

# Determinants of Foreign Direct Investment in Nigeria: A Hierarchical Bayesian Modelling Approach.

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## ABSTRACT

The aim of this study is to examine the relationship between Foreign Direct Investment (FDI) and some macroeconomic indicators such as; Gross Domestic Product (GDP), inflation and exchange rate fluctuations in Nigeria. The data used were extracted from the website of the Central Bank of Nigeria (CBN) and World Bank spanning from 1990 to 2023 to capture long-term economic trends.

The study employed a Bayesian regression approach within a hierarchical framework to analyze the impact of these macroeconomic variables on FDI inflows. The results indicate that GDP has a positive and significant effect on FDI, suggesting that economic growth enhances the attractiveness of Nigeria to foreign investors. In contrast, inflation exhibits a negative relationship with FDI, reflecting the adverse effect of macroeconomic instability on investment decisions. Exchange rate fluctuations also show a negative, though relatively weaker, influence on FDI inflows. Model diagnostics confirm that the estimates are stable and reliable, with satisfactory convergence and predictive performance. Overall, the findings highlight the importance of maintaining macroeconomic stability and promoting sustained economic growth to attract foreign investment.

The study recommends that policymaker's priorities growth enhancing policies, inflation control, and exchange rate stability to improve Nigeria's investment climate. Furthermore, the adoption of Bayesian techniques is encouraged for future econometric analysis due to their ability to incorporate uncertainty and provide robust parameter estimates

**Keywords** – Foreign Direct Investment, Gross Domestic Product, Inflation, Exchange rate, Bayesian Regression.

## INTRODUCTION

Foreign Direct Investment (FDI) has long been recognized as a crucial driver of economic development, particularly in emerging markets. It facilitates capital inflows, technology transfer, job creation, and infrastructural development, all of which are essential for sustainable economic growth (Dunning, 2018; World Bank, 2020). In Nigeria, FDI serves as a critical component of national development strategies, complementing domestic investments and contributing to the diversification of the economy (Adegbite and Olayemi, 2019).

However, the volatility of FDI inflows in Nigeria has raised concerns regarding the underlying factors influencing foreign investors' decisions and the effectiveness of policies aimed at attracting sustained investments (Ajayi, 2021; Osabuohien et al., 2022). Given the dynamic nature of global capital flows, it has become imperative to apply advanced econometric techniques such as hierarchical Bayesian modeling to analyze the determinants of FDI and provide robust insights into investment patterns in Nigeria (Kim et al., 2019).

Nigeria, being Africa's largest economy, has historically attracted significant levels of FDI, particularly in its oil

and gas sector. The country's abundant natural resources, large consumer market, and strategic geographical location have made it a key destination for foreign investors (Ibeh et al., 2020; Okafor et al., 2021). However, the reliance on oil as a primary source of FDI has exposed the economy to external shocks, including fluctuations in global oil prices, political instability, and regulatory uncertainties (Asiedu, 2019; Olayemi and Adetayo, 2021).

Despite efforts to diversify FDI into non-oil sectors such as agriculture, manufacturing, and telecommunications, progress has remained limited, with many investors still perceiving Nigeria as a high-risk investment environment (Ogunkola and Olawale, 2020; Obafemi et al., 2021; Oduyemi, 2023). In this context, the application of hierarchical Bayesian framework provides a more flexible approach to analyzing these dynamics by accounting for parameter uncertainty and allowing for more nuanced inference regarding the determinants of FDI inflows.

Macroeconomic stability plays a critical role in shaping FDI inflows, with key variables such as Gross Domestic Product (GDP), inflation, and exchange rates influencing investment decisions (CBN, 2021). Empirical evidence suggests that higher GDP growth rates are associated with increased FDI, as investors seek markets with strong economic performance and potential for high returns (Blonigen and Piger, 2019; Asongu et al., 2021; Ezeaku et al., 2022). However, Nigeria's economic growth has been inconsistent, with periods of expansion followed by recessions triggered by external shocks, policy missteps, and structural weaknesses (Adamu, 2020; Ogbuabor and Onwujekwe, 2021; Egbo et al., 2023).

Nigeria's foreign direct investment (FDI) landscape is significantly influenced by macroeconomic policies and external economic shocks. In recent years, fluctuations in global commodity prices, particularly crude oil, have played a critical role in shaping FDI inflows. As a major oil-exporting nation, Nigeria experiences volatility in investment patterns due to shifts in global oil demand and supply (Akinlo and Apanisile, 2020). When oil prices are high, the country tends to attract more investment in extractive industries; however, periods of low prices discourage investors due to reduced profitability and fiscal instability. A stable exchange rate attracts foreign investors by reducing uncertainty in repatriating profits and managing operational costs.

However, Nigeria has experienced persistent currency depreciation, driven by inflationary pressures, declining foreign reserves, and rising external debt obligations (Osifo et al., 2020). In response, the Central Bank of Nigeria (CBN) has implemented various monetary policy measures, including multiple exchange rate windows, to stabilize the naira, although with mixed outcomes. Given the Volatility of the exchange rate and its implications for investment decisions, understanding its relationship with Foreign Direct Investment (FDI) remains crucial.

Several empirical studies have examined determinants of FDI using traditional econometric approaches. For instance, Nwisieniyi and Okaro (2024) employed Johansen Co-integration and Vector Error Correction Model (VECM) and found the trade openness and stock market capitalization positively influence FDI, while real GDP exhibits a significant but negative relationship. Similarly, Akinlo and Apanisile (2020) using an Autoregressive Distributed Lag (ARDL) model and showed that exchange rate volatility negatively affects FDI in both the short and long run. While these studies provide valuable insights, they are limited by their reliance on classical estimation techniques that may not fully capture the complexity and uncertainty inherent in macroeconomic relationships.

Most existing studies rely on traditional econometric models such as Ordinary Least Squares (OLS), Vector Autoregression (VAR), and Generalized Method of Moments (GMM), which often assume parameter homogeneity and fail to adequately account for uncertainty in estimation. These approaches may overlook the dynamic and potentially heterogeneous nature of FDI behaviour across time and economic conditions. Furthermore, macroeconomic variables such as GDP, inflation, and exchange rate volatility interact in complex way that require more flexible modelling frameworks capable of incorporating prior information and probabilistic (Musa and Ibrahim, 2023).

Moreover, in recent years, Bayesian methods have gained increasing attention in FDI research due to their ability to address model uncertainty, multicollinearity, and parameter instability. For example, Blonigen and Piger (2019) applied Bayesian Model Averaging (BMA) to identify key determinants of FDI across countries,

demonstrating the importance of accounting for model uncertainty in empirical analysis. Similarly, Poukliakova (2008) used Bayesian techniques to estimate the impact of governance indicators on FDI, highlighting their effectiveness in handling highly correlated variables. Jordan and Lenkoski (2012) developed a Bayesian framework incorporating model uncertainty in Tobit models, while Dao, Bui, and Doan (2024) showed that Bayesian estimation provides probabilistic insights into the effects of governance and macroeconomic variables on FDI inflows.

Despite these advancements, the application of Bayesian methods particularly hierarchical Bayesian modelling in the context of FDI analysis in Nigeria remains limited. This represents a significant gap in the literature, as hierarchical Bayesian models offer a flexible framework for capturing parameter uncertainty and potential heterogeneity in macroeconomic relationships. By allowing parameters to vary and incorporating prior information, these models provide more robust and reliable estimates compared to conventional approaches.

Therefore, this study contributes to the existing literature by applying a Bayesian regression approach within a hierarchical framework to examine the determinants of FDI in Nigeria. This approach enables a more comprehensive understanding of the interactions between GDP, inflation and exchange rate movements, while explicitly accounting for uncertainty and improving robustness of the estimated relationships.

## METHODOLOGY

This study outlines the research methodology used to investigate the relationship between foreign direct investment (FDI) and key macroeconomic indicators: Gross Domestic Product (GDP), Inflation, and Exchange Rate in Nigeria. It presents the data sources, model specification, estimation techniques, and justification for the methods employed. The study adopts a Bayesian regression approach within a hierarchical framework to evaluate the relationships between these variables, leveraging its flexibility and ability to incorporate uncertainty in parameter estimation.

### Data Sources and Description

This study examines the relationship between Foreign Direct Investment (FDI) and key macroeconomic indicators in Nigeria using annual time-series data from 1990 to 2023, sourced from the World Bank and Central Bank of Nigeria (CBN) database. The variables analyzed include:

- **FDI:** Foreign Direct Investment (as a percentage of GDP), used as the dependent variable.
- **GDP:** Gross domestic product (current US dollars), serves as a proxy for economic growth.
- **Inflation:** Annual percentage change in the consumer price index, representing macroeconomic stability.
- **Exchange Rate:** Official exchange rate (Naira per US dollar), capturing external sector dynamics.

The selection of GDP, inflation, and exchange rate is grounded in macroeconomic theory and empirical literature on FDI determinants. GDP serve as a proxy for market size and economic performance, which are key drivers of foreign investment. Inflation reflects macroeconomic stability, where high inflation signals economic uncertainty and may discourage investment inflows. The exchange rate captures external sector conditions and influences the cost of investment and profit repatriation for foreign investors.

### Model Specification

To examine the influence of macroeconomic variables on FDI, the following regression model is specified:

$$FDI_t = \alpha + \beta_1 GDP_t + \beta_2 Inflation_t + \beta_3 Exchange Rate_t + \varepsilon_t \dots\dots\dots(1)$$

Where:

- $\alpha$  is the intercept

- $\beta_1, \beta_2, \beta_3$  are the slope coefficients
- $\varepsilon_t \sim N(0, \sigma^2)$

To account for potential unobserved heterogeneity and parameter uncertainty, the model is specified within a Bayesian framework with hierarchical interpretation, where model parameters are treated as random variables. This structure enhances model flexibility and improves estimation robustness compared to classical approaches.

### Bayesian Model Framework

In the Bayesian framework, model parameters are treated as random variables. The likelihood function is specified as:

$$FDI_t \sim N(\mu_t, \sigma^2)$$

Where:  $\mu_t = \alpha + \beta_1 GDP_t + \beta_2 Inflation_t + \beta_3 Exchange Rate_t + \varepsilon_t \dots \dots \dots (2)$

### Prior Distributions

The study adopts weakly informative priors to reflect limited prior knowledge about the parameters:

$$\alpha \sim N(0, 1000)$$

$$\beta_1, \beta_2, \beta_3 \sim N(0, 1000)$$

$$\sigma^2 \sim InvGamma(a, b)$$

Where a and b are shape and scale parameters, respectively.

### Posterior Distribution

The posterior distribution is obtained by combining the likelihood and prior distributions using Bayes' theorem:

$$P(\alpha, \beta, \sigma^2 | FDI_t) \propto P(FDI_t | \alpha, \beta, \sigma^2) \cdot P(\alpha) \cdot P(\beta_1) \cdot P(\beta_2) \cdot P(\beta_3) \cdot P(\sigma^2) \dots \dots \dots (3)$$

### Estimation Procedure

The model parameters are estimated using Markov Chain Monte Carlo (MCMC) techniques, specifically the Gibbs sampler and Metropolis-Hastings algorithm.

Four Markov chains were run with 2000 iterations each, including a burn-in period of 1000 iterations, resulting in 4000 post-warmup samples used for inference.

### Convergence Diagnostics

Trace plots are used to assess whether the chains are well-mixed without visible trends or drift. The Gelman-Rubin diagnostic (R-hat) is employed where values close to 1 indicate convergence across chains. In addition, the effective sample size ( $n_{eff}$ ) is examined to evaluate sampling efficiency. These diagnostics are used to assess whether the Markov chains have adequately converged and whether the posterior estimates are reliable.

### Model Evaluation and Comparison

Model performance was assessed using:

- **Posterior Predictive Checks**, which compare simulated data from the model with observed data.
- **Mean Squared Error (MSE)** and **Root Mean Squared Error (RMSE)** to evaluate predictive accuracy.

A close agreement between simulated and observed values is expected to indicate that the model is well specified and provides a good fit to the data.

## RESULTS

This session presents the results of the Bayesian regression model applied to foreign direct investment (FDI) inflows in Nigeria, focusing on the effects of Gross Domestic Product (GDP), inflation, and exchange rate. The findings are based on the posterior distributions obtained through Markov Chain Monte Carlo (MCMC) simulations, ensuring robust parameter estimation with credible intervals. The section begins with a descriptive analysis of the dataset, followed by the estimation results. Diagnostic checks, including trace plots, and posterior predictive checks, are discussed to assess model convergence and reliability

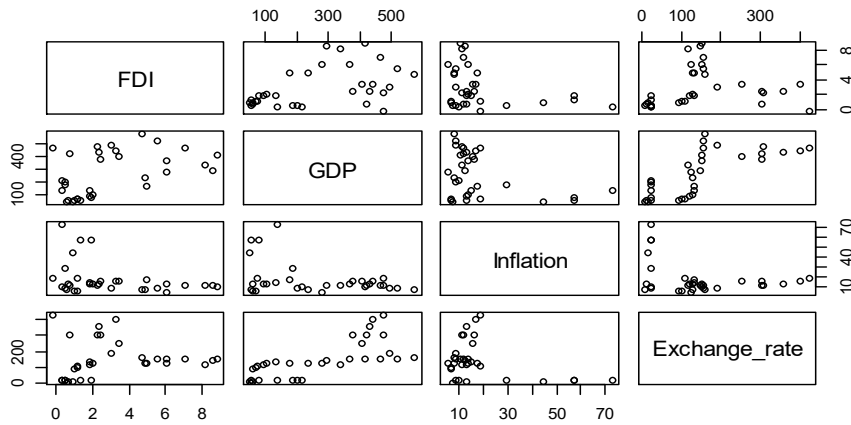
### Summary Statistics

Table 1 presents the descriptive statistics for key variables: Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Inflation, and the Exchange Rate. FDI records a mean value of 2.99, with values ranging from -0.19 to 8.84. The presence of negative values indicates periods of capital outflows, reflecting episodes of economic uncertainty or unfavorable investment conditions in Nigeria. The wide range suggests that FDI inflows have been highly volatile over the study period. GDP exhibits substantial variation, with values ranging from 52.06 to 574.18 and a mean of 265.7. This trend reflects significant economic expansion over time, which is expected to play a crucial role in attracting foreign investment, as larger economies typically offer greater market opportunities. Inflation shows considerable fluctuation, with values ranging from 5.39 to 72.83. Such extreme variability indicates period of macroeconomic instability, which may discourage foreign investors due to increased uncertainty and reduced purchasing power. Similarly, the exchange rate ranges from 8.04 to 425.98, with a mean of 146.55, indicating significant depreciation of the Nigerian naira over time. This volatility in exchange rates can have mixed implications for FDI: while depreciation may lower the cost of investment for foreign investors, excessive volatility may increase risk and deter investment inflows. Overall, the descriptive statistics reveal a high dynamic macroeconomic environment characterised by volatility in key indicators. These fluctuations are likely to have important implications for the behavior of foreign direct investment in Nigeria.

**Table 1: Summary Statistics**

	FDI	GDP	Inflation	Exchange rate
Min.	-0.1868	52.06	5.388	8.038
1st Qu.	0.8966	95.05	9.009	22.065
Median	2.0054	238.46	12.877	129.222
Mean	2.9859	265.7	18.085	146.551
3rd Qu.	4.8544	421.74	16.953	158.553
Max.	8.8411	574.18	72.835	425.979
Stdev	2.6274	170.353	16.1079	116.638

Figure 1 presents scatter plots illustrating the relationships between foreign direct investment (FDI) and key macroeconomic variables: GDP, Inflation, and the exchange rate. The scatter plot of FDI and GDP suggests a positive association, indicating that higher levels of economic activity are generally accompanied by increased FDI inflows. This pattern is consistent with the expectation that larger economies may offer more attractive investment opportunities. In contrast, the relationship between FDI and Inflation appears negative, suggesting that higher inflation is associated with lower levels of FDI. This may reflect the impact of macroeconomic instability on investor confidence. The relationship between FDI and exchange rate appears relative weak and less distinct, indicating that exchange rate movements may not exhibit a strong linear association with FDI inflows over the study period.



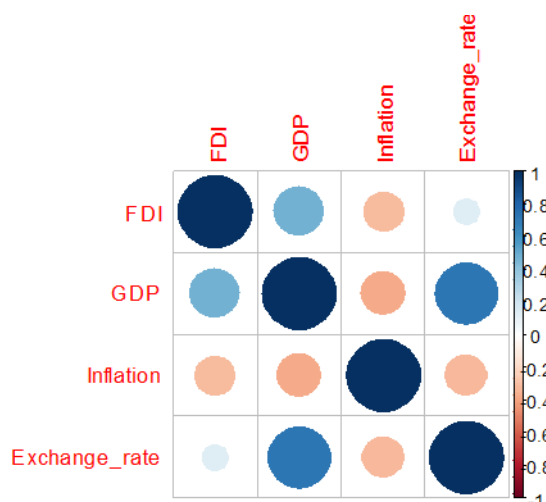
**Figure 1: Scatter Plot**

Table 2 presents the correlation matrix for FDI, GDP, Inflation, and the Exchange Rate. The results shows that FDI is moderately positively correlated with GDP (0.4709), suggesting that the periods of higher economic output tend to coincide with increased foreign investment inflows. Conversely, FDI exhibits a negative correlation with Inflation (-0.3110), indicating that higher inflation levels are associated with reduced investment inflows. The correlation between FDI and exchange rate is weakly positive (0.1331), implying a limited linear relationship between the two variables. Additionally, GDP and exchange rate display a strong positive correlation (0.7205), which may reflect underlying macroeconomic dynamics, including the effects of currency valuation on nominal economic indicators.

**Table 2: Correlation Matrix**

	FDI	GDP	Inflation	Exchange rate
FDI	1	0.4709	-0.3110	0.1331
GDP	0.4709	1	-0.3710	0.7205
Inflation	-0.3110	-0.3710	1	-0.3233
Exchange rate	0.1331	0.7205	-0.3233	1

Figure 2 presents a graphical representation of the correlation matrix, where varying colour indicate the strength of relationships among variables. Darker shades represent stronger correlations, while lighter shades indicate weaker relationships. The plot highlights that GDP exhibits a relatively stronger positive association with FDI compared to other variables, while inflation and exchange rate show weaker associations. However, these relationships are explanatory and further examined within the Bayesian regression framework.



**Figure 2: Correlation Plot**

Table 3-6 present the parameter estimates from the four Markov chains. The results across all chains are highly consistent, indicating stability and reliability of the estimated parameters. The coefficient for GDP is positive across all chains, suggesting that higher economic output is associated with increased FDI inflows. Inflation consistently exhibits a negative mean coefficient; however, its credible intervals include zero, indicating that its effect on FDI is uncertain. Similarly, the exchange rate shows a negative relationship with FDI, although the magnitude of this effect is relatively small. The intercept ( $\alpha$ ) remains stable across chains, representing the baseline level of FDI, while the error term ( $\sigma$ ) indicates moderate unexplained variability in the model. Overall, the consistency across chains supports the robustness of the Bayesian estimation.

**Table 3: Model Summary (Hierarchical Chain 1)**

Parameter	Mean	Sd	2.50%	25%
Alpha	2.0648	1.1120	-0.0856	1.3108
beta_GDP	0.0113	0.0035	0.0045	0.0089
beta_Inflation	-0.0306	0.0283	-0.0866	-0.0491
beta_Exchange_rate	-0.0104	0.0050	-0.0203	-0.0136
Sigma	2.3373	0.3320	1.8281	2.1022
lp__	-43.0684	1.7189	-47.2361	-43.9711
	50%	75%	97.50%	
Alpha	2.0520	2.8022	4.2498	
beta_GDP	0.0112	0.0136	0.0185	
beta_Inflation	-0.0295	-0.0112	0.0221	
beta_Exchange_rate	-0.0105	-0.0072	-0.0003	
Sigma	2.2837	2.5152	3.1090	
lp__	-42.7648	-41.7943	-40.7333	

**Table 4: Model Summary (Hierarchical Chain 2)**

Parameter	Mean	Sd	2.50%	25%
Alpha	2.0068	1.1052	-0.1558	1.2471
beta_GDP	0.0114	0.0034	0.0049	0.0092
beta_Inflation	-0.0298	0.0290	-0.0895	-0.0489
beta_Exchange_rate	-0.0103	0.0053	-0.0211	-0.0139
Sigma	2.3499	0.3205	1.8515	2.1149
lp__	-42.9700	1.7509	-47.4644	-43.7614
Parameter	50%	75%	97.50%	
Alpha	1.9790	2.7667	4.1995	
beta_GDP	0.0114	0.0137	0.0186	
beta_Inflation	-0.0288	-0.0106	0.0263	
beta_Exchange_rate	-0.0103	-0.0070	-0.0005	
Sigma	2.3132	2.5397	3.0989	
lp__	-42.5875	-41.6680	-40.7512	

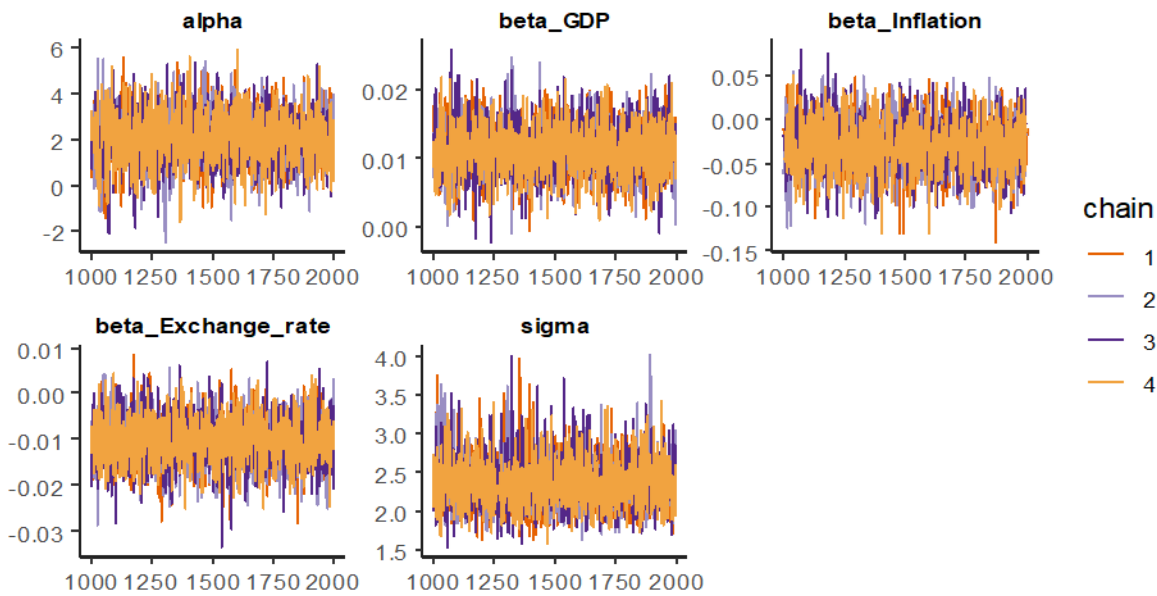
**Table 5: Model Summary (Hierarchical Chain 3)**

Parameter	Mean	Sd	2.50%	25%
Alpha	1.94347	1.13371	-0.31621	1.17270
beta_GDP	0.01142	0.00391	0.00403	0.00885
beta_Inflation	-0.02752	0.02924	-0.08417	-0.04722
beta_Exchange_rate	-0.01024	0.00528	-0.02041	-0.01380
Sigma	2.36921	0.35025	1.78602	2.11997
lp__	-43.15440	1.88155	-47.92665	-44.01645
	50%	75%	97.50%	
Alpha	2.01240	2.70237	4.04320	
beta_GDP	0.01128	0.01385	0.01929	
beta_Inflation	-0.02804	-0.00861	0.03223	
beta_Exchange_rate	-0.01015	-0.00684	0.00020	
Sigma	2.31741	2.57572	3.18449	
lp__	-42.83306	-41.77073	-40.81940	

**Table 6: Model Summary (Hierarchical Chain 4)**

Parameter	Mean	Sd	2.50%	25%
Alpha	2.07481	1.16425	-0.22414	1.29605
beta_GDP	0.01122	0.00355	0.00414	0.00894
beta_Inflation	-0.03075	0.02905	-0.08890	-0.05018
beta_Exchange_rate	-0.01035	0.00492	-0.01993	-0.01361
Sigma	2.33718	0.30409	1.83616	2.11271
lp__	-43.04393	1.63509	-47.28143	-43.93310
	50%	75%	97.50%	
Alpha	2.07954	2.86579	4.24726	
beta_GDP	0.01125	0.01352	0.01824	
beta_Inflation	-0.03047	-0.01276	0.02590	
beta_Exchange_rate	-0.01043	-0.00689	-0.00025	
Sigma	2.30594	2.52461	3.03168	
lp__	-42.72611	-41.83592	-40.80137	

Figure 3 presents the trace plot for the model parameters across four chains. The plots show good mixing and overlap among chains, with no visible trends or drift, indicating convergence of the Markov Chain Monte Carlo (MCMC) simulations. This suggests that the sampling process has adequately explored the posterior distribution, and the parameter estimates are reliable for inference.



**Figure 3: Trace Plot**

Table 7 presents the combined posterior estimates from all four chains, based on 4,000 post-warmup draws. The results indicate that the intercept ( $\alpha$ ) with a mean of 2.0225, represents the baseline level of FDI when all other explanatory variables are held constant. The coefficient for GDP ( $\beta_1 = 0.0113$ ) is positive, and its credible interval (0.0043 to 0.0187) does not include zero, indicating a statistically meaningful positive association between economic growth and FDI inflows. Inflation ( $\beta_2 = -0.0297$ ) exhibits a negative mean effect; however, its credible interval (-0.0866 to 0.0270) includes zero, suggesting that its impact on FDI is uncertain. The exchange rate coefficient ( $\beta_3 = -0.0103$ ) is negative, with its credible interval (-0.0204 to -0.0003) not crossing zero, indicating a weak but statistically meaningful negative relationship with FDI. The ( $\sigma = 2.3484$ ) reflects the level of unexplained variation in FDI. Additionally, the effective sample sizes ( $n_{eff}$ ) are sufficiently large, and all R-hat are equal to 1, confirming that the model has converged and that the parameter estimates are reliable.

**Table 7: Bayesian Hierarchical Model**

4 chains, each with iter =2000; warmup=1000; thin=1;

post-warmup draws per chain=1000, total post-warmup draws=4000.

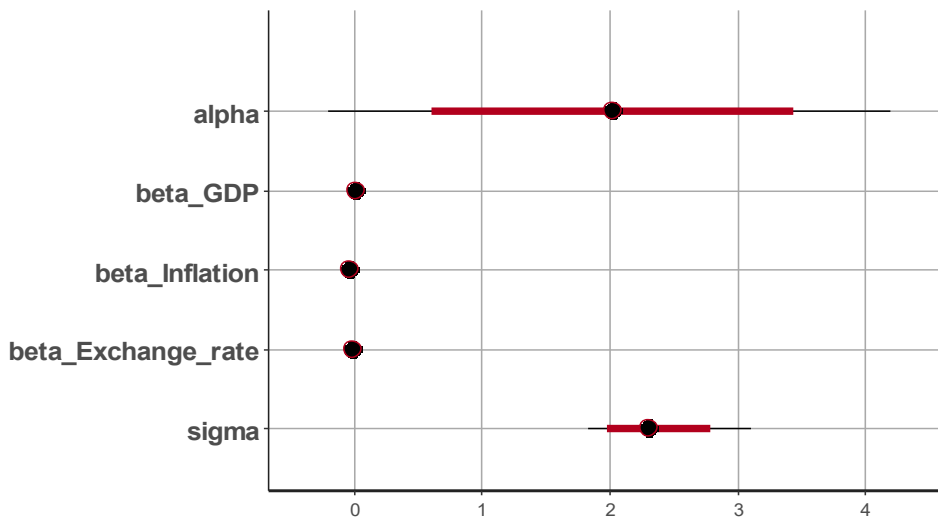
Parameter	Mean	SE	Sd	2.50%
Alpha	2.0225	0.0267	1.1298	-0.2029
beta GDP	0.0113	0.00008	0.0036	0.0043
beta Inflation	-0.0297	0.00066	0.0289	-0.0866
beta Exchange rate	-0.0103	0.0001	0.0051	-0.0204
Sigma	2.3484	0.00706	0.3273	1.8324
lp	-43.0592	0.04936	1.7495	-47.4198
	25%	50%	75%	97.50%
Alpha	1.2587	2.0313	2.7917	4.1875
beta GDP	0.0090	0.0113	0.0137	0.0187
beta Inflation	-0.0487	-0.0293	-0.0108	0.0270
beta Exchange rate	-0.0137	-0.0103	-0.0070	-0.0003
Sigma	2.1115	2.3037	2.5389	3.1047
lp	-43.9304	-42.7231	-41.7680	-40.7539

	n_eff	Rhat		
Alpha	1790.32	1		
beta_GDP	2177.73	1		
beta_Inflation	1892.65	1		
beta_Exchange_rate	2410.63	1		
Sigma	2149.92	1		
lp	1255.95	1		

The effective sample size (n\_eff) provides a measure of sampling efficiency, while R-hat statistic assesses convergence across chains, with values close to 1 indicating satisfactory convergence.

The predictive performance of the model was further evaluated using the Mean Squared Error (MSE) and Root Mean Squared Error (RMSE). The results achieved an MSE of 4.4178 and an RMSE of 2.1018, indicating a reasonable level of predictive accuracy for a macroeconomic time series characterised by inherent volatility. These suggest that the model provides adequate fit to the observed data, although some variation in FDI remains unexplained.

Figure 4 presents the posterior distributions of the model parameters, illustrating the uncertainty associated with each estimate. The distribution for GDP is concentrated in the positive region, reinforcing its positive association with FDI. In contrast, the distribution for inflation spans both negative and positive values, reflecting uncertainty in its effect. The exchange rate distribution is predominantly negative, supporting a weak negative relationship with FDI. The sigma distribution indicates the degree of unexplained variability in the model. Overall, the posterior distributions provide further evidence of parameter stability and estimation uncertainty.



Ci\_level: 0.8 (80% intervals), Outer\_level: 0.95 (95% intervals)

**Figure 4: Model Plot**

## CONCLUSION AND RECOMMENDATION

This study examined the relationship between Foreign Direct Investment (FDI) and key macroeconomic indicators in Nigeria using a Bayesian regression approach within a hierarchical framework. The findings provide important insights into how economic conditions influence FDI inflows. The positive and statistically meaningful association between Gross Domestic Product (GDP) and FDI suggests that economic growth plays a crucial role in attracting foreign investment. This finding is consistent with existing empirical studies such as those by Adams (2019) and UNCTAD (2020), which argue that expanding economies create favourable conditions for investment through increased market size and improved business opportunities. Inflation was found to exhibit a negative but statistically uncertain relationship with FDI. While the negative sign aligns with prior studies, including Cleeve et al., (2020) and Adeniyi and Omisakin (2021), which suggest high inflation,

discourages investment by increasing uncertainty, the lack of statistical certainty in this study indicates the effect of inflation on FDI may be context-dependent and influenced by other macroeconomic factors. The exchange rate shows a weak but statistically meaningful negative relationship with FDI, suggesting that currency instability may deter foreign investors. This finding supports the work of Ibrahim and Hassan (2019), who emphasize that exchange rate volatility introduces risks, particularly in terms of profit repatriation and investment planning.

Overall, the findings highlight that while economic growth is a strong driver of FDI inflows, macroeconomic instability captured through inflation and exchange rate fluctuations can undermine investor confidence. The Bayesian framework adopted in this study further strengthens these insights by explicitly accounting for uncertainty in parameter estimates and allowing for more flexible inference compared to traditional econometric approaches.

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