Financial Inclusion Scheme and Poverty Alleviation in Nigeria (2004 – 2019)

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Abstract*:* The study explores the effect of the financial inclusion scheme on poverty alleviation among the low-income earners in Nigerian between the periods of (2004 – 2019). The study employed a causal-comparative research design. Annual data was gathered from the Apex Bank in Nigeria (CBN) through the World Bank Indicators statistical bulletin 2019 online edition. The statistical methods used are ordinary least squares (OLS) and error correction model (ECM). The Augmented Dickey-Fuller (ADF) tests were piloted to investigate the stationary properties through time-series test. The null hypothesis was tested at 5% level of significance. The independent variables are; Loan to Depositor Ratio (LDR), Loan to Rural Areas (LRA) such as local farmers, Financial Deeping Indicators (FDI) and Social Investment Loan (SIL) to SMEs while dependent variables are Poverty Index (PI) and Per Capita Income (PCI) respectively. The study shows that financial inclusion schemes play a significant effect on poverty alleviation among the low-income earners in Nigerian. It also reduces poverty level and increases per capita income thereby enhance the standard of living through the new social investment scheme. The study recommended that the apex bank should review their policies to suit the needs of the low-income earners and subsidize the interest rates to facilitate easy accessibility of financial services of her citizenry, increase income generation and promote economic growth thereby reduce poverty level and enhance the citizen standard of living.

Keywords: Poverty Index; Per Capita Income; Social Investment Loan; Financial Deeping Indicator and Loan to Rural Areas

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1. Introduction

Financial inclusion scheme had been global attention in structuring finances toward the economic development of a country. However, the economic adversity facing the country has been a crucial unease to the common citizen in Nigeria. This has not been distinct from the unstable economy and unfavourable government policies. The job verbiage is preeminence to hitches faced by the Nigerian economy; therefore, the low-income earners encountered challenges in accessing financial services from the deposit money banks. The categories of these income earners are yearning for effective financial inclusion scheme that will rescue them to enhance economic productivity. Financial inclusion scheme is becoming a policy issue in the developing and developed economics country though it was perceived as a mechanism for alleviating poverty and enhances economic development (Onaolapo, 2015).

The dimension of poverty status in Nigeria is due to the absence of shelter, lack of good health care systems, an unstable system of education, high rate of insecurity, hunger, and unemployment among the youths, human trafficking, slavery, child labour and disenfranchisement (Adekoya, 2018). Nigeria with persistent problems of poverty has powerless to have a grip on the raised stride in the poverty rate. According to National Bureau of Statistics (NBS, 2019) revealed the five years intermitted level of poverty in Nigeria ranging from 2004 (54.5%), 2009 (69%), 2015 (33.1%) and 2020 (51.4%). Going by these statistics, Nigeria Human Development Index value rose from 0.465 to 0.534 between the year 2005 to 20019 with an increase of about (14.8%). Sub-Saharan African is headquartering the poverty and represents (57.5%) of the population in the world regrettably Nigeria was ranked second (2nd) on the chart among the top 10 countries live in multi-dimensional poverty in the world with the population of 98,175,000 (51.4%) and first (1st) in Africa. It also ranked 158 out of 189 countries from the Human Development Index. This is essential for Nigeria to improve on its poverty index as a country that was classified under the countries with low Human Development Index. The poverty rate in Nigeria is quite worrying despite the financial inclusion strategies employed by the government in curtailing the nation's poverty rate as a substitute for the unfavourable result of high incidence and debt of poverty keeps elating Nigeria (Nigeria Human Development Report, 2019)

Poverty is a form of disposition for lacking the economic and material resources that are necessary for an optimum standard of living. It could also be described as a means of having a low-income level from employment that a basic need cannot be met. Sanusi (2011) explained that the upsurge in the size of poverty in Nigeria was as a result of the mammoth oppugn postured by non-financial inclusion scheme and high-interest rates in the country. To achieve the peak glassy of financial inclusion scheme in Nigeria, the government will need to empower not less than seventy per

cent (70%) of the total population of those who below the categories of middle-income earners as it will enhance the economic development and growth of the nation. Adequate financial inclusion scheme will breed accessibility to financial services, upholds savings, enhance the capital accumulation and investments in the country (Chibba, 2009).

This scheme was originated in 1976 under the chairmanship of Dr Pius Okigbo to restructure the financial inclusion pattern to meet the growth of the Nigerian economy. However, the gaps identified from the literature revealed that the performance of financial inclusion scheme in Nigeria was not inspiring to equate with other African countries; Nigeria as a country has low financial inclusion index with less than (25%) twenty-five per cent of their citizenry gained access to formal credit facilities compare to South Africa with over (46%) forty-six per cent (World Bank, 2014; Mckinsey, 2014). Also, the level of financial inclusion scheme in Nigeria was ranked 135 (One Hundred and Thirty-Five) out of 176 (One Hundred and Seventy-Six) countries on financial inclusion index in the world (Cyn-Young & Ragelio, 2015).

It is necessary to ascertain how financial inclusion engenders reduction of the poverty level, often measured with poverty index, income level and social investment scheme of the citizenries in Nigeria. The study aimed to examine the effect of financial inclusion scheme on poverty alleviation among the low-income earners in Nigeria. However, the quest for the study was as a result of an upsurge in poverty in Nigeria. The link between the financial inclusion scheme and poverty alleviation in Nigeria is that no nation's economy can strive without adequate financial inclusion. Thereby, the question ascended the curiosity of the researchers is that "to what extent do financial inclusion scheme has effect on poverty alleviation among the low-income earners in Nigeria"? Following the hypothesis formulated to guide the study that there is no significant relationship between financial inclusion schemes and poverty alleviation in Nigeria.

2. Empirical Review

Financial inclusion schemes could be seen as a procedure for gaining access to financial services at a lower rate by vulnerable citizens such as low-income earners at a particular period. It is a form of intrusion plan that strives to stun the arcade abrasion that encumbers the markets from functioning in favour of the vulnerable (Aduda & Kalunde, 2012). The scheme was designed to help the low-income earners to tame-tide the poverty and enhance the standard of living in line the development addressed by the MDGs (Chibba, 2009). According to the World Bank (2014) assert that poverty will continue to ravage by the scourge of unemployment in developed and developing countries regardless of ethics and

culture. The effect of this assertion was that country fails to provide adequate financial inclusion scheme to their citizen will continue to record an increase in their poverty index rate.

Olumuyiwa and Oluwatosin (2012) profound that poverty was not emanated by the low-income earners, this was substantiated by the framework adopted from the foreign countries imposed the deficiencies in the system that ought to have built a better institutions and policies suit them to other countries. He further expresses that failure to provide financial services to the 2/3 of their citizens' population will not reduce their poverty index. A nation can focus to reduce their poverty index through adequate provision of food, water, shelter, health care services, education and social amenities. These are the areas the government needs to focus on alleviating poverty and upturn the economic growth. Fadun (2014) avers that effective financial inclusiveness could serve as an instrument for alleviating the poverty and redistribute the income among the citizenry. This was corroborated with the findings of Park and Mercado (2015) revealed that an effective scheme of financial inclusiveness is significantly related to per capita income in developing Asia. This implies that good financial inclusion structures will reduce poverty and income inequality among the vulnerable.

EFInA (2010) found that 53.7% of citizens are financially included while 46.3% of the citizens are non-financially included in the financial plans. Although, about 70% of the financially excluded below 45 years of age are youth, 34.0% are uneducated. The rural areas were out rightly excluded from the financial services due to the bad road network and financial institutions cannot extend their network services to the rural areas. The implication of this finding is an unaccustomed rise in the poverty rate in Nigeria. This can only overcome if there is a sensitization and education encouragement on financial services with the good road network in the rural areas link to the urban part of the country (Fadun, 2014)

Onaolapo (2015) aver that bank branches, loan to rural area and agricultural credit guarantee scheme will increase per capita income. The effect of these on economic growth and reduces poverty is that country should adhere to financial inclusion guidelines. Nwankwo and Abah (2013) found that inclusiveness of micro-finance banks in rural areas will have a positive impact among the rural dwellers by providing loans for agriculture. This inference of this is that agriculture will enhance per capita income of the country and reduces unemployment. Financial inclusion was experimented in Oshodi-Isolo LGA Lagos State among the hairdressers and revealed an upsurge in employment rate while reducing poverty among the citizens of the local government area (Olumuyiwa & Oluwatosin, 2012).

3. Research Methods

The study adopted a causal-comparative method of research design. Annual data for the periods of 2004 – 2019 were extracted from the Apex Bank in Nigeria (CBN) through the World Bank Indicators statistical bulletin 2019 online edition was used to measure the econometrics models. The numerical methods adopted are Ordinary Least Square (OLS) and Error Correction Model (ECM) method of regression analysis. The model estimates the stationary test that was conducted to examine the scholastic properties by avoiding spurious regression estimated results. The Augmented Dickey-Fuller (ADF) test was conducted to investigate the stationarity properties through the time series test. The null hypothesis was tested at 5% level of significance. The financial inclusion scheme was measured with the following parameters; Loan to Depositor Ratio (LDR), Loan to Rural Areas (LRA), Financial Deeping Indicators (FDI) and Social Investment Loan (SIL) while poverty alleviation was measured with Poverty Index (PI) and Per Capita Income (PCI) respectively.

3.1. Model Specification

The econometrics model was employed to test the null hypothesis postulated for this study. However, a model adopted from the work of Oladele, Aribaba, Ahmodu and Ajayi (2018). The model stated as follows:

FP = ß0 + ß1 PROF+ ß2 FS + ß3 FINLEV + ß4 INDST + Σit …………....(Eqn. 1)

The above econometrics model was modified to accommodate the variables in stochastic forms as:

PI = ß0 +ß₁LDR, + ß₂LRA, +ß₃FDI, +ß₄SIL + Σit …………………………(Eqn. 2)

PCI = ß0 + ß₁LDR, + ß₂LRA, +ß₃FDI, +ß₄SIL + Σit ………………………..(Eqn. 3)

Where:

PI = Poverty Index as a proxy to poverty alleviation

PCI = Per Capita Income as a proxy to poverty alleviation

LDR = Loan to Depositors Ratio (per 10,000 adults) measure financial inclusion scheme.

LRA = Loan to Rural Area (per 10,000 adults) measure financial inclusion scheme.

FDI = Financial Deeping Indicator (per 10,000 adults) measure financial inclusion scheme.

SIL = Social Investment Loan (per 10.000 SMEs) measure financial inclusion scheme.

β_0 = intercept

β_{1-4} = coefficients of poverty index and per capita income

Σ_{it} = Stochastic error term

4. Presentation of Results and Discussion Findings

Table 1. The Unit Root Test of the Parameters at (5%)

Parameters	ADF-Statistics	T-critical values	Remark
PI	-4.453562	-6.181002	Non-stationary
PCI	-4.863683	-4.165585	Stationery
LDR	-4.946085	-4.181002	Stationary
LRA	-4.498385	-4.181002	Stationary
FDI	-4.941236	-4.181002	Stationary
SIL	-3.508324	-4.198896	Non-stationary

Source: Author's Computation, (2020).

Table 1 displays the compared Augmented Dickey-Fuller statistic unit root test result with the *t*- critical values at 5% level of significance which revealed the stationary and non-stationary level of the variables employed in this study. The poverty index (PI) and social investment loan (SIL) per 10,000 SMEs were non-stationary, therefore, the series was non-stationary at first difference. This implies that they are not integrated with order one. While the per capita income (PCI), loan to depositors' ratio (LDR) per 10,000 adults, loan to rural areas (LRA) per 10,000 adults, the financial deepening indicator (FDI) per 10,000 adults were stationary at the first difference I(1), that is, they are integrated with order one. These concluding that the model is suitable for estimating the long-run model. The outcome shows that the symptom of the regression result is lacking of spuriousness.

4.1. Descriptive Statistics

Table 2. Descriptive Analysis of the Variables

	PI	LDR	LRA	FDI	SIL
Mean	65.12706	3.571765	34.95144	13.53765	6.267882
Median	68.70000	4.938000	46.09540	0.000000	4.444000
Maximum	112.4700	6.513000	66.18900	30.82000	16.07500
Minimum	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	39.90429	2.816826	28.87362	14.85550	6.340357
Skewness	-0.807611	-0.423998	-0.226606	0.139508	0.261318
Kurtosis	2.190304	1.375595	1.341287	1.046930	1.410478
Jarque-Bera	2.312390	2.378435	2.094351	2.757069	1.983140
Probability	0.314681	0.304459	0.350928	0.251948	0.370994
Sum	1107.160	60.72000	594.1745	230.1400	106.5540

Sum Sq. Dev.	25477.64	126.9522	1333897.	3530.976	643.2020
Observations	15	15	15	15	15

Source: E-VIEWS 8.0 Output, (2020)

Table 2 observed that the average value of poverty index (PI) was (65.12%) with the maximum value of (112.47%). Loan to depositors' ratio (LDR) per 10,000 adults average value was (3.57%), with the maximum value of (6.51%). Loan to rural areas (LRA) per 10,000 adults' average value was (34.95%) with the maximum value of (66.18%). Financial Deeping Indicator (FDI) per 10,000 adults was (13.53%) with the maximum value of (30.82%). The average value of social investment loan (SIL) per 10,000 SMEs was (6.26%) with the maximum value of (16.07%) in the periods observed. The reason behind the unabated level of poverty in Nigeria is quite clear from the descriptive analysis above. For instance, the percentage of Loan to depositors' ratio (LDR) per 10,000 adults, Financial Deeping indicator (FDI) per 10,000 adults, and social investment loan (SIL) per 10,000 SMEs are very low while the percentage of Loan to rural areas (LRA) per 10,000 adults' who have access to agricultural loan services are very low despite the percentage of loan inclusiveness among the northern farmers. Therefore, financial stakeholders need to do more to alleviate the poverty level in our dear country.

4.2. Presentation of Equation Model Two

Table 3. Diagnostic Tests Results

Variance inflation factors (VIFs)		
Uncentered VIF	Centered VIF	
C	3.978	NA
LDR	7.450	3.853
LRA	2.868	2.695
FDI	9.780	6.759
SIL	6.248	7.878
Breusch – Godfrey – serial correlation LM test		
F-statistic = 2.471	Prob.F(2, 18)	0.375
Obs * R-squared = 4.864	Prob.Chi-square (2)	0.244
Heteroskedasticity test		
F-statistic 6.393	Prob. F(1,18)	0.413
Obs * R-squared 5.449	Prob. Chi-square (1)	0.412
Ramsey Reset Test		
t-statistic = 0.405	Df = 15	0.941
F-statistic = 0.062	Prob.F(1,15)	0.941

Source: Researchers' Compilation from E-view 8.0 (2020)

Table 3 revealed the statistical variance of the variables with less than 10 (centred VIF < 10). This designates the nonexistence of multicollinearity between the explanatory variables. The ARCH: Heteroskedasticity test revealed the occurrence of homoscedasticity (0.413 > 0.05). Therefore, to validate the assumption of

constant variance estimator of ordinary least square, the serial correlation test of Breusch-Godfrey result is (0.375 > 0.05) shows the nonappearance of greater direct relationship. The test result of Ramsey Reset is (0.941 > 0.05) which corroborate with the regression model.

4.3. Pearson Correlation Statistics

Table 4. Correlation Matrix

	PI	LDR	LRA	FDI	SIL
PI	1	0.827	0.836	0.742	0.779
LDR	0.827	1	0.956	0.816	0.832
LRA	0.836	0.956	1	0.877	0.930
FDI	0.742	0.816	0.877	1	0.955
SIL	0.779	0.832	0.730	0.955	1

Source: E-View 8.0 Output, 2020

Table 4 shows the correlational matrix of the Pearson Products Moment correlation coefficient of the parameters. The outcome of the correlation depicts that poverty index is correlated with Loan to depositors' ratio (LDR) per 10,000 adults ($r = 0.827$), poverty index is correlated positively with Loan to rural areas (LRA) per 10,000 adults ($r = 0.836$), poverty index is correlated with Financial Deeping indicator (FDI) per 10,000 adults ($r = 0.742$), poverty index is positively correlated with social investment loan (SIL) per 10,000 SMEs ($r = 0.779$) respectively.

4.4. Ordinary Least Squares Multivariate Regression Results

Table 5. OLS Regression Result

Variables	Coefficient	Prob.value
C	69.700*****	
	(61.069)	
	[2.138]	0.389
LDR	6.464*****	
	(12.246)	
	[0.657]	0.676
LRA	-0.083*****	
	(0.140)	
	[-0.505]	0.444
FDI	-0.728*****	
	(1.262)	
	[-0.525]	0.355
SIL	8.260*****	
	(6.865)	
	[1.430)	0.342
R-square =0.872		
Adjusted R-square = 0.642		

F-statistic = 6.429		
Prob.(F-statistic) = 0.005		
Durbin-Watson stat = 2.046		

******Coefficient values
( ) *standard error in the bracket
[ ] * T- statistic value in parenthesis
Source: E-views 8.0 Output

Table 5 depicts the projected model of about (64%) logical dissimilarity of poverty index variable adopted in determining the adjusted coefficient of (36%) which represents the presence of stochastic error term. It proposes the long-run of financial inclusion scheme and poverty alleviation index in Nigeria. That is, with access to financial services, people can raise capital for investments, generate income, enhance the standard of living and consequently reduce unemployment rates. Reduction in the unemployment rate is often known in finance and economic literature to positively influence economic development. To improve the standard of living of citizenry, it has always been a central focus of government in power in any nation of the world. The value of F – statistic is (6.829) which represent the explanatory variables at (5%) significance level. The goodness fit of the model shows that the financial inclusion scheme can alleviate poverty in Nigeria. The statistical value of Durbin – Watson is (2.023) with the absence of time series Autocorrelation serial data. Financial inclusion scheme translated a very low impact on poverty alleviation in Nigeria.

4.5. Presentation of Model Equation Three Results

Table 6. Pearson Correlation Matrix

	PCI	LDR	LRA	FDI	SIL
PCI	1				
LDR	-0.313	1			
LRA	-0.341	0.956	1		
FDI	-0.288	0.816	0.877	1	
SIL	-0.320	0.832	0.930	0.955	1

Source: E-View 8.0 output, (2020)

Table 6 above describes the coefficient matrix of the Pearson Products Moment Correlation variables. The Pearson outcomes displays per capita income as it was negatively correlated with loan to depositors' ratio (LDR) per 10,000 adults (r = -0.313), per capita income is negatively correlated with loan to rural areas (LRA) per 10,000 adults (r = -0.341), per capita income is negatively correlated with a financial deepening indicator (FDI) per 10,000 adults (r = -0.288), per capita income is negatively correlated with social investment loan (SIL) per 10,000 SMEs (r = -0.320) respectively.

4.6. Ordinary Least Squares Multivariate Regression Results

Table 7. OLS Regression Result of Per Capita Income

Variables	Coefficient	Prob.value
C	8.253*****	
	(4.021)	
	[3.218]	0.041
LDR	0.412*****	
	(4.234)	
	[0.087]	0.915
LRA	-0.022*****	
	(0.057)	
	[-0.324]	0.666
FDI	0.064*****	
	(0.586)	
	[0.215]	0.915
SIL	-0.089*****	
	(1.876)	
	[-0.065)	0.869
R-square =0.718		
Adjusted R-square = 0.692		
F-statistic = 8.615		
Prob.(F-statistic) = 0.005		
Durbin-Watson stat = 3.122		

******Coefficient values
( ) *standard error in the bracket
[ ] * T- statistic value in parenthesis
Source: E-views 8.0 Output, (2020)

Table 7 depicts the aforementioned exemplary equation three projected (69%) logical discrepancy of per capita income variable through the adjusted coefficient determination, parting about (31%) were not accounted because of the stochastic error term occurrences. The outcome of this analysis was advocating that in the long-run, financial inclusion scheme will determine the per capita income which is a proxy for poverty alleviation and thereby, lean-to a decent standard of living in Nigeria. The F – statistic of (8.615) explaining the geometrical significance of the variables at (5%). This denotes that the model postulated above determines the poverty alleviation through the financial inclusion schemes. This explained the absence of Autocorrelation of time series data by Durbin – Watson statistic with the value of (3.122). These variables categorically explained the financial inclusion scheme with low impact on poverty alleviation among the low-income earners in Nigeria.

4.6.1. Discussion of Findings

The implication of this research connotes the value relevance of financial inclusion scheme in alleviating poverty among the low-income earners in Nigeria. This value relevancy cannot be accentuated, due to its importance in the life of Nigerian. The government shall put in place a policy that will improve the standard of living and reduce the poverty level of Nigerian. The findings also revealed the effect of financial inclusion schemes on poverty alleviation among the selected category of income earners in Nigeria. The Pearson correlation statistics outcome of poverty index and per capita income of the models postulated depicts the following; The Pearson correlation statistics of loan to depositors' ratio (LDR) per 10,000 adults (r = 0.827; r = -0.313), poverty index is positively correlated while the per capita income is negatively correlated. The Pearson correlation statistics of loan to rural areas (LRA) per 10,000 adults (r = 0.836; r = -0.341), poverty index is positively correlated while the per capita income is negatively correlated. The Pearson correlation statistics of financial deepening indicator (FDI) per 10,000 adults (r = 0.742; r = -0.288), the poverty index is positively correlated while the per capita income is negatively correlated. The Pearson correlation statistics of social investment loan to SMEs (SIL) per 10,000 SMEs (r = 0.779; r = -0.320) respectively. The findings are in line with the conclusion of Fadun (2014); Okoye, Adetiloye, Erin, and Modebe, (2015); Ogbeide and Igbinigie (2019) who aver that the only strategy government can adopt to alleviate the poverty index level is to expand on these financial inclusion scheme apparatuses and increase per capita income level of the citizenry. Onaolapo (2015); Imegi and Ogbeide (2017) posit that the scheme should also extend to rural areas through agricultural value chain loan facilities among the rural farmers to upsurge the per capita income and reduce the poverty level of the low-income earners in the country. This will increase the optimism of the rural farmers and SMEs business owners to contribute heavily to the per capita income of the country. However, this will cushion the effect after the post-global pandemic virus era called "COVID'19" that posed to the world.

5. Conclusion and Recommendation

Adequate income generation implies persons can easily afford goods and services at affordable rates. When this is in place, living below the income level would be reduced. The study also concludes that the stakeholders of financial inclusion scheme need to strengthen the capacity of micro-finance banks both in the rural and urban part of the country as this could facilitate persons have the culture of saving their profit and re-invested to alleviate poverty among the low-income earners in Nigeria. Based on these, the study, therefore, recommends that the Nigerian government should constantly provide infrastructure by way of a good network of roads as this could further increase the establishment of both micro-

finance banks and conventional banks to the low-income earners and other persons with large income generation capacity. These establishments of the good road will help tame-tide and reduce the level of insecurity and other factors that could pose as barriers to people to have access to the financial scheme in Nigeria with the end goal of reducing poverty level. The government should encourage the establishment of rural bank branches of commercial and ensure there is a presence of hearing and adequate securities. The study contributes to knowledge by providing literature to future researchers who may want to reference this article. It provides an alternative solution to developmental issues in the study. It also provides valuable information to financial institutions and government on financial inclusion scheme and poverty alleviation in Nigeria.

Abbreviations

CBN: Central Bank of Nigeria; OLS: Ordinary Least Square; ADF: Augmented Dickey-Fuller; ECM: Error Correction Model; LDR: Loan to Depositor Ratio; LRA: Loan to Rural Areas; FDI: Financial Deepening Indicator; SIL: Social Investment Loans; SMEs: Small and Medium Enterprises; PI: Poverty Index; PCI: Per Capita Income; HDI; Human Development Index; NBS: National Bureau of Statistics; MDGs: Millennium Development Goals; VIF: Variance Inflation Factors; $ß0$: intercept; $ß_{1-4}$: coefficients; Σ_{it}: Stochastic error term;

Authors' Contributions

AFO: Introduce the research, fine-tuned the title of the research suggested by the research group and did the editorial. **AJO:** review the empirical findings and drafted the references. **OR:** interpreted the result and linked it with empirical findings. **BAD:** drafted the conclusion and recommendations through the research findings and also liaises with AOA to guarantee that the result outcomes of the data are dependable. **AOA:** designed the methodology and ran the plagiarism check through the Turnitin software, grammar check and ensure that the article complies with the Journal standard. **OSA:** came up with a model adapted, operationalization

of variables, analyze the data and ensure that all authors read and approved the final manuscript.

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The data was available on the NBS statistical bulletin and can be submitted if required.

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