Financial Flows and Economic Growth in Nigeria

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ABSTRACT

This study examines how foreign direct investment (FDI), remittances (REM), and official development assistance (ODA) affect Nigeria's economic growth (GDP) from 1981 to 2022. Using annual data from the Central Bank of Nigeria and the World Bank, we conduct unit-root and Johansen cointegration tests and estimate a Vector Error Correction Model (VECM). We further assess inflation as a moderating variable on the flows–growth nexus. The results show: (i) FDI has an insignificant short-run effect but a positive and significant long-run association with GDP; (ii) ODA yields near-term gains with a delayed positive effect, yet relates negatively to growth in the long run; (iii) remittances have delayed short-run benefits but lack strong long-run structural impact; and (iv) inflation dampens growth in the short run, with limited evidence of long-run pro-growth effects. Policy should prioritize patient, stability-oriented FDI reforms, tighten governance and project selection for ODA, lower remittance costs and steer them toward productive uses, and manage inflation to avoid eroding short-run growth.

Keywords: economic growth; financial flows; FDI; ODA; remittances; inflation; Nigeria; VECM

INTRODUCTION

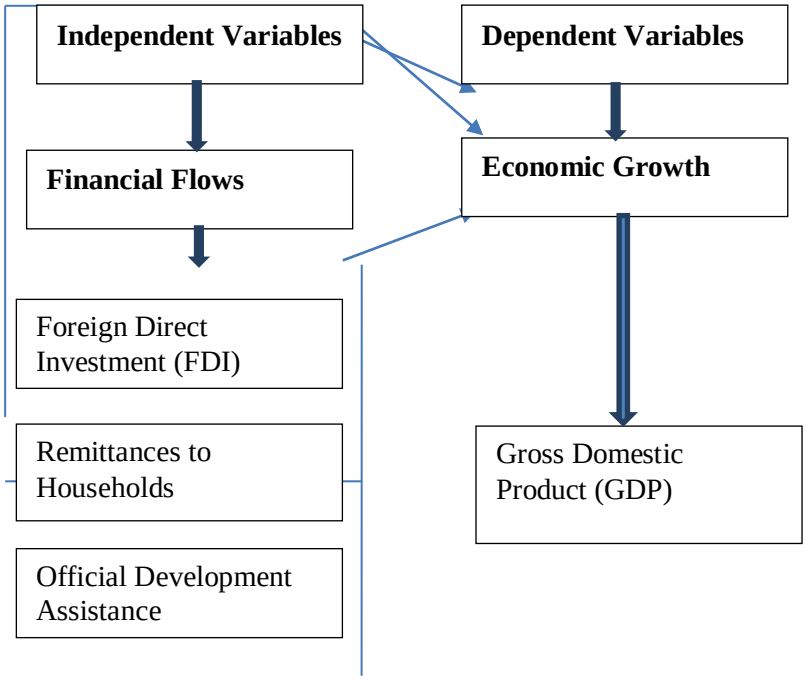
Nigeria may be Africa's biggest economy, but it's still walking on a shaky tight rope because so much of its fate is tied to oil. You could see the cracks during the 2008financial crisis, the 2014, 2016 oil price slump, and again with COVID-19. The same pressures keep resurfacing, inflation, a weakening currency, high poverty and unemployment, and persistent budget deficits. All those points to a simple conclusion: the country needs to broaden its revenue base and shore up its financial systems (Adenuga et al., 2021; NBS, 2023).

Money coming in from outside, FDI, remittances, aid (ODA), and portfolio flows, can plug financing gaps and help steady the economy. But in Nigeria, their impact gets dulled by familiar obstacles: weak institutions, corruption, red tape, and structural inefficiencies (Transparency International, 2022). Remittances often cushion households, and FDI can bring in know-how, but how much they actually move the growth needle depends on where the money goes, how informal the economy is, and how consistent policy turns out to be.

The research so far doesn't agree on how these inflows affect growth, many papers look at a single type of flow or rely on dated data. This study tries to fix that by examining how multiple inflows, FDI, remittances, and ODA, work together to influence Nigeria's growth from 1981 to 2022. It also brings inflation into the model as a moderator to capture feedback effects in the broader economy. The aim is straightforward: give policymakers clearer, data-backed guidance on how to harness these flows for growth that's both sustainable and inclusive.

In this setup, economic growth (proxied by GDP) is the dependent variable. The key independent variable is financial inflows into Nigeria, measured through FDI, household remittances (REM), and official development assistance (ODA).

Conceptional Model



LITERATURE REVIEW

Conceptual and Theoretical Underpinnings

Financial flows are basically money moving across borders, capital that tops up what countries can raise at home, fuels investment, and gives economies a bit more shock-absorption. For countries like Nigeria, they matter a lot: they help close the gap between what people save and what businesses need to invest, fund big-ticket infrastructure, and keep households afloat when times get rough (Levine, 2005). Classic growth models like Harrod, Domar and Solow, Swan say growth rides on capital accumulation and technology. Newer, endogenous growth ideas add an important twist: how well the financial system channels money to its best uses and supports innovation can change the game.

But in Nigeria, turning those inflows into real, broad-based growth is harder than it looks. The economy leans heavily on oil, institutions are weak, and a huge informal sector sits outside the tax and credit nets. FDI does come in, but it piles up in oil and gas, so it doesn't spill over much into job-rich areas like agriculture and manufacturing (Ajide, 2020). Aid (ODA) often targets social programs, but mismanagement and poor alignment with local priorities blunt its impact (Okeke & Ekesiobi, 2021). And remittances? They're a lifeline for families and reduce poverty, but most of that money is spent on day-to-day needs instead of going into productive investments (Adenutsi, 2020).

Empirical Review

The evidence from Nigeria is all over the place. Some researchers, like Ahemen et al. (2020), find that remittances boost growth over the long haul. Others, like Onwuteaka et al. (2023), don't see those inflows translating into better human development outcomes. It's a similar story with FDI: Adeleye et al. (2021) link it to higher GDP, but Osabuohien et al. (2019) show how weak institutions can sap those gains. And aid? ODA often lands with a soft thud—its direct growth effects tend to be small, especially when countries struggle to absorb and use it effectively (Perekunah & Oziegbe, 2016).

A big part of the problem is the way we study these flows. Most papers treat them in silos, FDI here, remittances there, without asking how they interact, or how macro forces like inflation change the story. This study steps back and takes the wider view. By looking at FDI, remittances, and ODA together, and bringing

inflation in as a moderating variable, it aims to capture the real dynamics of how money from abroad filters through Nigeria's economy and what that means for growth.

Theoretical Framework and Model Specification

This study blends the Harrod–Domar and Solow–Swan traditions to explain how money from abroad feeds into growth—partly by piling up capital, partly by making the economy more productive. The story is straightforward:

- FDI doesn't just bring cash; it brings machinery, know-how, and management practices that can lift productivity.
- Remittances put more money in households' hands, some of which can end up as savings or small-scale investments.
- ODA helps fund public projects, roads, power, health, education, that set the stage for private-sector activity.
- Inflation sits in the model as a moderator because it cuts both ways. In the short run, rising prices squeeze real incomes and can blunt the impact of those inflows. But under disciplined, predictable conditions, a bit of inflation can also grease the wheels of demand and keep investment moving, so it can amplify or dampen the growth effects depending on the macro environment.

The specified model is:

$$GDP = \beta_0 + \beta_1 FDI + \beta_2 REM + \beta_3 ODA + \beta_4 INF + e$$

where:

GDP = Gross Domestic Product (growth proxy),

FDI = Foreign Direct Investment inflows,

REM = Remittances to households,

ODA = Official Development Assistance,

INF = Inflation rate,

e = error term.

All variables are expressed in natural logarithms to normalize the data and interpret coefficients as elasticities.

METHODOLOGY

Research Design and Data

We use an ex-post facto design—no interventions, just careful analysis of what's already happened. The dataset is annual and runs from 1981 to 2022, pulled from two reliable sources: the Central Bank of Nigeria's Statistical Bulletin (2023) and the World Bank databases.

Estimation Technique

Econometric approach

Augmented Dickey–Fuller tests showed the series are I(1), they become stationary after first differencing. Johansen cointegration tests pointed to a single long-run relationship. With that in place, we estimated a Vector Error Correction Model (VECM) to capture short-run dynamics while keeping the system tied to its long-run equilibrium.

RESULTS AND DISCUSSION

Short-Run Dynamics

- FDI: Negative and statistically insignificant. Early absorption hurdles and narrow sector focus likely mute immediate gains.

- Remittances: Positive but insignificant, suggesting they're mostly spent on consumption rather than channelled into investment right away.

- ODA: Positive yet insignificant, consistent with the lag between funding and project execution.

- Inflation: Negative in the short term, as expected, rising prices squeeze real incomes and deter investment.

Long-Run Relationships

Long-run results

- FDI: Strong, positive effect on GDP (elasticity around 0.97), pointing to its role in boosting capital formation and diffusing technology.

- Remittances: Positive but not statistically significant, suggesting they don't translate into deep structural change without supportive policies.

- ODA: Significant negative coefficient, raising flags about dependency, distortion, and misallocation over time.

- Inflation: Positive long-run association, consistent with the idea that, in a developing economy, moderate inflation can tag along with expanding aggregate demand.

Economic and Policy Implications

Policy implications

- Tilt FDI toward the long game and away from oil—court investment in manufacturing, agro-processing, tech, and services to deepen linkages and productivity.

- Turn remittances into productive capital: expand digital finance, lower transfer costs, and nudge households toward savings and SME investment.

- Fix ODA governance: tighter project selection, transparency, and local ownership to prevent dependency and misallocation.

- Manage inflation with a steady hand: lean against short-term spikes, but don't overreact to moderate inflation that often accompanies periods of expansion.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study shows that not all financial inflows move growth in the same way—or on the same clock. FDI pays off over the long haul, feeding capital deepening and technology that push structural change. Remittances help smooth things in the short run but don't reliably spill over into lasting growth without the right policies. ODA can backfire if governance is weak, dragging on long-run performance. And inflation sits in the middle of it all—costly in the short term, and more ambiguous over time—shaping how these effects show up in the data.

Recommendations

Policy roadmap

1. FDI policy: Cut the red tape, target smart incentives, and empower a focused investment promotion agency to pull capital into agriculture, manufacturing, and renewables—not just oil.

2. Remittances: Make sending money cheaper through fintech partnerships, offer diaspora bonds to fund infrastructure, and give households clear pathways to invest productively.

3. ODA management: Put everything on a public tracker, tie projects tightly to national priorities, and lean into capacity-building so results outlast the funding cycle.

4. Inflation control: Keep monetary policy steady enough to tame short-run spikes, but don't crush the kind of moderate inflation that tends to ride along with growth.

5. Diversification: Nudge private capital into non-oil sectors to widen the base of the economy and cut vulnerability to commodity swings.

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Appendix A

VAR Lag Order Selection Criteria						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-31.002	NA	4.36E-06	1.846258	2.059535	1.92278
1	129.9539	272.387	4.14E-09	-5.125841	-3.84617*	-4.666709*
2	157.8598	40.06996*	3.81e-09*	-5.27486*	-2.928811	-4.4331
3	180.6959	26.93494	5.09E-09	-5.163893	-1.751459	-3.9395
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion.						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Appendix B

Cointegration Test

Table 4.3 – Cointegration test result

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.666486	80.06684	69.81889	0.0061
At most 1	0.392514	37.24208	47.85613	0.3362
At most 2	0.296713	17.80347	29.79707	0.5806
At most 3	0.078919	4.07584	15.49471	0.8973
At most 4	0.022055	0.869775	3.841466	0.351
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis				

at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.666486	42.82477	33.87687	0.0033
At most 1	0.392514	19.4386	27.58434	0.3813
At most 2	0.296713	13.72763	21.13162	0.3878
At most 3	0.078919	3.206065	14.2646	0.9321
At most 4	0.022055	0.869775	3.841466	0.351
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Appendix C

Cointegration Equation	**CointEq1**
GDP(-1)	1
FDI(-1)	0.973403
	-0.34281
	[2.83948]
ODA(-1)	-0.80277
	-0.48874
	[-1.64254]
REMITTANCES(-1)	1.084635
	-0.74347
	[1.45888]
RATE of INFLATION (-1)	3.596026
	-0.47356
	[7.59367]
C	-29.6226
Error Correction:	D(GDP)
CointEq1	0.150994
	-0.02921
	[5.16943]
D(GDP(-1))	-0.46477
	-0.16737
	[-2.77682]
D(GDP(-2))	-0.32303
	-0.15986
	[-2.02076]
D(FDI(-1))	-0.10093
	-0.06937
	[-1.45490]
D(FDI(-2))	-0.04935

	-0.06992
	[-0.70585]
D(ODA(-1))	0.066042
	-0.06551
	[1.00819]
D(ODA(-2))	0.163005
	-0.07446
	[2.18919]
D(REMITTANCES(-1))	0.584969
	-0.66147
	[0.88434]
D(REMITTANCES(-2))	2.225582
	-0.66527
	[3.34538]
D(RATE of INFLATION (-1))	-0.31274
	-0.09875
	[-3.16710]
D(RATE of INFLATION (-2))	-0.23686
	-0.08166
	[-2.90061]
C	-0.08154
	-0.0285
	[-2.86109]
R-squared	0.607784
Adj. R-squared	0.447992
Sum sq. resids	0.246794
S.E. equation	0.095606
F-statistic	3.8036
Log likelihood	43.3853
Akaike AIC	-1.6095
Schwarz SC	-1.09764
Mean dependent	0.008793
S.D. dependent	0.12868

Appendix D – Study Data

Year	**ODA**	**FDI**	**Remittances**	**GDP**	**Rate of Inflation (%)**
1981	39,250,000.00	540,000,000.00	35,920,000,000.00	228,377,872,884.21	20.81
1982	34,950,001.00	430,000,000.00	37,420,000,000.00	221,472,831,053.74	7.70
1983	46,750,000.00	360,000,000.00	37,990,000,000.00	219,268,205,494.18	23.21
1984	32,389,999.00	190,000,000.00	36,650,000,000.00	216,802,875,083.82	17.82
1985	31,709,999.00	490,000,000.00	35,810,000,000.00	210,101,349,535.90	7.44
1986	58,119,999.00	190,000,000.00	42,010,000,000.00	98,080,770,832.11	5.72
1987	67,620,003.00	610,000,000.00	50,810,000,000.00	60,865,725,066.55	11.29
1988					54.51

	118,080,002.00	380,000,000.00	54,560,000,000.00	69,518,794,402.16	
1989	344,000,000.00	1,880,000,000.00	58,260,000,000.00	56,138,140,748.23	50.47
1990	255,080,002.00	590,000,000.00	68,440,000,000.00	66,934,190,931.34	7.36
1991	258,320,007.00	710,000,000.00	72,650,000,000.00	73,390,514,452.88	13.01
1992	258,820,007.00	900,000,000.00	80,850,000,000.00	91,425,760,919.83	44.59
1993	288,420,013.00	1,350,000,000.00	81,080,000,000.00	72,669,066,803.77	57.17
1994	189,660,004.00	1,960,000,000.00	91,640,000,000.00	79,211,441,443.61	57.03
1995	210,960,007.00	340,000,000.00	94,550,000,000.00	141,627,916,568.76	72.84
1996	188,750,000.00	500,000,000.00	97,620,000,000.00	186,663,554,471.67	29.27
1997	199,839,996.00	470,000,000.00	110,990,000,000.00	201,859,696,100.34	8.53
1998	203,339,996.00	300,000,000.00	110,780,000,000.00	219,513,769,519.21	10.00
1999	151,990,005.00	1,000,000,000.00	115,060,000,000.00	250,450,174,569.38	6.62
2000	173,800,003.00	1,140,000,000.00	121,770,000,000.00	82,144,115,706.00	6.93
2001	167,820,007.00	1,190,000,000.00	132,150,000,000.00	83,176,703,835.80	18.87
2002	299,549,988.00	1,870,000,000.00	153,020,000,000.00	105,517,893,570.80	12.88
2003	309,850,006.00	2,010,000,000.00	188,330,000,000.00	118,920,821,822.59	14.03
2004	578,770,020.00	1,870,000,000.00	216,370,000,000.00	142,709,134,017.58	15.00
2005	6,400,000,000.00	4,980,000,000.00	253,910,000,000.00	175,165,749,975.96	17.86
2006	11,430,000,000.00	4,850,000,000.00	293,770,000,000.00	236,382,713,747.86	8.23
2007	1,640,000,000.00	6,040,000,000.00	350,081,000,000.00	288,966,197,809.48	5.39
2008	960,679,993.00	8,190,000,000.00	406,270,000,000.00	347,427,929,441.36	11.58
2009	1,160,000,000.00	8,560,000,000.00	389,490,000,000.00	299,734,197,384.36	12.54
2010	2,050,000,000.00	6,030,000,000.00	418,190,000,000.00	374,261,860,242.75	13.54
2011	1,810,000,000.00	8,840,000,000.00	468,220,000,000.00	421,803,107,547.07	10.83
2012	1,920,000,000.00	7,070,000,000.00	490,910,000,000.00	468,112,902,006.39	12.22
2013	2,520,000,000.00	5,560,000,000.00	522,810,000,000.00	528,751,156,040.90	8.50
2014	2,480,000,000.00	4,690,000,000.00	558,810,000,000.00	530,217,556,775.42	8.05
2015	2,430,000,000.00	3,060,000,000.00	549,950,000,000.00	478,280,078,812.69	9.01

2016	2,500,000,000.00	3,450,000,000.00	540,660,000,000.00	341,918,060,115.30	15.70
2017	3,360,000,000.00	2,410,000,000.00	587,730,000,000.00	382,997,499,659.06	16.50
2018	3,300,000,000.00	780,000,000.00	633,620,000,000.00	430,289,691,503.15	12.10
2019	3,280,000,000.00	2,310,000,000.00	657,940,000,000.00	485,463,797,930.43	11.40
2020	3,380,000,000.00	2,390,000,000.00	657,440,000,000.00	514,174,396,326.35	13.25
2021	3,530,000,000.00	3,310,000,000.00	739,930,000,000.00	586,918,339,556.78	16.95
2022	4,440,000,000.00	190,000,000.00	790,800,000,000.00	482,971,424,312.72	18.85