attain a frontier. It is worth noting that attaining the frontier of expected supply necessitates that, in a decision making process and in their tasks performance, the suppliers of MFBs financial activities have incentives which are likeminded with capability plus sustainability. Eventually, the performance of MFBs associated to the decisions of their owners, managers and staff. Let us assume the specific objective function of each investor,

their activities shall respond to the prevailing incentive structures, and in turn the latter actions shall determine the organisation's performance. Furthermore, attaining the frontier necessitates structures of incentives matching technical efficiency. Generally, the pertinent arrangement of incentives emerges from structures such as the organisation good governance mechanisms, the task that it is expected to pursue. The structure of property rights determines, in the organisation, who has decision-making powers and who the residual claimants are, from those choices. The mission suggests programmed criteria which guide the collective elections of those involved in MFBs. The procedures for decision-making is defined by cood governance mechanisms. Many flaws in ownership and governance that explain MFB's main *inadequacy gap*. Lack of proper governance usually leads to technical inefficiencies. Most microfinance in developing countries are characterized by attenuated property rights and do not generate optimal levels of internal control, which would guarantee the search for technical efficiency and sustainability. There are a few exceptions, of course, but these typically reflect the influence of unusual and highly committed individuals, not any strengths of institutional design.

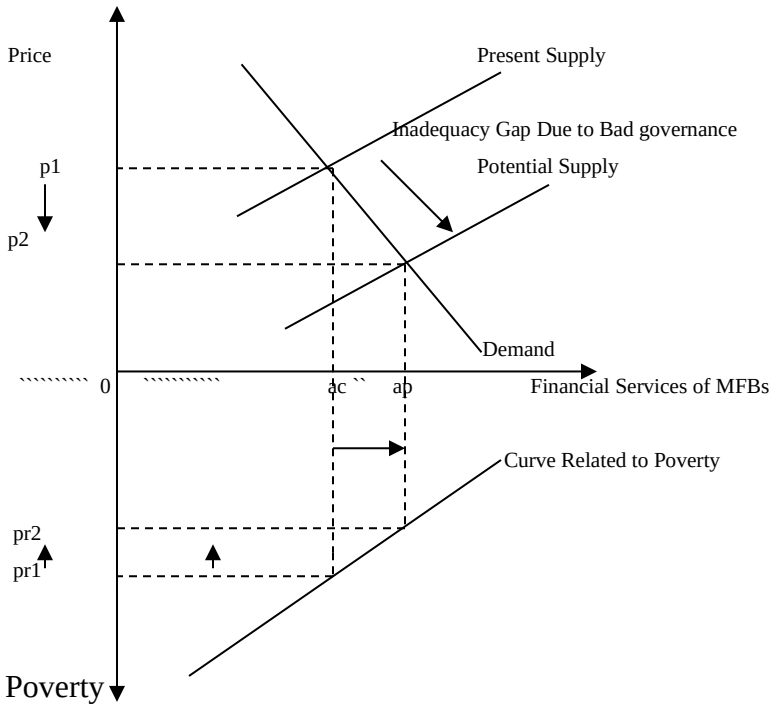
Figure 1: PPF for the Inadequacy gap and Financial Services.



Source: Author

Figure 2 shows that the level of MFBs finance services and that of poverty reduction in a given economy are stimulated by good governance. Good governance rises MFBs services from *ac* to *ap* since many people will be interested in depositing their reserves in MFBs which will then employ these savings to offer further financial services by moving from their current supply at *ac* to their potential supply at *ap*. Figure 2 also presents the influence of financial services on the reduction of poverty. For example, Figure 2 indicates that, a move from MFBs supply of exiting services (*ac*) to MFBs supply expected potential services (ap), due to good governance, will exercise a downward pressure on prices from p1 to p2 of financial services and consequently contribute to poverty reduction illustrated by the shift from pr1 to pr2.

Figure 2: The Inadequacy gap and the Long Run Equilibrium Supply Model.



Source: Author

For several reasons, good governance found in MFBs has been overwhelmingly important. Firstly, the size of MFBs assets, reflecting their portfolio, increases considerably due to the fact that the size of the structures of MFBs grows substantially. Added input and involvement by a board is required to confirm effective management of the latter growth.

Furthermore, growing MFBs institution numbers are increasingly regulated. Collecting deposits from savers and investors is their main challenge and requires the most scrutiny. Finally, MFBs function in a progressively market characterised by a lot of competition. They therefore have to have as main strategic objectives boost the current market share. For an effective governance of MFBs, their Board of Directors tasks should be well specified.

Overcoming the abovementioned organizational design deficiencies is one of the most important and challenging tasks in the process of deepening MFB. This task requires good governance provisions. Choosing to support the modernization of an existing MFB comes with important trade-offs to remedy the lack of governance deficiencies. The choice is likely to depend on the specific first conditions of each country and the MFB's ability to adapt to WOCCU (2005) governance principles.

We indicated earlier on that relatively little attention has been paid to the question of the role of MFBs on economic growth. Furthermore, the theoretical background to policies recommendations which neglects the role and importance of MFBs have constituted policy practice in many developing countries including Cameroon. However, Figures 1 and 2 show that MFBs financial markets, due to factors such as good governance, can provide better outreach and sustainability outcomes to reach out to the poor and boost economic growth. This consequently reduces the price of financial services from p1 to p2 and poverty from pr1 to pr2. For example, responsible corporate governance helps improve MFBs services as many individuals are motivated to invest their savings in his or her MFB. The new savings will then then be utilised by MFBs to boost investment by issuing loans which will stimulate economic growth. In other words Figures 1 and 2 provide a primary indication that MFBs savings and loans could cause economic growth. The direction of the latter causality is the rational of the econometric studies undertaken in the next section.

3. Causality between MFBs and Economic Growth

The review of Econometrics studies has indicated the exclusion of Cameroon in the existing scanty results. However, Cameroon is the fourth African country in terms of total MFBs savings and loan[4] and the country in the world with the highest informal financial

[4] World Council of Credit Unions 2016 Financial Report.

market per capita ratio[5]. More importantly, MFBs were found to contribute to economic development in our fieldwork survey[6]. On the basis of this evidence we attempt to test the MFBs causality with economic growth equation for the case of Cameroon. Our econometric analysis contains the unit root, the cointegration tests, Error Correction Mechanism (ECM) and the Granger Causality Test.

3.1.Econometric Models and Estimation Results

The general approach to the present econometric analysis is based on the test of the above PPF and the Equilibrium Supply Long Run Models indicating that with factors such as good governance, MFBs could further reduce poverty captured in this study by increase economic growth. On the basis of the analysis of fieldwork findings, it was concluded that MFBs size and persistence in Cameroon may testify to their inherent strength and economic rationale. This conclusion was supported by the governor of the regional central bank (BEAC) who acknowledged that

> 'the emergence of micro-enterprises constitutes the starting point for any developing economy. In the case of Cameroon, this could not have been possible without the full involvement of credit unions and the tontine'[7]

Arestis (1993) asserted that MFBs emerge as a flexible and dynamic alternative to the official banking system'[8]. This and other evidence suggests that MFBs may exert a considerable influence on economic growth.

Before discussing the econometric results, note that in developing countries, poor data quality and lack of sufficiently long series pose serious problems. Nonetheless, this probable source of error from erroneous specifications holds true for empirical studies in all developing countries.

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[5] Shreider (1989 p.18) concluded that `the country in Africa where informal saving and credit associations appear to be the most widespread is Cameroon'. Bouman (1994 p.375) indicated that `to a large extent tontines have gained their fame in literature from studies of the Bamileke in Cameroon'. Since Popiel (1994 p.55) argued that `ROSCAs and moneykeepers are prevalent in Africa than in Latin America and Asia', we may therefore conclude that Cameroon is likely to be the country in the world with the highest tontine per capita.

[6] See Jacob Tche (2009) A and B

[7] Cameroun Tribune (1991) N0 4839 Mercredi 6 mars p.5.

[8] Arestis and Demetriades (1993) p.6.

3.2. Specification of the Economic Growth Model

We measure economic growth by the real GDP growth (GDP) following the example of Lopatta and Tchikov (2016) and Schicks, 2014). As proposed by Arestis (1988), we consider as a proxy for credit restraint, (d - i) which stands for the real deposit rate of interest where d is the expected nominal deposit interest rate and i the inflation expected rate. Empirical relevance of real exports on the economic growth is investigated via the introduction of E in the real GDP equation. The MFBs effect is captured in the real GDP equation by CL and CS respectively representing MFBs real loans and real savings designed to test MFBs contribution to economic growth as demonstrated in the Production PPF and the Equilibrium Supply Long Run Models.

3.3. The Test of the Unit Root

The unit root test is the test of nonstationary time series that has become widespread in recent years. The unit root test is undertaken based on the following formula:

$DY_t = \alpha Y_{t-1} + \varepsilon_t$

where $\alpha = (P - 1)$ and, D stands for first-difference observations. We test the H_0 that $\alpha = 0$. If $\alpha = 0$, then $P = 1$, indicating a nonstationary time series known as unit root.

We will employ the augmented Dickey–Fuller (ADF) test if we suspect serial correlation of ε_t, based on the econometrics equation stated below:

$$Dy_t = \lambda + \alpha t + \beta y_{t-1} + \sum_{j=1}^{K} \Phi_j Dy_{t-j} + \varepsilon_t$$

Table 1 shows the test of nonstationary time series. Due to the fact that τ (tau) statistic < Critical Value at 5% significance level for all variables, we therefore, reject H_0 for CS, CL, (d-i) and EXP. We conclude that the latter variables in our sample are I(1). It should be noted that due to the fact that the serial correlation tests of the GDP's u_t was significant at 5% level, we then applies ADF unit root tests which indicated a critical ADF τ value < $t^*_{0.05} = -3.600$. The null hypothesis was accepted in the case of GDP.

Table 1: Tests of Nonstationary Time Series (Unit Root)

	DF	
Indicator	τ (tau) Test statistic	Critical Value at 5%
CS	**-4.419**	**-3.000**
CL	**-5.998**	**-3.000**
(d-i)	**-4.202**	**-3.000**
EXP	**-5.186**	**-3.000**
GDP	**-4.879**	**-3.600**

Source: Author

The above results lent credence to the inference that u_t are white noise variables. It is, therefore, possible to use a cointegration methodology in order to determine whether a linear combination of the economic growth variables is I(0) and then has a unique cointegrating vector.

3.4. Cointegration Tests

Many methods have been proposed in the literature to test cointegration, but here we consider the ADF unit root test of the estimated residuals from cointegration regression. Note that ADF tests are known in the current context as Engle-Granger (EG) and Augmented Engle-Granger (AEG) tests. First, we regressed GDP on CS, CL, (d-i), EXP, and GDP_{t-1}.

Before undertaking the ADF unit root test on the residuals estimated from the cointegration regression, the results of the suggested economic growth model in Table 2 indicate that the estimated parameters of CL and EXP are positive and statistically significant at the 5% significance level. While CS is positively and statistically significant at the 10 per cent levels. Table 2 also indicates that (d-i) and GDP_{t-1} are statistically significant.

The following regression has occurred:

Table 2: Estimated Cointegrating Regressions (1996-2020)

Independent Variable	**Parameter**	**Test statistic**
Dependant (GDP)		
Constant	0.2*	1.90
CS	0.002*	1.78
CL	0.002**	2.30
(d-i)	0.0002	1.41
EXP	0.008*	7.28
GDP_{t-1}	-0.06	-1.92
R^2	0.88	

Note: * and ** indicate statistical significance at the 10% and 5% levels, respectively.

Source: Author

Table 3: Diagnostic

	DF	
Variable	**Test Statistic**	**5% Critical Value**
Mean VIF	1.57	30
$\chi^2_H(1)$	**0.28**	1.42

Source: Author

The associated diagnostic statistics at the 5 per cent level of significance reported in Table 3 provide no ground for concern. The Lagrange multiplier test of residual serial correlation (χ^2_{SC}) indicates that there is no serial autocorrelation. Likewise, the variance inflation factor (VIF) indicates that there is no Multicollinearity.

Since, GDP, CS, CL, (d-i) and EXP are individually stationary, there is no possibility that this regression is spurious.

Furthermore, when we performed a unit root test on the residuals obtained from the cointegrating regression, we obtained the following results:

Table 4: Residuals Tests for Unit Root

	ADF	
Variable	**Test Statistic**	**1% Critical Value**
Residuals	**-5.277**	**-3.600**

Source: Author

Table 4 reports the unit root tests on the residuals. It can be seen that the augmented Engle–Granger critical τ value < $t^*_{0.01}$ = -3.600. We accept the null hypothesis of no unit root in u_t. Therefore, our conclusion is that the residuals from the regression of GDP on CS, CL, (d-i), EXP and GDPt-1 are I(0); that is, there is a unique cointegrating vector in all economic growth combinations.

3.5. Error Correction Mechanism (ECM)

The error-correction term was primary utilised by Sargan and, Engle and Granger made it popular. According to the Granger Representation Theorem, the relationship between two variables A and B can be expressed as ECM when they are cointegrated. Statistically, if the error term is negative and significant, we will conclude that the changes in A (dependent variable), adjust to changes in B (independent variable) in the short run.

Returning to the case presented in this paper, we have the following results:

Table 5: ECM Regression Estimates (1996-2020)

Variable	Coefficient	Test statistic
Dependant (DGDP)		
Constant	0.05	1.08
DCS	0.001**	4.42
DCL	0.001*	2.38
D(d-i)	0.0008	1.6
DEXP	0.003**	3.8
$DGDP_{t-1}$	-0.01	-1.18
DU_{t-1}	-0.4**	-2.78
R^2		

Source: Author

Note: * and ** indicate statistical significance at the 10% and 5% levels, respectively. D stands for First Differences of our dependant and independent variables.

Table 5 reports the ECM Regression Estimates where the error term is negative and significant at the 5% level. We conclude that the changes in GDP, adjust to changes in CS, CL and EXP.

3.6. The Granger Causality Test

The Granger test conducted in this paper provides an answer to the question of directionality of causality between GDP, CL, and CS, which represent respectively, economic growth, the MFB's real lending and real saving. For example, the estimation of the pair regression equations below illustrates the direction of causality inference between V and S:

$$V_t = \sum_{i=1}^{n} \propto_i S_{t-i} + \sum_{j=1}^{n} \beta_j V_{t-J+u_{1t}}$$

$$S_t = \sum_{i=1}^{n} \gamma_i V_{t-i} + \sum_{j=1}^{n} \beta_j S_{t-J+u_{1t}}$$

Table 6 and Table 7 report the results about the causal relationship between GDP, CL and CS. The above tables suggest that while there is a bidirectional causality between the latter

three variables in the long run, there is no causality between the studied variables in the short run.

Tables 6 and 7 summarise the results on the causal relationship between GDP, CL, and CS. While Table 6 does not show any causality between our variables in the short run, Table 7 indicates that there is bidirectional causality between the corresponding variables in the long term.

The present results support our PPF and the Equilibrium Supply Models in the Long Run by confirming that MFBs activities boost economic growth. We can now confidently have established that factors such as governance and other factors identified in Tche A (2009) will motivate Cameroonians to deposit their savings in MFBs. The latter savings will be issued as loans which will then stimulate economic growth. MFBs activities and economic growth causality supports

Table 6: Test of the Causality of Granger in the Short Run

Causality Direction	F Statistic	Degree of Freedom	Probability
GDP → CS	2.5603	4	0.1652
GDP → CL	0.731166	4	0.6077
CS → GDP	1.1355	4	0.4353
CS → CL	0.7372	4	0.6049
CL → CS	1.0509	4	0.4659
CL → GDP	0.95956	4	0.5021

Source: Author

Table 7: Test of the Causality of Granger in the Long Run Granger

Causality Direction	Chi Square statistic	Degree of Freedom	Probability
CS → GDP	16.352	4	0.003**
CS → CL	10.616	4	0.031*
DP → CS	36.869	4	0.000**
GDP → CL	10.536	4	0.032*
CL → CS	16.133	4	0.004**
CL → GDP	13.818	4	0.008*

Source: Author

Note: * and ** indicate statistical significance at the 10% and 5% levels, respectively.

4. Conclusion

In the present paper, we have undertaken the formalization of good governance in MFBs and poverty alleviation. We first outlined the issues of good governance in MFBs. Second, based on the PPF model we have have demonstrated that poor governance results in an *inadequacy gap* which separates existing financial services supply and probable financial services supply. Third, we developed a long-term supply equilibrium model to show that a shift from current financial service supply to potential financial service supply with good MFB governance leads to poverty reduction outcomes. Therefore, there is a need to promote responsible corporate governance incentives within MFBs to alleviate poverty and contribute to economic growth.

In relation to the econometric test, we have proposed a specification of the economic growth model which appears to be consistent with our PPF and the Equilibrium Supply Long Run Models since MFBs activities not only do exert a positive and significant influence on changes in economic growth, but also suggests a bidirectional causality between MFBs activities and economic growth in the long run. This means that the transmission mechanism predicted in the above models does follow in the long run.

A major policy challenge that arises from the above analysis is the introduction of more relevant governance incentives that enable MFBs to contribute more effectively to the reduction of poverty and to the growth of the economy.

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