

Financial Inclusion and Income Inequality: A Case Study of Selected Countries in Sub-Saharan Africa

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ABSTRACT

This paper looks at the impact of financial inclusion on income inequality in sub-Saharan Africa. Very few studies exist on this theme for African countries. The empirical testing is done using data for a select number of sub-Saharan African countries. Data on financial inclusion are disaggregated into formal and informal financial inclusion. The hypothesis is that in Africa, it is improvements in formal financial inclusion that are likely to have a wholesome impact on inequality reduction. The methodology used to test the hypothesis is the calculation of the Concentration Index using Convenient Covariance and Convenient Regression. This methodology which was originally developed in a World Bank study on health equity is being applied for the first time to analyse the relationship between financial inclusion and income inequality.

Keywords: Financial inclusion, income inequality, sub-Saharan Africa, Concentration Index, Convenient Covariance, Convenient Regression

INTRODUCTION

Money-metric poverty and income inequality levels are very high in many countries of sub-Saharan Africa. Perhaps the important reason for this is that growth and development in these countries have not been inclusive. The data provided by the World Economic Forum (2018) in its Inclusive Development Index 2018 report amply demonstrate this. The report provides the values of the Inclusive Development Index, IDI – a composite index based on 15 of the most important policy domains for inclusive growth – for 103 countries. Scores on the IDI are based on a scale of 1 to 7, with 1 as the lowest score. Norway ranks first in the list with a score of 6.08. Among 74 emerging economies, Lithuania ranks first with a score of 4.86. The scores and the ranks of countries in sub-Saharan Africa (SSA) for which data are shown in the report is presented in the following table.

Table 1: Performance of SSA countries on IDI

Country	Score	Rank (out of 74)
Tanzania	3.43	48
Ghana	3.34	52
Cameroon	3.32	53
Burundi	3.37	55
Namibia	3.25	56
Rwanda	3.24	57
Uganda	3.21	59
Mali	3.10	60
Senegal	3.09	61
Nigeria	3.08	63
Madagascar	3.03	64
Sierra Leone	3.02	65
Zambia	2.99	67
Chad	2.97	68
South Africa	2.94	69
Zimbabwe	2.84	71
Malawi	2.81	72
Lesotho	2.63	73
Mozambique	2.47	74

Source: World Economic Forum, 2018

As can be seen from the above table, the performance of SSA countries on the IDI leaves much to be desired, all their rankings falling in the bottom third of the list.

THE IMPORTANCE OF FINANCIAL INCLUSION

Now, one of the main areas of inclusion is financial inclusion. And several studies do show that one of the main reasons for the high levels of poverty and inequality in many countries is financial exclusion of a large section of the population. (See e.g. Karpowicz, 2014; European Microfinance Network, 2013; Lämerrmann, 2010). By corollary then, increasing the levels of financial inclusion should serve to bring down the poverty and inequality levels.

However, some studies have shown that higher financial inclusion does not significantly result in reduction of poverty and inequality. There may be other more significant causes of the latter. Yet other studies show that increase in financial inclusion will initially result in higher income inequality but that over a longer period it will succeed in lowering inequality – some sort of a Kuznets curve relationship over time. (See Salasar-Cantú *et al*, 2015, Kim, Lin, 2011, Townsend and Ueda, 2006, Greenwood and Jovanovic, 1990).

This paper examines the relationship between financial inclusion and income inequality by undertaking a cross-section study of twelve countries in sub-Saharan Africa. These are: Botswana, Ghana, Kenya, Malawi, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda and Zambia. These countries have been chosen on the basis of availability of consistent and comparable data derived from Finscope studies on financial inclusion and exclusion for similar time periods and corresponding data on inequality from World Bank sources.

For most African countries, overall financial inclusion is highly influenced by access and use of finance obtained from informal institutions and sources. Hence the heuristic hypothesis is that it is the low financial inclusion in formal financial institutions that is the cause of inequality and

hence there is a need to improve access to and use of formal financial institutions.

The question we, therefore, seek to answer in this paper is: does financial inclusion impact significantly on income inequality in the selected group of African countries? Very little work has been done in Africa on this relationship. Here, we look at financial inclusion through both formal and informal financial institutions since the latter institutions are very prominent in many African countries.

LITERATURE REVIEW

There is quite an abundant number of studies on the theme of financial inclusion and income inequality. In this paper we confine our review to the relatively more recent and contemporary writings on the subject.

The ultimate goal of public policy everywhere and especially in developing countries is to raise the levels of human development. Human development implies progressive improvements in various human development indicators as well as a continuous process of decline in the levels of poverty and deprivation. This in turn requires a country to register sustained levels of high economic growth especially in countries where poverty and deprivation levels are high.

And contemporary empirical research has reached a broad consensus that the growth elasticity of poverty reduction tends to be low when inequality levels are high. (See, for example, World Bank, 2001; Naschold, 2002, Iradian, 2005; Pickett, 2016; Fosu, 2011). It is, therefore, imperative that the inequality issue should be addressed alongside implementation of growth-stimulating policies. In other words, growth has to be equitable, inclusive and pro-poor. It is in this context that one has to view financial inclusion as a potential factor contributing to greater income equality.

As already stated, there is a broad view of a positive nexus between financial inclusion and inequality reduction. This view, however, has different variations and contrarian views as well. We shall spell out some of these variations and views revealed by empirical studies.

Neaime and Gaysett (2016), using the Generalized Method of Moments (GMM) and Generalized Least Squares (GLS) econometric models tested the relationship between financial development (increase in the number of banks resulting in improved inclusion of the poor) and income inequality for 8 countries in the Middle East and North Africa (MENA) over the period 2003 – 2016. The 8 countries were: Egypt, Tunisia, Algeria, Morocco, Jordan, Qatar, Saudi Arabia and United Arab Emirates (UAE). Their result showed that financial development and inclusion had a negative and significant relationship. Financial inclusion reduces income inequality.

Another recent work that shows similar robust results is the one by Garcia-Herrero and Turégano (2015). After controlling for key factors such as economic development and fiscal policy, the authors find that financial inclusion contributes to reducing income inequality to a significant degree. The policy implication of this result is that financial inclusion should be at the forefront of government policies to reduce income inequality in a given economy.

Park and Mercardo Jr (2015) also conclude their paper covering 37 developing countries in Asia by stating that financial inclusion reduces income inequality.

Kim (2015) makes out a case for financial inclusion by arguing that financial inclusion improves the relationship between income inequality and economic growth especially in high-fragility countries. The reduction in income inequality through financial inclusion changes the negative relationship between income inequality and economic growth into a positive relationship.

The recently formed Consultative Group to Assist the Poor (CGAP) (2017) also lends its voice to achieve financial inclusion, saying that although it cannot alone solve the problem of inequality, it can be an important contributor to reduce inequality and bring peace especially in fragile and conflict-affected states

On the other hand, Classens and Perotti (2007) suggested the existence of a somewhat complicated route between financial inclusion and income inequality. According to them, unequal access to political influence produces unequal access to finance and unequal opportunities which can reinforce economic inequality.

Some posit a conditional relationship between financial inclusion and income inequality. For instance, Dabla-Norris *et al* (2015) state that greater financial inclusion can reduce income inequality on condition that such inclusion focuses on increasing access of the poor.

We have already cited the works of a number of authors in the preceding section who posit a non-linear relationship between financial inclusion and income inequality – a Kuznets-type relationship. This movement over time throws up a hypothesis that the relationship is influenced by the level of a country's development. As a country moves over time from a lower to a higher level of development, the level and distribution of financial development and inclusion also improves and favourably affects income inequality. Mookerjee and Kalipioni (2011) establish a similar relationship using cross section data for countries that range from the poorest to the very rich.

An IMF paper prepared by Goksu *et al* (2017) constructed novel indices of financial inclusion based on micro-level data to capture both the level and the distribution of financial access in a country. The results of their analysis showed that there was a strong association between inequality in financial access and income inequality. However, the level of financial inclusion did not seem to be significantly related to income inequality. This implies that policies are needed that target more equal access to a broad range of financial services across the population.

METHODOLOGY

The methodology used in our study to analyse the relationship between financial inclusion and income inequality is a fairly simple one involving the calculation of the Concentration Index using the "convenient covariance" which measures inequality in one variable over the distribution of the other.

This technique was introduced in a World Bank study on health equity, see O'Donnell *et al*, 2008.

The Concentration Index, adapted for this study, is calculated as follows:

$C = 2\text{cov}(y_i, R_i)/\mu = 1/n \sum_1^n [y_i/\mu(2r_i - 1)]$, where:

C = Concentration Index; y = financial inclusion variable (formal/informal/total); μ = mean; R = income inequality (Gini coefficient) rank; n = sample size.

What the formula says is that the Concentration Index is the covariance between the two variables y_i and R_i scaled by 2 and divided by the mean of the financial inclusion variable.

Given the relationship between covariance and ordinary least squares (OLS) regression, an equivalent estimate of the Concentration Index can be obtained by running a “convenient regression” as follows:

$$2 \sigma_{R^2} [y_i/\mu] = \alpha + \beta R_i + U_i,$$

where:

$\beta = C$; σ_{R^2} = variance of R_i

What the above implies is that the OLS estimate of β is an estimate of the Concentration Index obtained by using the convenient covariance formula. The Concentration Index would now be interpreted as the slope of a line that passes through the heads of a sequence of countries ranked by their income inequality (Gini Coefficient) with each country’s height proportional to the value of its financial inclusion, expressed as a fraction of the mean.

This methodology of the use of convenient covariance and convenient regression is being applied for the first time in analysing the relationship between financial inclusion and income inequality in our study.

DATA

The following table shows the data for the selected countries:

Table 2: Formal financial inclusion, exclusion and income inequality measure (Gini coefficient) for selected African countries.

Country (year)	Formal inclusion (%)	Informal inclusion (%)	Exclusion (%)	Gini coefficient (%) (year)
Botswana (2009)	59	8	33	60.46 (2009)
Ghana (2010)	41	15	44	42.7 (2009)
Kenya (2009)	41	26	33	47.7 (2005)
Malawi (2008)	26	19	55	46 (2010)
Mozambique (2009)	13	9	78	45.7 (2010)
Namibia (2007)	48	0	52	61.32 (2009)
Nigeria (2010)	37	17	46	42.95 (2010)
Rwanda (2008)	21	27	52	53.09 (2006)
South Africa (2009)	67	9	24	63.4 (2009)
Tanzania (2009)	16	28	56	37.38 (2007)
Uganda (2009)	28	42	30	44.3 (2009)
Zambia (2009)	23	14	63	65 (2010)

Source: Country Finscope Studies (Financial inclusion/exclusion data); World Bank: World Development Indicators, September 2015, (Gini coefficient data)

It can be seen from Table 2 that inequality levels, as judged by the value of the Gini coefficients, are very high in all the selected countries.

RESULTS

The following are the results obtained based on the methodology described above and using the data presented in Table 2. In keeping with our hypothesis, the results are obtained separately for formal and informal financial inclusion.

CONCENTRATION INDEX BASED ON CONVENIENT COVARIANCE

I. Formal Inclusion and Country's Rank in Income Inequality (Based on the Gini Coefficient)

Concentration Index = -1.6126493

II. Informal Inclusion and Country's Rank in Income Inequality (Based on the Gini Coefficient)

Concentration Index = 1.5411202

CONVENIENT REGRESSION

I. Formal Inclusion and Country's Rank in Income Inequality (Based on the Gini Coefficient)

Convenient regression of formal inclusion on the rank based on the Gini Coefficient

	Coefficient	Standard Error	T	P > t
rank_gini_co	-1.612648	1.020515	-1.58	0.145
constant	36.48221	7.510786	4.86	0.001
Number of obs.	12			
F(1, 10)	2.5			
Prob > F	0.1451			
R-Squared	0.1998			

Coefficient of "rank_Gini_co" = Concentration Index = -1.6126482

II. Informal Inclusion and Country's Rank in Income Inequality (Based on the Gini Coefficient)

Convenient regression of informal inclusion on the rank based on the Gini coefficient

	Coefficient	Standard Error	t	P> t
rank_gini_co	1.541117	1.179164	1.31	0.224
constant	15.41958	9.001337	1.71	0.121
Number of obs.	11			
F(1, 10)	1.71			
Prob > F	0.2236			
R-Squared	0.1595			

Coefficient of "rank_gini_co" = Concentration Index = 1.5411168

INTERPRETATION OF RESULTS, CONCLUSION AND RECOMMENDATIONS

The above results reveal the following:

- The β estimate is a very close approximation of the value of C calculated from the direct formula;
- Both C and the estimated β values have the expected signs, namely, negative in the case of formal inclusion and positive in the case of informal inclusion. That is to say, it is improvement in formal inclusion that can bring down income inequality. A higher value of informal inclusion on the other hand, may aggravate income inequality.
- However, the estimated β values are not statistically significant. This means that in order to reduce income inequality in the selected countries, it would be necessary to significantly raise the levels of financial inclusion in the formal sector.

The obvious policy recommendation emerging from this is that there is a need for financial development policies to expand the size of the formal financial sector and commensurately reduce the dependence of especially the low-income groups on the sources of informal finance. This dependence arises mainly because a significant percentage of the income-poor are unbanked. According to World Bank (2014), about three-quarters of the adult population in sub-Saharan Africa do not hold a bank account with a formal financial institution. Hence ways have to be found to make financial services accessible to the unbanked population.

While a detailed discussion of these ways is beyond the scope of this paper, a quick mention can be made of the use of mobile phones that enable execution of financial transactions without holding a bank account or physically visiting a bank. This is possible even in the remote rural areas characterized by little infrastructure development.

To cite just one success story, Kenya's M-PESA experiment launched through that country's largest mobile network operator Safaricom in 2007 has stimulated replication in several other countries. A paper by Kabala and Seshamani (2016) suggests that there is scope for Zambia to replicate the Kenyan experiment, especially since its policy and regulatory environment is very similar to that in Kenya.

The upshot of this paper is that efforts should be made to raise the level of formal financial inclusion in the economy if income inequality has to be reduced and growth has to be made more inclusive.

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