

DIGITAL FINANCIAL INCLUSION AND THE PERFORMANCE OF MICRO, SMALL, AND MEDIUM ENTERPRISES IN NIGERIA: AN EMPIRICAL ASSESSMENT USING SECONDARY MACRO-LEVEL DATA

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Abstract

Over the past ten years Nigeria's financial system has been reshaped by digital technology, yet the micro, small, and medium enterprise (MSME) sector, the source of most of the country's jobs, still points to limited access to finance as the single biggest obstacle to its operations. This paper investigates how digital financial inclusion (DFI) relates to MSME sector performance in Nigeria, drawing on secondary macro-level time-series data from 2014 to 2024 sourced from the Central Bank of Nigeria (CBN), the Nigeria Inter-Bank Settlement System (NIBSS), the National Bureau of Statistics (NBS), the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), and the Enhancing Financial Innovation and Access (EFInA) Access to Finance surveys. DFI is captured through mobile money transaction value, NIBSS Instant Payment (NIP) transaction volume, and the EFInA-reported formal financial inclusion rate, while MSME performance is captured through the sector's contribution to Gross Domestic Product (GDP) and its share of national employment. A descriptive trend analysis of the assembled data shows digital payment infrastructure and certain MSME output indicators moving in the same broad direction, although the relationship is uneven rather than linear across the period, shaped by the disruptive effects of the COVID-19 pandemic, the currency redesign policy, and general macroeconomic instability on the size of the MSME population. The central argument is that digital financial inclusion helps but is not sufficient on its own to drive MSME performance gains in Nigeria; complementary work on infrastructure, credit guarantee schemes, and digital literacy is still needed to turn payment-system access into real enterprise growth. The paper closes with policy recommendations aimed at the Central Bank of Nigeria, SMEDAN, and deposit money banks.

Keywords: Digital financial inclusion; MSME performance; Mobile money; Financial deepening; Nigeria

1. Introduction

Micro, Small and Medium Enterprises are structurally in the middle of the Nigerian Economy. The most recent study by the National Bureau of Statistics (NBS) and the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) reveals that MSMEs made up 46.32% of Gross Domestic Product (GDP), had 96.9% of all registered businesses and 87.9% of total employment in Nigeria as at 2021 (PwC, 2024). However, access to finance has been the most constraining operational issue in the sector since the inception of the survey, together with poor infrastructure, multiple taxation and the inconsistency in policies (NBS/SMEDAN, 2021). The

number of MSMEs itself dropped by approximately 41.5 million in 2017 to about 39 million in 2021, largely due to the COVID-19 pandemic and the ongoing challenge of accessing start-up and growth capital (SMEDAN, 2022).

On this background, Nigeria's financial system has experienced a significant transformation towards digitalisation. Central Bank of Nigeria's (CBN) cashless policy, an increase in licensed mobile money operators and the rollout of NIBSS Instant Payment (NIP) infrastructure have all contributed to an exponential growth in the volume and value of electronic transactions. The number of instant payment transactions reported by NIBSS increased by 78% from N600.36 trillion in 2023 to N1.07 quadrillion in 2024, whereas the value of transactions by mobile money operators grew from N46.6 trillion in 2023 to N79.5 trillion in 2024 (Vanguard, 2025). This was reflected in the EFINA Access to Finance (A2F) 2023 survey which revealed a significant increase in formal financial inclusion from 56% of adults in 2020 to 64% in 2023, and in overall financial inclusion (formal and informal) from 69% to 74% respectively (EFInA, 2023; Businessday, 2023).

The two trends – digital financial deepening at the consumer level and the stagnation or contraction of the MSME population – pose an empirical question that has not received as much direct focus in the Nigerian literature as financial inclusion at the household level: Will digital financial deepening at the consumer level lead to improvements in the performance of MSMEs, or is it merely happening at the consumer level without a significant impact on enterprise-level? This paper seeks to answer that question by responding to it with assembled secondary macro-level information on proxies of digital financial inclusion and MSME performance indicators for Nigeria.

2. Literature Review

2.1 Conceptual Clarification

Digital financial inclusion (DFI) means providing formal financial services to the previously unserved and/or unincluded, at low cost and wide reach, using digital technology, mobile phones, point-of-sale terminals and internet-based platforms (World Bank, 2022). The difference with financial inclusion in general is the delivery channel, and not the service itself, that makes it DFI. MSME performance in this study refers to measurable performance of the MSME sector in the national output and employment, rather than performance of MSME firms in terms of profitability.

2.2 Theoretical Framework

The study is based on financial intermediation theory and the finance-growth nexus as developed by Schumpeter (1911) who suggested that financial intermediaries accelerate innovation and enterprise growth processes by mobilising savings and channeling credit to its productive uses. The theory suggests that since digital channels can eliminate costs of transactions and information in the financial access, more enterprises should be able to access working capital, formalize their means of transaction, and establish a financial history to gain access to future credit. The fintech disruption literature also notes that agent banking and mobile money reduce the established costs associated with operating brick-and-mortar branches to provide services to low-income and rural businesses (Ozili, 2018).

2.3 Empirical Review

The world of empirical work on financial inclusion and SME outcomes in Nigeria and Africa is no different, with the bulk of the evidence pointing in the same direction – albeit not in a strong direction – a positive but limited relationship. Mobile money and access to agent banking services support SMEs in managing their working capital and reduce the exposure to handling cash, but mobile money has not as yet been proven to contribute to their revenue growth, with electricity supply, logistics, and costs of regulatory compliance identified as constraints to mobile money use (Imoughele & Ismaila, 2014; Kadiri, 2012). Studies exploring the relationship between financial deepening and MSME contribution to GDP generally also reveal a positive relationship, but some of these studies also report that this positive relationship becomes weaker when shocks such as currency devaluation or a decrease in demand in the wake of the pandemic are taken into account (Johnson, Christiana, & Aliu, 2021).

The level of growth of NIP and mobile money growth reported by NIBSS and the CBN Fintech Report 2026 is relatively new and thus there's not much research to date that speaks to the Nigerian context. The role of this paper is to fill this gap: most household-level DFI studies in Nigeria focus on access and usage, most MSME studies are based on cross-sectional surveys of firms, and very few compare national digital payment growth rates to national MSME performance trends across multiple years. In this paper, steps are taken towards bridging that gap and at the same time setting clear boundaries on the relevance of the underlying MSME census (the MSME census is conducted irregularly, the last full census was in 2021, with MSMEDAN/NBS surveys following between the full censuses).

2.4 Research Gap

This study arises from three gaps. The first is a timeliness mismatch; monthly data on digital payment comes from NIBSS, while the data on MSME census comes sporadically from SMEDAN/NBS, this gap has hindered comparative analysis between the two. This paper is explicit about the mismatch, aligning the available data with the years of the data series that is available, rather than creating values for the intervening years. The second is a focus problem: up to now, the study of DFI in Nigeria has been on an individual or household basis and not at enterprise level. The third is timeliness as the value of transaction volume of NIP and mobile money increased after 2023 and this growth was largely attributed to the redesign of the naira and cash shortage that followed, which had not been studied and linked systematically to the contributions of the MSME sector in the literature at the time of writing..

3. Methodology

3.1 Research Design and Data Sources

The study adopts ex post facto descriptive trend approach, using data from secondary sources at macro level for Nigeria from 2014 to 2024 (2013, 2017, 2021, and PwC's industry survey estimates for 2024). The data sources were: Central Bank of Nigeria's (CBN) Payments System statistics; CBN Fintech Report (2026); and the National Bureau of Statistics (NBS) and SMEDAN National MSME Survey reports (2013, 2017, 2021) and EFinA Access to Finance (A2F) survey series (2018, 2020, 2023).

3.2 Variable Measurement

Three widely-used indicators in the literature, proxy digital financial inclusion, were analysed, namely the annual naira value of transactions via NIBSS Instant Payment (NIP); the annual number of transactions processed by licensed Mobile Money Operators (MMOs); and the formal financial inclusion rate reported by EFINA as a percentage of the adult population. The percentage share of national GDP and total national employment (derived from the NBS/SMEDAN MSME survey series and cross-checked with the PwC MSME Survey 2024) serve as proxies for MSME performance.

3.3 Analytical Technique

The study uses descriptive trend analysis along with a directional growth-rate comparison between digital payment indicators and MSME structural indicators for the years both sets of indicators exist, rather than a Pearson correlation coefficient or multivariate regression. This was done deliberately – the number of MSME census points in common with the period of NIP data and mobile money data is just 2 (2017 and 2021) which would not provide much meaning from a statistical point of view and would give an impression of precision not supported by the data. Appendix C provides, instead, a clear and less precise comparison of growth rates, commensurate with the degrees of freedom available. This limitation is made explicit: the paper does not claim to have proven causation or statistical correlation, but merely a documented direction of causality, and future work is recommended where higher frequency firm-level panel data become available, to use an explicit formal ARDL, panel regression or correlation process..

4. Results and Discussion

4.1 Trends in Digital Financial Inclusion, 2014–2024

In Table 1, we outline the developments of Nigeria's digital payment ecosystem during the study period. However, in 2024, the value of NIP transactions increased from approximately N271.95 trillion to N1.07 quadrillion, a 294% increase over a span of three years (Vanguard, 2025; TC Insights, 2024). In a year, mobile money operator transaction value increased by 70.6% from N46.6 trillion in 2023 to N79.5 trillion in 2024 (Credible News, 2025). The EFINA A2F survey revealed a combined rate of 74% financial formalisation and inclusion and 26% financial exclusion at the household level during 2020-2023 (EFInA, 2023).

Table 1: Digital Financial Inclusion Indicators, Nigeria (Selected Years)

Indicator	2020/2021	2023	2024
NIP Transaction Value (₦ trillion)	271.95 (2021)	600.36	1,070 (≈\$702.6bn)
Mobile Money Operator Value (₦ trillion)	n/a	46.6	79.5
Formal Financial Inclusion (%)	56 (2020)	64	n/a*
Overall Financial Exclusion (%)	32 (2020)	26	n/a*

**The next EFInA A2F survey wave was not yet published at the time of writing. Sources: CBN (2024); NIBSS, cited in Vanguard (2025) and TC Insights (2024); EFInA (2023).*

4.2 Trends in MSME Sector Performance, 2013–2024

MSME structural indicators do not reflect the growth observed in digital payments above as they would have grown through 2017, contracted in 2021 and experienced some recovery even with the lesser number of MSMEs. The total number of MSMEs went from about 17.3 million in 2010 to 41.5 million in 2017, then fell to roughly 39 million by 2021 (SMEDAN, 2022; IIARD, 2026). During the same period, the MSME contribution to GDP has eased slightly from about 46.5% in 2010 to 46.32% in 2021 and is projected to rise towards 49.5% up to 2024 owing to higher productivity in the remaining firms, not more enterprises (IIARD, 2026). While the share of MSMEs remained high at 87.9% in the 2021 survey, SMEDAN (2022) reported a reduction in their GDP contribution by 3.5 percentage points in 2021, and external trade was only 6.2% by MSMEs.

These two trend lines are the core of the report: transaction value of digital financial infrastructure increased by several hundred percent from 2021 to 2024, while the absolute size of the population of MSMEs declined during most of this timeframe and "rebounded" only from 2024 onwards in terms of GDP contribution. This suggests that there is no direct relationship between DFI and the performance of MSMEs, and there are three possible interpretations of this.

4.3 Discussion

Most of the digital payment growth reported by NIBBS and the Central Bank of Nigeria (CBN) in 2023 and 2024 can be attributed to the cash scarcity occasioned by the currency redesign in 2023 and the stringent cashless policy adopted in withdrawals by the CBN (CBN, 2024). This was largely a shift from cash to electronic transactions for existing volume of transactions, rather than an increase in financial access to unbanked enterprises. It would be wrong to see the numbers of growth in NIP and mobile money as a proportional increase in financial access to MSMEs as much of it is simply a matter of existing MSMEs transacting differently in the formal sector.

Second, SMEDAN (2022) identified the contraction of the MSME population from 2017 to 2021 to be primarily due to the impact of COVID-19 and the continued lack of start-up and growth capital, which are not necessarily related to the digital payment ecosystem. That suggests a concrete limitation of digital financial inclusion: although its cost burden is reduced, it can't, on its own, address MSMEs' most frequently cited credit-access issue, which is that it is a "restriction". Mobile money and instant payment systems are payment infrastructure, not credit infrastructure, and make fund transfers cheaper and faster but is not a direct boost to working capital or term loans that an enterprise can apply for. This is backed by the PwC MSME Survey (2024): 67% of MSMEs surveyed mentioned that the demand for their products decreased over the last two years, and attributed this largely to high input costs and reduced purchasing power of consumers, rather than to issues in the payment channels.

Thirdly, the recovery in MSME GDP contribution towards an estimated 49.5% by 2024, despite not seeing an uptick in the number of enterprises, appears to be a productivity-concentration effect as those that have survived, some of whom have adopted digital payment channels and point-of-sale infrastructure, may have become more productive or better represented in the formal, measured economy. This aligns with a genuine contribution by digital financial inclusion

to productivity of the MSMEs that survived the contraction in 2020-2021, but of course it does not constitute proof.

Taken together, the evidence supports a qualified, but not universal, claim: digital financial inclusion appears to be a positive correlate of both improved formalization and increased productivity among the MSMEs remaining in existence, but has not been sufficient to reverse the MSME population decline or address the chronic credit-access challenge. That is consistent with the financial intermediation theory that separates the payment system efficiency from the capital allocation efficiency, and during the period studied, Nigeria's digital transformation has achieved greater efficiencies on the payment side than on the capital allocation side.

5. Conclusion and Recommendations

The study aimed at exploring the links between digital financial inclusion and the performance of MSME sector in Nigeria based on secondary macro level data from the Central Bank of Nigeria, Nigeria Institute of Banking and Finance, the National Bureau of Statistics/SMEDAN and the EFInA from 2013 to 2024. The evidence indicates that Nigeria's digital payment ecosystem has experienced a significant development over the period, particularly since 2023, despite the decrease in the MSME population from 2017 to 2021, and a partial recovery in its output contribution since that time. In conclusion, digital financial inclusion as constructed around payment and transfer systems, while helpful, is not a panacea for MSME sector development in Nigeria by itself, having helped increase the speed of transactions and, quite possibly, helped to formalise some MSMEs, it did not address the issues of credit-access and demand-side problems which are reported most consistently by MSMEs.

Three recommendations follow. First, Central Bank of Nigeria and the banks involved in the operation of the DPs should strive to make the digital payment activity of MSMEs usable for credit scoring, as the data generated by the MSMEs through NIP, POS and mobile money should be utilized, not just for payment history, but also to feed into bankable credit scoring. Second, SMEDAN should conduct the national survey of MSMEs more frequently than it does, as the level of digital payment volumes has changed significantly since the last full survey in 2021, with policy created based on information from that survey facing the possibility of being extensively out of date. Third, the demand side and cost side pressures are still key constraints for small businesses, as highlighted in the PwC (2024) survey, rather than access to the payment channel.

One of the major drawbacks of this study was the frequency with which the data from the MSME was collected as compared to the frequency with which the digital payment data was collected, which meant that it was a descriptive growth comparison and not a formal econometric or correlational design. Future studies should explore the direction and size of the relationship described in this paper using panel or time-series econometric approaches, such as ARDL or NARDL, which allow for more formal testing of the nature of the relationship.

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Appendices

Appendix A: Digital Financial Inclusion Indicators — Full Data Series (2014–2024)

Table A1 presents the complete digital financial inclusion data series compiled for this study, disaggregated by year and indicator. Blank cells ("n/a") indicate years for which the cited source did not publish that specific indicator, rather than a zero or missing-data assumption on the part of the author. All figures are reproduced as reported by the cited source; no interpolation, estimation, or smoothing has been applied.

Year	NIP Transaction Value (₦ trillion)	MMO Transaction Value (₦ trillion)	Formal Financial Inclusion (%)	Financial Exclusion, Formal+Informal (%)
2014	n/a	n/a	n/a	39.5 (excluded, formal+informal)*
2016	n/a	n/a	38.3 (banked)*	41.6
2018	n/a	n/a	49	36.8
2020	n/a**	n/a	56 (51 pre-2023 restatement)†	32
2021	271.95	n/a	n/a	n/a
2022	387.07	n/a	n/a	n/a
2023	600.36	46.6	64	26
2024	1,070 (≈\$702.6bn)	79.5	n/a‡	n/a‡

**2014 and 2016 figures reported by EFInA used slightly different access-strand definitions ("banked"/"excluded, formal+informal") prior to methodological harmonisation in later survey waves; treat as broadly but not perfectly comparable to 2018–2023 figures. **NIP value for*

2020 was not isolated in the sources consulted; the 2021 figure is the earliest NIP transaction value located in the public reporting reviewed for this study. †EFinA restated 2020 formal inclusion from an initial 51% (GOV.UK, 2021) to 56% following the 2023 survey's revised methodology and population estimates (EFinA, 2023); both figures are reported here for transparency. ‡The next EFinA A2F survey wave had not been published at the time of writing. Sources: Vanguard (2025); TC Insights (2024); Credible News (2025); EFinA (2023); GOV.UK (2021); A2F.ng datasets (a2f.ng/datasets/).

Appendix B: MSME Structural Indicators — Full Data Series (2010–2024)

Table B1 presents the MSME population, GDP contribution, employment share, and export contribution figures drawn from the SMEDAN/NBS national MSME survey series and the PwC industry survey. As disclosed in Section 3.3, these are point-in-time census or survey observations rather than an annual series; the irregular spacing of survey years (2010, 2013, 2017, 2021, with a 2024 industry estimate) reflects the actual publication schedule of the underlying surveys and has not been adjusted or interpolated by the author.

Year	Number of MSMEs (million)	MSME Contribution to GDP (%)	MSME Employment Share (%)	MSME Export Contribution (%)
2010	17.3	46.5	n/a	n/a
2013	n/a*	n/a*	84.02 (employment count: 59,741,211 persons)	n/a
2017	41.5	n/a**	n/a (employment ~60 million)	n/a
2021	39.0	46.32	87.9	6.21–6.2
2024 (est.)	n/a†	≈49.5 (projected)	n/a†	n/a

*The 2013 MSME survey report (SMEDAN/NBS) reported the employment count and rate but the GDP contribution and total enterprise count for that specific wave were not isolated in the sources consulted for this study. **The 2017 survey's GDP contribution figure was not isolated in the sources consulted; the number of enterprises (41.5 million, comprising 41,469,947 micro and 73,081 small/medium enterprises) and approximate employment figure are as reported. †The 2024 figures shown are industry-survey projections (PwC/IIARD), not a new SMEDAN/NBS census; SMEDAN had not published a survey wave beyond 2021 at the time of writing, which is itself a limitation discussed in Sections 3.3 and 5. Sources: NBS/SMEDAN (2021); SMEDAN (2022); IIARD (2026); PwC (2024).

Appendix C: Descriptive Summary and Correlation Note

Table C1 reports simple descriptive growth rates for the indicators in Appendices A and B over the overlapping years for which both a digital financial inclusion proxy and an MSME proxy are observed (2021–2024 for DFI; 2017–2021 for the MSME population count; 2010–2021/2024 for MSME GDP contribution). Because only two MSME census points (2017, 2021) fall within the period for which NIP/MMO data also exist, a formal Pearson correlation coefficient computed across so few paired observations would carry negligible statistical meaning and could misleadingly imply a precision the data does not support. Consistent with the methodological limitation disclosed in Section 3.3, this appendix therefore reports directional growth comparisons rather than a fabricated or spuriously precise correlation statistic.

Indicator	Period	Direction / Approx. Change
NIP transaction value	2021–2024	↑ approx. +293.5% (₦271.95tn → ₦1,070tn)
Mobile money operator transaction value	2023–2024	↑ +70.6% (₦46.6tn → ₦79.5tn)
Formal financial inclusion rate	2020–2023	↑ +8 percentage points (56% → 64%)
Number of MSMEs	2017–2021	↓ approx. –6.0% (41.5m → 39.0m)
MSME contribution to GDP	2021–2024 (est.)	↑ approx. +3.2 percentage points (46.32% → ≈49.5%, projected)
MSME contribution to GDP	2021 (single survey wave)	↓ –3.5 percentage points reported for 2021 itself relative to prior SMEDAN estimate

Note: The simultaneous decline in MSME enterprise count (2017–2021) and the sharp rise in NIP/MMO transaction value (2021–2024) are not strictly contemporaneous, since the most recent MSME count predates the steepest phase of digital payment growth. This is precisely the data limitation that motivates the qualified, non-causal interpretation offered in Sections 4.3 and 5. Sources: as in Appendices A and B.

Appendix D: Data Source Register

Table D1 lists every data source drawn upon in Appendices A–C, the publishing institution, the access channel, and the date the source was retrieved for this study, to support independent verification by reviewers and readers.

Source	Institution	Access Channel	Data Vintage
A2F Survey, 2014/2016/2018/2020/2023 waves	EFInA	efina.org.ng/research/ and a2f.ng/datasets/	2014–2023
Payment system / e-payment statistics	Central Bank of Nigeria	cbn.gov.ng/PaymentsSystem/	2021–2024
NIP and MMO transaction reports (secondary reporting)	NIBSS (via Vanguard, TC Insights, Credible News)	See full URLs in References	2021–2024
National MSME Survey, 2013/2017/2021 waves	NBS / SMEDAN	nigerianstat.gov.ng	2013–2021
MSME Survey 2024	PwC Nigeria	pwc.com/ng	2024
SME contribution synthesis	IIARD Journal of Business and Economic Affairs	iiardjournals.org	2010–2024 (synthesis)

Researchers seeking the underlying microdata rather than the published aggregate figures reproduced here should note that EFInA makes its full A2F datasets available on request via a brief research proposal submitted to info@efina.org.ng, and that SMEDAN/NBS MSME survey microdata can be requested directly from the National Bureau of Statistics. This study relies exclusively on the published, publicly available aggregate statistics from these sources and does not claim to have accessed restricted microdata.