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Understanding the Economic Development Implications ofTrinity Policy Trade-offs: A Focus on Poverty Headcount in Nigeria

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ABSTRACT: Drawing support from the Mundell-Fleming framework, this study provides insights into the economic development implications of trinity policy goals (monetary autonomy, exchange rate stability and financial integration) in Nigeria between 1980 and 2020. Poverty headcount was used as a proxy for economic development. The external reserve is introduced to the empirical model in recognition of its role in stimulating the effectiveness of trinity policy goals. Data for the variables were sourced from the National Bureau of Statistics, CBN Statistical Bulletin and World Bank World Development Indicators (WDI) among others. Descriptive statistics, graphical illustration, Pairwise correlation, Phillips-Perron unit root test, bounds cointegration and ARDL model form the basis for data analysis. The unit root test results reveal that the variables are mixed integrated. It was also found from the ARDL estimates that monetary autonomy and capital mobility have a significant positive effect on poverty headcount in both the short and long run. This suggests that more monetary policy sovereignty and openness of the financial architecture yield positive benefits of sustainable reduction in poverty and improved living standard. Given the findings, this study recommends that policymakers should gradually relax restrictions on capital mobility and promote appreciable monetary sovereignty to provide a roadmap for a sustainable reduction in poverty in Nigeria.

Keywords: Trinity trade-offs, Poverty headcount, monetary autonomy, exchange rate stability financial integration and Nigeria

I. INTRODUCTION

The trinity policy hypothesis (defined as the impossibility of combining the three policy goals of monetary autonomy, exchange rate stability and financial integration) has continued to receive growing attention in the modern open political economy environment.Hsing (2012) argues that an appropriate combination of any two of the trinity policy goals is important for mitigating output and exchange rate volatility, reduce sluggish growth and mobilize foreign investment from the rest of the world. This can provide a road map for a sustainable reduction in poverty and income gap while creating opportunities for productive employment. Similar, Ihnatov&Capraru (2014) are of the view that trinity policy goals, especially financial integration plays important role in mitigating macroeconomic volatility in Central and Eastern Europe (CEE) countries. In a like manner, Bahmani-Oskooee, Hoosny&Kishor(2015) identify the increasing role of the trinity policy measures in reducing the volatility of the domestic rate of interest. This mirrors the indirect effects of the core trinity policy initiatives on investment smoothing and improved economy-wide aggregates.

Nigeria has continued to make policy choices to keep the economy on the path of growth and create better opportunities for socio-economic development. Policymakers and relevant authorities, especially the Central Bank of Nigeria (CBN) are faced with the challenge of deciding the country's policy priority for employment as well as a sustainable reduction in poverty and income gap. Combining monetary autonomy and fixed exchange rate regime has been described as fundamental for improving the level of competitiveness and avoiding the balance of payments (BoP) crisis. Ajogbeje, Adeniyi&Egwaikhide (2018) opine that policymakers in Nigeria have, in recent time, embraced appreciable monetary autonomy and financial integration while allowing for various forms of managed float exchange rate regime. This is intended to offer rapid and sustained opportunities for economic stability, productive investments and socioeconomic development amongst others. As the apex monetary authority in Nigeria, the CBN oversees policy decisions in line with the predictions of the Mundell-Fleming hypothesis to foster stability, reduce the volatility of output and foreign exchange while improving the development process.

Despite the various trinity policy mix initiated by policymakers in the past two decades, Nigeria's poverty incidence has continued to generate concerns. The poverty level in Nigeria is unacceptably high as the

2018 African Economic Outlook (AEO) showed that about 80 per cent of the population lives on less than US$2 per day. Additionally, the World Poverty Clock reveals that 91.16 million Nigerians were trapped in poverty in 2019 as the country is labelled 'world poverty headquarters'.This has intensified the controversy in policy debate regarding the effectiveness of the trinity policy mix in supporting governments' efforts to foster pro-poor growth. Given Nigeria's growing poverty level amidst various trinity policy combinations, the following questions ensue: What are the dynamics of trinity policy goals in Nigeria?Which of the policy mix is effective in fostering sustainable reduction in poverty? Has external reserve build-up helped to stimulate the effectiveness of the trinity policy mix and buffering shocks to promote poverty reduction in Nigeria? This study provides answers to these questions and more by deepening the understanding of the development implications of trinity policy trade-offs with a focus on poverty headcount in Nigeria.

II. REVIEW OF RELATED LITERATURE

1.1 Theoretical Framework

The Mundell-Fleming hypothesis proposed by Mundell (1961, 1963) and Fleming (1962) assumes that a small open economy cannot simultaneously implement the macroeconomic policies of monetary independence, fixed exchange rate system and free mobility of capital across the national boundaries. Thus, the three macroeconomic goals are mutually exclusive as only two out of the three policy objectives can be achieved at a time. The Mundell-Fleming model describes the international flow of goods and services and capital that can affect the country in profound ways (Manasseh, Asogwa, Agu&Aneke, 2014). The theoretical postulations of the model are useful tools to gauge the effect of economic policy based on the adopted exchange rate regimes in a country (Okotori&Ayunku, 2020).

Other assumptions of the Mundell-Fleming model include homogeneity of spot and forward exchange rates, wages and inflation are unchanged, taxes and savings are directly correlated with income and trade balance depend solely on income and the prevalent exchange rate. Thus, the behaviour of the economy is dependent on the exchange rate system adopted by the country through its central bank (Ajogbeje, *et al.* 2018). On the policy aspect of the Mundell-Fleming model, Asogwa (2016) posits that in a fixed exchange rate system, the monetary policy typically focuses on maintaining the exchange rate, so that it cannot target domestic demand. They further explain that a fiscal expansion, by comparison, will raise the interest rate, encourage capital inflows, and tend to appreciate the exchange rate.Besides its contributions to the development of international economics literature, the Mundell-Fleming model has suffered many criticisms over time. For instance, Branson &Buiter (1982) criticize the Mundell-Fleming framework for overlooking the asset market dynamics in their analysis.The model is equally criticized for its assumption of perfect mobility of capital which is unrealistic in real-world scenario. In imperfect capital mobility, fiscal expansion is considered to play a role in affecting output under a flexible exchange rate and monetary policy can have a role under a fixed exchange rate.

1.2 Stylized Facts on the Dynamics of Trinity Policy Trade-offs in Nigeria

The dynamics of trilinity policy trade-offs popularty referred to as policy trilemma are summarized in figure 1.

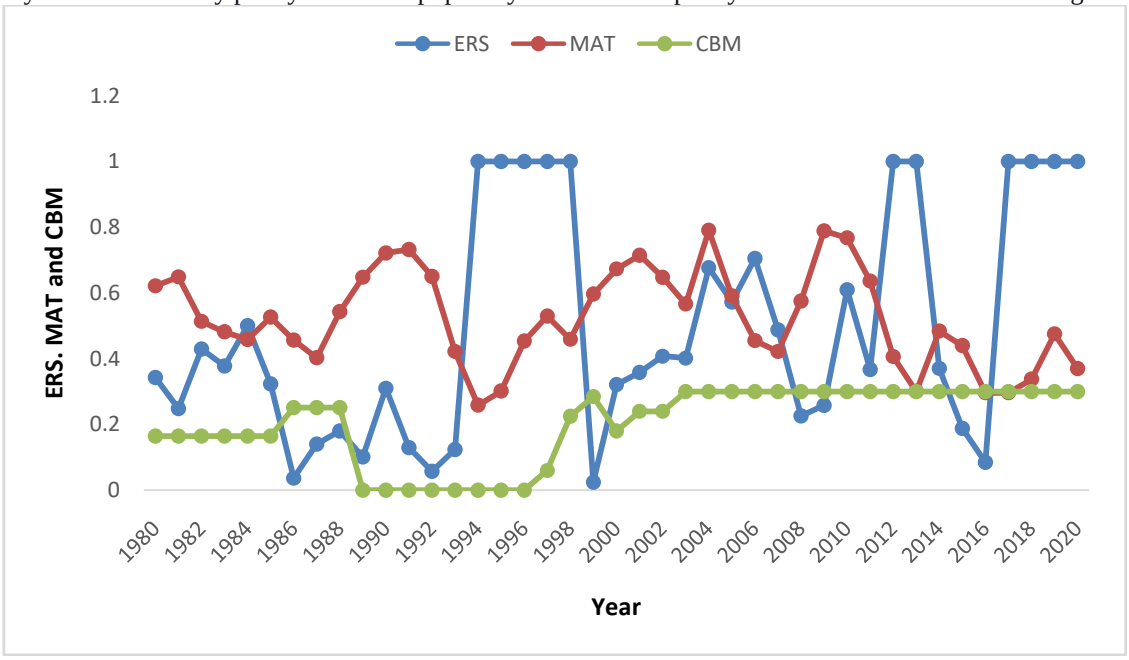

Figure 1: Nigeria's exchange rate stability (ERS), monetary autonomy (MAT) and capital mobility (CBM) trends during 1980-2020.
Source: Researcher's compilation based on consistent time series data

The trends of the trilemma indexes indicate that they varied during the study period. The index of exchange rate stability decreased from 0.3433 in 1980 to 0.249 in 1981. It fluctuated during 1982 and 1993 reaching a maximum value of 1 during1994 -1998, 2012-2013 and 2017-2020. This implies that Nigeria pursued fixed exchange regimes as part of efforts to stabilize the value of the naira. However, the exchange rate stability index stood at all-time low values of 0.0373, 0.025 and 0.0855 in 1986, 1999 and 2016. Perhaps the reason for these low values could be linked to the gradual pursuit of managed float exchange rate regime. Additionally, monetary autonomy index varied over the study period. It reached a record high value of 0.7909 in 2004. This implies that Nigeria maintained substantial sovereign in the practice of monetary policy. Overall, the monetary sovereignty index varied between 0.265 and 0.7909 during 1980-2020, indicating that Nigeria enjoyed appreciable level of monetary sovereignty. More so, the Nigeria's financial openness index increased from 0.165 to 0.3003. This indicates that Nigeria has put some control on free mobility. The reason for this may be linked to the underdeveloped financial system and efforts to reduce the overheating of the economy while addressing the problem of capital deficit. Overall, all the three trilemma indexes varied during the study sample. This could be linked to policy inconsistencies that characterized the Nigeria's macroeconomic policy environment.

1.3 Empirical Literature

Glick & Hutchison (2009) carried an empirical investigation to offer some insights into the impact of the trilemma on China's monetary policy following the liberalization of the goods and financial markets and its integration into the global economy. The study mainly focused on showcasing how China has sought to insulate its reserve money from the effects of BoP inflows by sterilizing through the issuance of central bank liabilities. The study applied the vector error correction model (VECM) as a methodology for linking the surge in China's reserve money to broad money, real GDP, and the price level. It was found that under a scenario of continued rapid reserve money growth and strong economic growth, the rate of inflation increased rapidly. Similarly, an extension of the framework that incorporates recent increases in bank reserve requirements also shows a rapid rise in inflation. Inversely, a slowdown in economic growth leads to less inflation pressure even with a substantial buildup in international reserves. The study, therefore, recommended for right policies in place to check inflationary pressures and keep the economy on the path of rapid and sustained growth.

Another study by Algu& Creamer (2015) tested the trilemma hypothesis by constructing indexes developed by Aizenman, Chinn & Ito (2008) and looks at South Africa's interest rate and exchange rate movements in accordance with those of major economies in the world. The theory of the dilemma is tested by estimating a VAR model. The empirical findings show little evidence that the dilemma theory is applicable in South Africa, although, there is empirical support for the trilemma theory. While literature suggests that an accumulation of foreign reserves can dampen the effects of a trilemma, the empirical results reveal that, in South Africa, the accumulation of foreign reserves has not played a significant role in dampening the trilemma trade-off. However, one empirical puzzle revealed by the study is that despite the applicability of the trilemma theory, South Africa's degree of monetary independence has fallen during the 2000-2014 inflation-targeting period. This is shown by South Africa's monetary policy more closely following an international interest rate cycle during this period. The study, therefore, linked the undermined monetary autonomy in South Africa to the relaxing of international capital flows in 1995.

In a related single country study, Hsing (2012) focused attention on the effectiveness of the trilemma hypothesis in Greece. Multivariate regression analysis was conducted in the course of the study in order to provide empirical evidence. The outcome of the analysis finds support for the trilemma for Greece. Thus, this is suggestive that a tradeoff exists among exchange rate stability, monetary independence and financial integration. The policy combination of monetary independence and financial integration has been prevalent. More exchange rate stability does not affect the inflation rate, growth rate, inflation volatility and output volatility. More monetary independence reduces output volatility. More financial integration reduces inflation, inflation volatility and output volatility. Hence, the study recommended that more financial integration or monetary independence is helpful for Greece's economic recovery.

Kole (2020) examined the nexus between the policy trilemma and its effects on real output in Nigeria. The study employed annual data spanning from 1990 to 2017. The international reserve has been included in the model due to its importance as noted in the literature. Following Hsing (2012) and Ajogbeje *et al.* (2018), ARDL bound test for cointegration was used. Data for the study was obtained from Aizenman, Chinn & Ito (2013), CBN Statistical Database and IMF International Financial Statistics Database. The study found mix significant results between exchange rate stability and real GDP. The study further revealed that both monetary

policy independence and capital account liberalization independently exert a significant and positive impact on real GDP but interactively they significantly reduce the level of real output in the economy. The nexus between the international reserve and real GDP was positive and significant. Therefore, the study recommends that for Nigeria to feel the positive impact of her trilemma choice on the economy, policymakers should strive to pursue the policy combination consistently and buffered the economy with a robust external reserve to cushion the effects of abrupt change in capital flow and exchange rate shocks.

Ihnatov&Căpraru (2014) offered some insights into the empirical implications of the trilemma policies on the volatility of macroeconomic variables in selected countries in Central and Eastern Europe (CEE), members of the European Union. The metrics used for the study is the trilemma indexes built by Aizenman, Chinn & Ito (2011). They are applied in a multiple regression framework to test the consequences of the policies on inflation and output volatility. It was observed from the results that capital mobility has a positive impact on reducing the macroeconomic volatility in Central and Eastern Europe. The study, therefore, concluded that the trilemma hypothesis offers opportunities for stable output growth.

Using a panel dataset of 30 emerging market economies during 1980-2014, Akinkunmi (2017) assessed the effect of central banks' interventions on trilemma constraint. The study utilized the econometrics technique of pooled regression. With the aid of the portfolio balance framework, the findings indicate that the weighted sum of the three trilemma objectives falls in the presence of foreign exchange market intervention. The capacity to loosen the constraints is found to decrease over time and has been most substantial in African emerging economies. Consequent to the findings, the study concludes that interventions could not be a more reliable instrument than capital controls.

III. METHODOLOGY

3.1 Model Specification

In order to examine the implications of trinity policy trade-offs on poverty, this study improves on earlier studies (Hsing, 2012, Ihanatov&Capraru, 2014; Ajogbeje *et al*, 2018; Kole, 2020) by focusing attention on they contribute to poverty reduction in Nigeria. The model is augmented with the introduction of the external reserve as part of the explanatory variables. The model set up which is anchored on the Mundell-Fleming hypothesis is compactly expressed as:

POV = f (ERS, MAT, CBM, ETX) (1)

Where: POV = poverty headcount, ERS = exchange rate stability, MAT = monetary autonomy, CBM = cross border capita mobility and EXT = external reserve build-up.

The ARDL model representations of equations (3.1)-(3.3) are provided as:

$$\text{POV}_t = \alpha_0 + \sum_{i=1}^{m} \psi_{1i} \Delta POV_{t-1} + \sum_{i=1}^{p} \psi_{2i} \Delta ERS_{t-1} + \sum_{i=1}^{p} \psi_{3i} \Delta MAT_{t-1} + \sum_{i=1}^{p} \psi_{4i} \Delta CBM_{t-1} +$$

$$\sum_{i=1}^{p} \psi_{5i} \Delta EXT_{t-1} + ß_1 iPOV_{t-1} + ß_{2i} ERS_{t-1} + ß_{3i} MAT_{t-1} + ß_{4i} CBM_{t-1} + ß_{5i} EXT_{t-1} + e_{2t} \quad (2)$$

Where: α_0 = constant parameter, ψ_1 - ψ_5 = short run dynamic coefficients of the predictor variables, $ß_1$ - $ß_5$ = long run multipliers, e_{1t} - e_{4t} = random disturbance terms, Δ = first difference operator, m and p = optimal lag order to be included in each of the models, i and t denote country of study and timeframe respectively.

3.2. Description of Variables in the Models

Table 1: Dependent variables

S/N	Variable name	Abbreviation	Description
i.	Poverty headcount	POV	Poverty headcount defines the proportion of the population considered to earn an income less than the standard required for basic needs. In other words, it describes the percentage of the population living below the national poverty line. The headcount index is the most recognized indicator of income poverty measure based on its ease of measurement and understanding.

ii.	Exchange rate stability	ERS	The construct of the exchange rate stability follows Aizenmen *et al.* (2013). It mainly includes annual standard deviations of the monthly exchange rate between the country of study and the reference country. The index is normalized between 0 and 1. Higher values of this index indicate a more stable movement of the exchange rate against the currency of the reference country.
iii.	Monetary autonomy	MAT	The extent of monetary autonomy is measured as the reciprocal of the annual correlation between the monthly interest rates of the domestic economy and the base country. It specifically, defines the ability of a country to determine its monetary policy to meet its economic objectives, mostly by means of changing the supply of money and determining short-term interest rates. The construction of this index is based on Aizenmen *et al.* (2013) and the maximum value based on the construction is 1 while the minimum value is 0. A higher value of this index denotes more monetary policy independence.
iv.	Cross border Capital mobility	CBM	This trilemma index is measured by the index of capital account openness based on configurations by Chinn & Ito (2008, 2010) and often referred to as the Chinn-Ito index. The construct for this index relies on information regarding restrictions in the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). Specifically, the capital account is a de jure index of capital account openness.
v.	External reserve	EXT	This refers to the foreign exchange reserve held by the central bank in meeting the goal of macroeconomic stability. External reserve build-up as it is often referred to in international economics literature is considered helpful in managing the domestic currency. Aizenman (2019) describes external reserve as a buffer to financial fragility following the growing interconnectivity of the global financial landscape.

Source: Authors' compilation, 2021

3.3 Data Analysis Techniques

The dynamic ARDL model proposed by Pesaran& Shin (1999) is utilized to examine the short and long run implications of trilemma policy mix on poverty heacount. The ARDL has, in recent history, received increasing attention in both theoretical and empirical econometrics due to its built-in properties. The rationale for adopting ARDL emanates from its application notwithstanding whether the variables are all I(0), I(1) or a combination of I(0) and I(1).The suitability of the ARDL model for a relatively small sample is noteworthy considering the sample for this study. The empirical validity of ARDL was first demonstrated by Pesaran, Shin & Smith (2001).In addition to estimating the ARDL, descriptive statistics and diagnostics tests were equally utilized. Neuman&Kreuger (2003) argue that descriptive statistics enable a researcher to show numerical data in an accurate, structured and summarized manner.

IV. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The descriptive statistics was performed to provide insight into the basic statistical properties of each of the variables over the study period. The results are reported in table 2.

Table 2: Summary of basic statistical properties of the series

	POV	ERS	MAT	CBM	ETX
Mean	57.269	0.496	0.523	0.204	8.407
Median	61.110	0.378	0.514	0.254	8.581
Maximum	78.600	1.000	0.791	0.3003	18.624
Minimum	29.000	0.025	0.259	0.000	1.0195

Std. Dev.	13.144	0.347	0.146	0.1169	5.136
Jarque-Bera	2.947	4.019	1.388	6.279	2.121
Probability	0.229	0.134	0.499	0.043	0.346
Observations	41	41	41	41	41

Source: Authors' computation based on consistent time series data for the variables

The descriptive statistics revealed that poverty headcount varied between a minimum value of 29.0 percent and maximum value of 78.6 percent with an averaged value 57.27 percent. This indicates that over fifty percent of the population is living below the poverty line. It further reports the population of the Brookings Institution and World Poverty Clock that large proportions of the Nigerian population are trapped in poverty. Additionally, the trajectory of exchange rate stability index revealed that it varied between a minimum value 0.025 and maximum value 1.00. The result therefore, showed that exchange rate stability index averaged 0.497 between 1980 and 2020. Similarly, monetary autonomy index averaged 0.523. It varied between a minimum value of 0.259 and a maximum value of 0.791. This is a pointer that Nigeria enjoys appreciable sovereignty in the conduct of monetary policy. The financial integration index has a mean value of 0.204 and become maximized at 0.3003. This indicates that Nigeria maintains some levels of restriction on cross-border capital control. As a percentage of GDP, external reserve varied between a minimum value 1.0195 percent and a maximum value of 18.624 percent. Its mean value over the study period averaged 8.407 percent. The standard deviation for each of the variables is less than their corresponding mean values. This indicates that the observations for each of the variables clustered around their respective mean values. In addition to the standard deviation, the probability values of each of the Jacque Bera statistics revealed that all the variables except financial integration are normally distributed at 5 percent significance level.

4.2 Unit Root Test Results

The test was performed using Phillips-Perron approach at 5 percent level of significance. The results are summarized in table 3.

Table 3: Phillips-Perron (PP) unit test results

Null hypothesis: Variable has a unit root				
Levels test results		First difference test results		Order of Integration
Variable	PP test statistic	Variable	PP test statistic	
POV	-2.107 (0.5263)	D(POV)	-8.394 (0.0000)	I(1)
ERS	-3.273 (0.0855)	D(ERS)	-10.755 (0.0000)	I(1)
MAT	-2.423 (0.1421)	D(MAT)	-8.198 (0.0000)	I(1)
CBM	-2.138 (0.5095)	D(CBM)	-5.665 (0.0002)	I(1)
ETX	-3.847 (0.0241)	NA	NA	I(0)

Source: Researcher's computation based on consistent time series data for the variables
Note: Figures in parenthesis are the corresponding probability values of PP statistics

The Phillips-Perron unit root test results in table 3 revealed that external reserve holding is stationary at levels. This is because the corresponding probability values of their respective PP test statistics are less than 0.05. Thus, this necessitates the rejection of the null hypothesis of unit root at levels. On the contrary, it was found from the levels test results that the other variables for investigation were not stationary given that the associated probability values of their respective PP statistics exceed 0.05. However, these levels non-stationary variables were found to be stationary at the first difference test given that the corresponding "probability values" of their respective PP statistics were less than 0.05. Overall, the Phillips-Perron unit root test results showed evidence of mixed integration [I(0) and I(1)] in the series. This is consistent with Pesaran& Shin (1999) theoretical conditions for the application of ARDL method.

4.3 Bounds Test Cointegration Results

Following the evidence mixed integration [I(0) and I(1)] of the variables for investigation from the unit root test results, the ARDL bounds test for cointegation was applied. The results are reported in table 4.

Table 4: ARDL bounds test cointegration result

Null Hypothesis: No long-run relationships exist **Series: POV ERS MAT CBM ETX**		
Test Statistic	**Value**	**K**
F-statistic	8.553	4
Critical Value Bounds		
Significance	Lower [I(0)] Bound	Upper [I(1)] Bound
10 percent	2.45	3.52
5 percent	2.86	4.01
1 percent	3.74	5.06

Source: Authors'computation based on consistent time series data for the variables
Note: K depicts number of explanatory variables in the model

The bounds cointegration for the poverty model was informed by the establishment of "mixed order of integration in the series. Specifically the bounds test was performed at 5 percent level of significance using F-statistic. As reported in table 4, the calculated F-statistic (8.553) exceeds the 5 percent upper bound critical value (4.01). This finding provides enough empirical evidence for rejecting of the null hypothesis of no cointegration. It therefore, follows from the result that long run relationship exists among the variables in the model.

4.4 Estimated ARDL Regressions

The estimated ARDL regressions offered insights into the dynamic short and long run effects of trilemma indexes and external reserve build-up on poverty headcount. The results are summarized in table 5.

Table 5: Short and long run regressions results

Dependent Variable: POV				
Short run result				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(POV(-1))	-0.376**	0.153	-2.462	0.0221
D(POV(-2))	-0.301**	0.138	-2.187	0.0397
D(ERS)	0.778	3.294	0.236	0.8154
D(MAT)	-23.057**	8.749	-2.636	0.0151
D(MAT(-1))	13.279	8.346	1.591	0.1259
D(CBM)	-7.249	15.340	-0.473	0.6412
D(CBM(-1))	-21.839	18.871	-1.157	0.2596
D(CBM(-2))	23.132	13.786	1.678	0.1075
D(ETX)	0.187	0.299	0.625	0.5386
D(ETX(-1))	-1.245***	0.356	-3.497	0.0020
CointEq(-1)	-0.432***	0.133	-3.238	0.0038
Long run result				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ERS	1.802	7.337	0.246	0.8083
MAT	-69.189**	30.249	-2.287	0.0322
CBM	-78.611**	34.927	-2.251	0.0347
ETX	2.954***	0.662	4.459	0.0002
C	88.843***	20.977	4.235	0.0003

Source: Authors' computation based on consistent time series data for the variables
Note: * and ** denote significant at 1 percent and 5 percent respectively**

The short run result showed that the lagged values of poverty headcount is significant linked to its current value. This finding suggests that poverty headcount in the previous period helps in predicting current level of poverty in the Nigerian economy. The contemporaneous value of monetary autonomy has negative and significant effect on poverty headcount in the short run. This implies that the appreciable sovereignty enjoyed by Nigeria through the CBN in the conduct monetary policy, especially interest rate management and overall control of money supply plays important role in reducing the level of poverty in Nigeria. It was further observed that the short run effect of external reserve on poverty headcount is negative and statistically significant at 1

percent level. This finding is impressive as a robust external reserve is expected to strengthen the level of economic output which provides opportunity for sustainable reduction in poverty.

The negative and significant effects of external reserve and monetary sovereignty on poverty headcount also suggests that monetary autonomy can be buffered with external reserves to improve its effectiveness in addressing the problem of poverty in the short run. However, it was found that exchange rate stability and capital mobility are statistically insignificant in influencing poverty in the short run. Interestingly, in the short result, the error correction coefficient (-0.432) happens to be negative and highly significant at 1 percent, which fulfills the sufficient condition for error correction terms as well as corroborates the fact that there is long run relationship among the variables. Its coefficient of approximately -0.43, indicates that for every short run disequilibrium in the system, about 43 percent of that disequilibrium is corrected each year. Thus, this implies that a full convergence to equilibrium will be covered within two and half years.

In the long run result, it was deduced that monetary autonomy has significant negative effect on poverty headcount. This is consistent with its short run behavior and suggests that more monetary sovereignty help in the coordination of monetary policy for sustainable reduction in poverty. Similarly, long run effect of capital mobility on poverty is negative and significant at 5 percent. This suggests that the opening of the financial boundaries through financial integration provide roadmap for poverty reduction. External reserve exerts significant positive effect on poverty. This finding also indicates that a strong international reserve can buffer the effectiveness of policy trilemma. On the contrary, exchange rate stability has positive and insignificant effect on poverty headcount. Overall, the long run result revealed that the twin policy goals of monetary sovereignty and financial integration are efficient trilemma policy mix for sustainable reduction in poverty headcount in the Nigerian economy.

Table 6: Post-estimation diagnostics tests results

Test type/Null Hypothesis (H_0)	Test-statistic	Prob. value	Decision
Residual Normality test H_0: Residuals are normally distributed	Jarque-Bera stat. (1.103)	0.9497	Accept H_0
Breusch-Godfrey Serial Correlation test H_0:No serial correlation in residuals	Chi-square stat. (3.503)	0.3203	Accept H_0
ARCH heteroscedasticity test H_0:Residuals are homoscedastic	Chi-square stat. (6.178)	0.1033	Accept H_0
Ramsey's RESET H_0: No functional form misspecification	F-stat. (1.609)	0.2205	Accept H_0

Source: Authors' computation from the ARDL result in table 5

The estimated ARDL result for the poverty model was validated the estimated by subjecting it to relevant diagnostics tests, which are summarized in table 4.10. As observed from the post-estimation diagnostics tests results, the first row shows the normality test result and it was found that probability value (0.9497) of the Jarque-Bera statistic (1.103) exceeds 0.05, meaning that the residuals are normally distributed at 5 percent level. Hence, the null hypothesis was accepted. The second row shows the result of the Breusch-Godfrey LM Test for serial correlation. The test is conducted in order to examine if there is serial correlation in the residuals. The result showed that the Chi-square statistic (3.503) is associated with probability value of 0.3203, which is greater than 0.05. This finding indicates that the residuals are not serially correlated. Consequently, the null hypothesis of no serial correlation in the residuals is accepted. At the same time, the ARCH heteroscedasticity test result reported in the third row revealed that the probability value (0.1033) of the chi-square statistic (6.178) is greater than 0.05. This is a pointer that the variance of the residuals is constant over time. To this end, the null hypothesis that the residuals are homoscedastic is retained at 5 percent level. Additionally, the Ramsey RESET test result reported in the last row provided enough empirical evidence for not rejecting the null hypothesis of no functional form misspecification in the model. This is because the corresponding probability value (0.2205) of the F-statistic (1.609) exceeds 0.05. This is a pointer that the model is correctly specified. Overall, the results of the diagnostics tests indicate that estimated poverty headcount model conform to the Gauss-Markov. Hence, it can be relied upon for policy formulation and long term economy-wide prediction.

V. CONCLUDING REMARKS

Drawing support from the Mundell-Fleming framework, this study provides insights into the economic development implications of trinity trade-offs in Nigeria. In line with the specific objectives, the dynamic effects of trinity policy goals: exchange rate stability, monetary autonomy and capital mobility on poverty headcount was investigated forthe period1980-2020.The findings reveal that monetary sovereignty and financial integration yield positive benefits of reduction in poverty headcount. On the basis of the findings, this study

concludes that the prediction of impossible trinity holds sway for Nigeria given that exchange rate stability, monetary autonomy and financial integration are not mutually consistent in reducing poverty in Nigeria. To this end, this study recommends that policymakers should gradually relax restrictions on capital mobility and promote appreciable monetary sovereigntyto provide a roadmap for a sustainable reduction in poverty in Nigeria.

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