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Fiscal and Monetary Policy Coordination in African Emerging Markets: Macroeconomic Performance During Crisis Periods

Strike MBULAWA
https://orcid.org/0000-0003-1324-631X
Department of Economics, University of Botswana, Gaborone, Botswana
mbulawas@ub.ac.bw and smint50000@gmail.com

Lesego SEKWATI
https://orcid.org/0000-0003-3084-475X
Department of Economics, University of Botswana, Gaborone, Botswana
sekwatil@ub.ac.bw

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Abstract

Whilst there is consensus on the importance of monetary and fiscal policy in emerging market economies (EMEs), their impact on inflation, and growth dynamics during crisis periods is still not clear. This study examines the impact of fiscal and monetary policy on macroeconomic performance indicators (output gap, inflation, and real GDP growth), with a focus on the role of their coordination during crisis periods. The study uses fixed-effects models and annual data from 17 emerging market African economies for the period 1989 to 2023.

Empirical findings demonstrate that policy coordination significantly shapes macroeconomic outcomes, though effects vary by policy instrument and target variable. Fiscal-monetary coordination marginally improves the output gap, suggesting the importance of policy alignment to stabilize demand. High monetary policy rates coincide with fiscal deficits, high inflation and hence policy conflict. Whilst policy coordination can effectively manage short term demand, via the output gap, results show that it is less effective in influencing long-term supply-side growth. Public debt is negatively associated with both output gap and output growth, confirming the debt overhang hypothesis in emerging markets. Finally, results show that exchange rate appreciation is linked to lower inflation and smaller output gap, likely through imported disinflation. This study recommends that policy makers undertake synchronized, countercyclical policy frameworks and strengthen institutional capacity to deal with complex policy trade-offs during crisis periods.

Keywords: fiscal-monetary policy; macroeconomic performance; emerging markets; output gap; crisis.

JEL Classification: E63; F41; O23.

Introduction

Macroeconomic outcomes in emerging market economies (EMEs) are shaped by monetary policy. In these markets central banks are expected to ensure growth, and price stability while being confronted by unstable external and internal conditions (Calvo, 2006; Mishkin & Schmidt-Hebbel, 2007). Agénor & Montiel (2015) point out that EMEs struggle with structural constraints like frequent external shocks, inflation volatility and shallow financial markets. As a result, Neanidis & Savva (2014) argue that the existence of such constraints necessitates the need to understand core monetary policy tools, policy interest rates and money supply, which can ensure economic resilience and sustainable development. Spillovers from changes in global interest rates enter African financial markets. They demonstrate how external monetary conditions are transmitted into domestic economies and affect economic performance (Debalke, 2023). More so, the vulnerability of EMEs to global shocks has been amplified by the COVID-19 pandemic which revealed the need for stronger policy coordination to overcome shortcomings of conventional monetary policy frameworks (Loayza & Pennings, 2020; Alberola et al., 2021; Pinshi, 2023). Whilst some EMEs address economic problems by engaging both fiscal and monetary initiatives, their effectiveness and interactions remain underexplored. For example, the transmission of monetary policy may be hampered by fiscal constraints and imperfections in the financial markets, hence the need to understand the policy coordination effects (Gopinath, 2020; Tobal & Menna, 2020). Coordination efforts are further undermined by high public debt and deficits due to the resultant ineffectiveness of monetary policy (Yaya, 2023; Buthelezi, 2025).

Extant literature focuses on the contribution of these single policies in isolation with limited work analysing their joint effects in the Africa context. Past studies (Tule et al., 2020; Sanusi, 2023) confirm the importance of policy coordination to reduce conflicts and conclude that effectiveness is country specific (Olamide et al., 2022). Coordination is mixed, being high in periods of low growth and high inflation (Oboh, 2017). The lack of comprehensive cross-country analyses that cover both policies, and their coordination during crises periods creates a research gap. To address this gap, this study focuses on how monetary policy instruments (policy rates and money supply) and fiscal policy (fiscal deficit) influence inflation, output gap, and GDP growth in a panel of EMEs in Africa by incorporating the covid-19 shock into the analysis.

The approach utilized in this study enables an assessment of whether stabilization effects can be realized through coordinated policies which will guide the design of more effective macroeconomic frameworks in similar markets. The relevance of this study emanates from an understanding that policy channels differ in EMEs due to the uniqueness of the economic environment which leaves them more vulnerable to external shocks (Mishkin & Schmidt-Hebbel, 2007). EMEs are often faced with fiscal constraints, and hence insights on the effectiveness of policy coordination under crises periods can guide in developing tailored policy responses (Leeper, 2010).

The study addresses the following question:

Q: “How do fiscal and monetary policy instruments affect macroeconomic performance in emerging economies, especially during crisis periods?” In addressing this question, the study is guided by the fiscal theory which argues that price levels and inflation are determined by both monetary factors and fiscal policy credibility (Leeper, 2010).

The theory links high inflation to fiscal deficits and high public debt. The study also incorporates the policy mix theory (Tinbergen, 1953; Mundell, 1962) which raises the assignment problem that causes policy overlap in environments with structural constraints. The new Keynesian framework supports views from these theories by showing that policy credibility, expectations and coordination influence macroeconomic performance (Clarida et al., 1999).

The study has demonstrated that policy interactions significantly shape macroeconomic outcomes, though the effects vary by policy instrument and target variable. Fiscal-monetary coordination marginally improves the output gap, suggesting the importance of policy alignment to stabilize demand. High policy rates coincide with fiscal deficits, high inflation and hence policy conflict. Whilst policy coordination can effectively manage short term demands, via output gaps, it is less effective in influencing long-term supply-side growth.

The rest of the paper is organized as follows: section 1 provides a review of literature, section 2 details the methodology employed, section 3 discusses the major findings and last section provides conclusions, policy implications and recommendations.

1. Literature Review

Monetary Policy in Emerging Market Economies

Emerging market economies (EMEs) engage monetary policy to attain price stability and enhance economic growth (Mishkin & Schmidt-Hebbel, 2007). The challenges faced by EMEs and developed economies are structurally different. It is common, in EMEs, to find less developed financial markets, and high inflation which adversely affect the transmission and effectiveness of monetary policy (Agénor & Montiel, 2015).

More so, past studies (Lompo, 2024; Judijanto et al., 2025) highlighted the need to consider other complicated factors like global political or economic instability and high inflation expectations which may reduce effectiveness of monetary policy. This demonstrates the need for tailored frameworks that focus on the unique macroeconomic landscape faced by EMEs. Svensson (2010) argues that, in most EMEs, the anchoring of inflation expectations and improvements in policy credibility are driven using inflation targeting frameworks. This is supported by Mishkin & Kiley (2025) who show that inflation-targeting is predominant in most advanced and EME economies. It can flexibly incorporate a wide range of factors while limiting discretionary biases that may contribute to inflation. Inflation targeting central banks are known to effectively manage shocks associated with the global financial crisis and COVID-19 while attaining macroeconomic goals.

However, the extent to which EMEs can benefit from inflation targeting compared to developed countries differs. This is mainly because there are huge differences in the quality of institutions, effectiveness of policy instruments and independence of central banks. More so, Alexius & Holmberg (2024) argue that inflation targeting in EMEs is complex due to high exchange rate volatility and this results in significant passthrough effects in comparison to developed countries. Keefe (2020) demonstrates that both emerging and advanced economies adhere to inflation targeting commitments when exchange rate volatility is less than one percent. They cannot respond to deviations in the inflation gap when volatility is beyond this threshold. On the other hand, Juarsa et al. (2025) demonstrate that inflation targeting framework and adaptive monetary policy approaches can be applied by central banks to address global challenges and enhance economic resilience.

Transmission Mechanisms of Monetary Policy

The transmission of monetary policy, in EMEs, takes place through the monetary and interest rate channel. Neanidis & Savva (2022) demonstrate that the interest rate channel works by influencing consumption, investment, credit availability and costs of borrowing. According to Mishkin (2007), EMEs mainly use the monetary channel but the impact of changes to interest rates are weakened due to the existence of a huge informal sector and the low level of development of the financial market.

On the other hand, Alexius & Holmberg (2024) argue that the effectiveness of monetary policy is reduced by other structural issues like dollarization, poor institutions and segmented credit markets. Consequently, monetary policy design and implementation remains a challenge. However, past studies (Abueid, 2020; Ali et al., 2025) argue that monetary policy can stimulate long term growth using both the monetary and interest rate channels.

Fiscal-Monetary Policy Coordination

Leeper (2010) argues that the coordination of monetary and fiscal policies is important during periods of economic turmoil. Alesina et al. (2020) show that fiscal policy may play a complementary role to monetary objectives or it tends to complicate such efforts by worsening inflation. Generally, uncoordinated policies result in macroeconomic instability and lack of policy credibility. More so, credibility is improved by factors like government expenditure, tax revenue, and trade openness. In addition, lower monetary policy rates and fiscal discipline enhance credibility while broad money supply has no effect on credibility (Ighoroje et al., 2025). The need to coordinate fiscal and monetary policy is further echoed by Irfan et al. (2025) who show that monetary policy can exert a stronger influence on inflation, GDP growth and exchange rate. In the short run, tight monetary policy slows growth, raises unemployment and depreciates the exchange rate. Fiscal expansion can immediately raise inflation while the impact on growth is delayed. Monetary policy explains variations in output, inflation and debt while fiscal policy explains variations in unemployment. Thus, the coordination of monetary and fiscal policy can bring about stability and prevent shocks.

In addition, Ugwu & Ehinomen (2024) shows that while monetary policy negatively affects growth uncertainty, fiscal policy has a positive effect. On the other hand, Judijanto et al (2025) argues that the room to operation monetary policy is limited in a low-interest rate environment. Past studies (Chugunov et al., 2021; Sharma, Padhi & Dhal, 2023; Zoumenou, 2025) opine that stabilization outcomes are improved where there is policy coordination in demand management. Policies become effective where there are institutions that support coordination and communication processes. Pastpipatkul & Ko (2025) demonstrates that monetary policy is consistent with expected growth outcomes while fiscal policy is stronger when localized. Monetary policy can sustain high periods of growth while fiscal policy is effective in recovering during recessions. The coordination of both policies is said to give results that match that of using monetary policy alone but with shorter transition periods.

Impact of the COVID-19 Pandemic on Monetary Policy

Gopinath (2020) shows that capital volatility, liquidity shortages and external shocks were amplified during the covid-19 pandemic period. In response, central banks in EMEs reduced policy rates and released liquidity to simulate economic activity and bring stability in financial markets (Harding et al., 2023). In view of this, a study by Sina Knicker et al. (2023) demonstrates that coordination of fiscal and monetary policies during a crisis is critical. Their argument is premised on the fact that carrying out monetary initiatives in isolation may fail to

deal with economic disruptions. Thus, the covid-19 pandemic posed the need to develop integrated macroeconomic policy frameworks that strengthen the economies of EMEs. Iddrisu et al. (2025) still argues that monetary policy plays a key role in influencing growth during periods of economic uncertainty. It is still dynamic and fosters economic stability.

In this paper, we argue that there is still a need for context specific study that focuses on joint policy formulation and implementation in EMEs. There is still a dearth of studies that focus on crises periods like what was experienced during COVID-19. There is limited evidence on multi country studies that incorporate the aspect within the context of EMEs. Hence, this study addresses this anomaly by a sample of EMEs in Africa and by using interaction terms. This assists policy makers to understand effective coordination of fiscal and monetary initiatives during unprecedented global shocks. This is supported by Juhro et al. (2022) who argue that coordinated policies are critical in unprecedented times that have been induced by COVID-19. Economic recovery is only possible where there is policy coordination. This study therefore contributes new insights about macroeconomic dynamics with the context of EMEs.

2. Research Methodology

Fixed effects (FE) model is employed to analyse relationships postulated in this study. This model is preferred over the random effects model because it controls for unobserved country specific heterogeneity. It is effective when such effects are expected to be correlated with explanatory variables. It ensures consistent and unbiased parameter effects and ensures accurate within-country estimates over time (Baltagi, 2008; Wooldridge, 2002). In our context, the model can analyse the impact of policy and economic fluctuations using panel data. The model accounts for time-invariant characteristics like institutional frameworks, historical contexts and geography which may influence the macroeconomic outcomes (Hsiao, 2022). The Hausman test is typically applied in choosing between random effects (RE) and FE models (Greene, 2012).

Hill et al. (2020) mention some limitations of using FE models and this study employs time varying policy and economic indicators to address the problem of having time invariant variables. External validity is improved by using 17 diverse countries which account for regional variations. The use of robust standard errors reduces biases due to serial correlation. Statistical power is improved by using at least 35 years of data. Statistical significance of variables is augmented using effect sizes and the policy relevance of variables. Theoretical support and temporal backing are used to strengthen any causal claims. Alternative specifications of the models are used to assess stability of findings in Table 6. The study capitalizes on the strength of the FE model as outlined in Bell & Jones (2015). The baseline model structure is as follows:

$$Y_{it} = \beta_0 + \beta_1 FisPol_{it} + \beta_2 MonPol_{it} + \beta_3 (FisPol\ x\ MonPol) + \beta_4 Global\_GDP_t + \beta_5 Shock_t + \beta_6 (FisPol\ x\ MonPol\ x\ Shock)_t + \beta_v X_{it} + \mu_i + \tau_i + \epsilon_{it} \quad (1)$$

where: Y_{it} is the dependent variable represented by growth in GDP (GDPg); Output-Gap (OPG), and Inflation (CPI); X_{it} is the vector of additional control variables: public debt (PDT), credit to the private sector (CPS) and exchange rate (EXR); μ_i captures country specific effects (e.g., geographic, institutions, structural differences]); τ_i captures time specific shocks like global commodity prices, pandemics; ϵ_{it} captures the error term

Data and Variables

The study uses data from the Central Banks, World Bank and IMF on African Emerging Market economies covering the period 1989 to 2023. This period is chosen based on data availability. A total of 17 African emerging market economies is selected[1]. All variables as defined in Table 1.

Table 1: Variables

Type	Name	Definition
Dependent variable	Output Gap (OPG)	The difference between actual and potential economic output of an economy. The study captures as potential output using the method by Hodrick–Prescott (HP) filter
	Inflation (CPI)	Inflation is measured by the consumer price index as defined by the World Bank
	Real GDP growth (GDPg)	Annual percentage growth rate of GDP at constant prices based on constant local currency.
Fiscal policy (FisPol)	Fiscal deficit (FDT)	Fiscal policy stance variable measured by the primary gap – government's total revenue minus non-interest expenditure
Monetary Policy (MonPol)	Policy rate (INR)	Benchmark interest rate set by each country's central bank to guide monetary policy [repo or discount or monetary policy rate]
	Broad money supply growth (MSG)	Broad money growth, as defined by the World Bank, as a percentage of GDP
Policy Coordination ($FisPol\ x\ MonPol$)	FMD1	Interaction term to examine the combined effect of fiscal policy stance variable (FDT) and monetary policy stance variable (MSG)
	FMD2	Interaction term to examine the combined effect of fiscal policy stance variable (FDT) and monetary policy stance variable (INR)
Economic trends (Global GDP)	GGDP	Global GDP growth rate to capture external demand shocks or international economic conditions influencing sample countries
Shock	Cov	Dummy variable capturing 1=pandemic years (2020-2022), otherwise=0. It controls for global crisis effects on macroeconomic outcomes
Policy_Shock Interaction ($FisPol\ x\ MonPol\ x\ Shock$)	FMC1	Interaction term between fiscal policy stance, MSG and Cov to test whether coordination effect differs during COVID
	FMC2	Interaction term between fiscal policy stance, INR and Cov to test whether coordination effect differs during COVID
Additional Controls	Public debt (PDT)	Central government debt instruments as a % of GDP to capture the country's fiscal sustainability and debt burden

[1] Algeria, Benin, Botswana, Ivory Coast, Egypt, Ethiopia, Ghana, Kenya, Morocco, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Tunisia, Zambia

Type	Name	Definition
	Domestic Credit to the Private sector (CPS)	This is defined by the world bank as financial resources provided to the private sector by financial corporations as a percentage of GDP and captures the financial depth
	Exchange rate (EXR)	Official exchange rate (LCU per US$, period average. It measures external competitiveness, passthrough effects to inflation and monetary credibility

Source: Authors' compilation

The specific models are as follows:

$$Y_{it} = \beta_0 + \beta_1 FDT_{it} + \beta_2 MSG_{it} + \beta_3 FMD1_{it} + \beta_4 GGDP_t + \beta_5 COV_t + \beta_6 FMC1_t + \beta_7 EXR_{it} + \beta_8 CPS_{it} + \beta_9 PDT_{it} + \mu_i + \tau_i + \epsilon_{it} \quad (2a)$$

$$Y_{it} = \beta_0 + \beta_1 FDT_{it} + \beta_2 INR_{it} + \beta_3 FMD2_{it} + \beta_4 GGDP_t + \beta_5 COV_t + \beta_6 FMC2_t + \beta_7 EXR_{it} + \beta_8 CPS_{it} + \beta_9 PDT_{it} + \mu_i + \tau_i + \epsilon_{it} \quad (2b)$$

Models (2a) and (2b) are estimated by incorporating three dependent variables. Thus, we estimate two models for each dependent variable considering that we employ two monetary policy variables (MSG and INR) and for the Output Gap model we estimate an additional model which captures the combined effect of monetary policy variables. This is possible having been guided by results for multicollinearity. Most African economies operate a hybrid regime where both quantity-based and price-based tools. Including both variables gives a more comprehensive assessment of policy coordination and helps to test robustness of findings, especially on the output gap.

The study also tests unit root using methods by Im, Pesaran and Shin (IPS) (2003) and the Levin, Lin and Chu (LLC) (2002) tests. Tests for multicollinearity are done using Pearson correlation and variance inflation factors (VIFs).

4. Results and Discussions

Descriptive Statistics

Findings on summary statistics are presented in Table 2. The average inflation rate (CPI) is 10.18%, with a median value is 6.15%.

Table 2: Summary Statistics

STAT	CPI	OPG	GDPg	FDT	MSG	GGDP	INR	EXR	CPS	PDT
AVE	10.18	2,427.84	4.13	-3.29	40.75	2.78	9.60	189.04	28.17	49.52
MDN	6.15	2,411.50	4.23	-3.24	35.02	2.95	7.50	14.71	18.52	44.38
MIN	-8.48	2,176.26	-14.14	-17.44	9.06	-3.59	1.50	0.01	1.44	2.26
MAX	183.31	2,702.51	15.33	16.91	128.86	6.00	122.50	2,354.22	142.42	260.96
SDV	15.45	129.59	3.55	3.73	23.67	1.64	8.89	373.78	26.32	31.09
SKW	6.02	0.28	-0.60	0.66	1.12	-1.91	5.49	3.32	2.05	1.72
KUR	54.71	2.11	5.60	6.78	3.83	8.59	54.88	16.51	7.42	8.66
N	595	595	595	595	595	595	595	595	595	595

Note: AVE-mean, MDN-Median, MIN-minimum value, MAX-Maximum value, SDV-standard deviation, SKW-skewness, KUR-kurtosis, N – number of observations

There is high positive skewness (6.02) which shows that most of the data are clustered on the left while a few high values pull the mean CPI to the right of the median. There are extreme inflation values as evidenced by the high kurtosis (54.71). Output gap (OPG) is relatively symmetrical and has low skewness (0.28) which suggests that data is near normal distribution and kurtosis is near normal (2.11).

The average growth rate of GDP is 4.13% per annum and is below the median (4.23%). It has low variability and slightly skewed while there is moderate value of kurtosis (5.60). The average fiscal debt (FDT) is negative at 3.29% of GDP which shows that the government is a net creditor. Governments are holding more financial assets than debt. It has low variability and skewness while it is leptokurtic (6.78). The average growth in broad money supply (MSG) is 40.75% of GDP. There is moderate variability (23.67), which confirms substantial fluctuations across countries. Positive skewness shows several instances with unusually high money supply growth. There is leptokurtic distribution (3.83) which suggests a high chance of extreme values in the growth of broad money supply. The average level of GDP growth in the globe is 2.78% and a median of 2.95%. There is fair symmetric distribution around the mean. Whilst most values are above the mean, there are still some which are negative causing a negative skewness (-1.91). This could represent times of global recession. Whilst variability is low (1.64), there are extreme values of global GDP growth which come frequently than what is expected in a normal distribution.

The average policy rate is 9.60% and median is 7.5% which shows that interest rates are closer to the mean. There is high positive skewness (5.49) which suggests the existence of some extremely high values which pulls the tail of the distribution to the right. Higher policy rates could be tools used to control inflation. There is high variability in policy rates (8.89) and there could be extremely high and low interest rates which are more frequent compared to a normally distributed series.

Exchange rates (EXR) have a mean and median value of 189.04 and 14.71 respectively, which suggests high skewness (3.32) confirming some aspects of currency depreciation. There are extreme values of exchange rates confirmed by high kurtosis, 16.51, and volatility is high (373.78). The mean and median credit to the private sector (CPS) are 28.17% and 18.52% of GDP respectively. The high mean value confirms positive skewness (2.05) which suggests periods of rapid credit expansion by countries. There is a high variability in the credit to the private sector across countries. Public debt has mean and median values of 49.52% and 44.38% respectively which suggests some positive skewness (1.72). This shows that most countries have moderate debt levels, while a few have high debt burdens. There is high variability in public debt which confirms that fiscal policy initiatives differ across countries.

Stationarity tests are done at both levels and first difference. Results (Table 3) show that all variables are stationary at levels except for exchange rates (EXR) and public debt (PDT). Both variables are used in the models after the first difference. Since most of the variables are stationary at levels, evidence suggests that the fixed effects (FE) model or Random effect (RE) models can be used. For all models, the fixed effects are also jointly significant (F-test of all $u_i = 0$: $p < 0.001$) which supports the use of FE model since country fixed effects are important.

Table 3: Unit root Tests

Variable	IPS		LLC		Order
	Levels	First Difference	Levels	First Difference	
CPI	-12.953***	-21.480***	-5.244***	-16.510***	I(0)
OPG	-7.0380***	-10.6562***	-7.038***	-10.656***	I(0)
GDPg	-16.148***	-23.371***	-6.346***	-17.422***	I(0)
FDT	-5.098***	-15.292***	-4.321***	-13.225***	I(0)
MSG	-2.810***	-14.120***	-3.074***	-12.696***	I(0)
FMD1	-7.772***	-15.284***	-5.905***	-15.395***	1(0)
FMD2	-5.343***	-14.895***	-4.498***	-12.377***	I(0)
GGDP	-14.744***	-17.673***	-17.193***	-25.156***	I(0)
INR	-6.167***	-15.708***	-2.385***	-12.422***	I(0)
PDT	2.140	-16.307***	0.397	-6.583***	I(1)
CPS	-5.103***	-18.723***	-2.371***	-7.962***	I(0)
EXR	2.092	-11.296***	4.451	-6.745***	I(1)

Note: *significant at 10%, **significant at 5% and ***significant at 1%

Tests for multicollinearity are applied using pairwise correlation in Table 4 (see Appendix). Results suggest that there is no problem of multicollinearity and all regressors can be applied in the same model. None of the coefficients are greater than 0.80. The study also used VIF to check for multicollinearity of regressors in addition to confirm results based on pairwise correlation (Table 5).

Table 5: Variance Inflation factors (VIF)

Variable	FDT	MSG	GGDP	INR	EXR	CPS	PDT	FMD1	FMD2	FMC1	FMC2
VIF	4.16	3.42	1.04	1.32	1.21	1.62	1.04	1.30	3.30	3.14	2.01

Source: Empirical results

Empirical Results

Table 6 presents findings on how fiscal and monetary policies are coordinated and their effect on macroeconomic performance. Findings, in this context, relate to the influence of macroeconomic dynamics on the output gap. The only difference between models 2(a) and 2(b) is the inclusion of money supply growth (MSG) and policy rate (INT) respectively. Interactions are constructed using these different monetary variables. Results confirm good fit for both models that are explaining the output gap across countries over time. All models have 595 observations from 17 countries. The within R^2 measure ranges from 7.7% (models for inflation), 16% (models for GDP growth) to 49% (Models for output gap). The between and overall R2 ranged from 12% to 22% as expected in FE models focus on within-country variation and absorb unobserved time-invariant heterogeneity. All the F-statistics are significant at 1% level which suggests that the set of explanatory variables collectively explains a meaningful portion of the variation dependent variables.

Table 6: Regression Results

Variable / Model	GDP Growth		Inflation		Output Gap		
	1	2	3	4	5	6	7
FDT	-0.233**	-0.082	2.021***	-0.426**	-2.291***	-2.712***	-1.865***
MSG	0.004		-0.032***		-0.019		1.722***
INR		-0.036*		1.197***		-0.451**	-0.569***
FMD1	0.003		-0.001***		0.003***		0.002*
FMD2		0.08		0.077***		0.015	-0.034
Global GDP	0.695***	0.706***	-0.363	-0.215	0.602	0.687	0.591
Shock (COV)	-0.076	-0.829	1.094	0.104	64.001***	45.624***	47.904***
FMC1	0.002		0.005		0.044*		0.086***
FMC2		-0.002		-0.013		-0.162*	-0.261***
PDT	-0.016***	-0.018***	-0.055**	-0.011	-0.236***	-0.254***	-0.242***
CPS	0.020	0.006	-0.201***	-0.102**	1.607***	1.726***	0.422**
EXR	0.001	0.001	-0.010***	0.002	0.065***	0.062***	0.056***
Constant	2.283***	3.509***	22.273***	4.649***	2373.60***	2378.44***	2339.37***
N	595	595	595	595	595	595	595
R^2	0.164	0.163	0.077	0.40	0.4971	0.491	0.569
Rho	0.223	0.193	0.30	0.185	0.924	0.925	0.927
F-test	12.36 ***	12.29 ***	5.24***	42.07***	77.99***	61.07***	62.35***

Note: *significant at 10%, **significant at 5% and ***significant at 1%.

The values for *rho* range from 18% to 92% which shows that for the out-gap model a large proportion of the variance is due to unobserved country-specific effects (fixed effects). It turns out to be the best model capturing the influence of policy coordination hence we estimated a comprehensive model capturing all variables. This observation confirms that FE estimators are appropriate to control continuous differences across countries.

Output Gap: Measuring Aggregate Demand Management

This section provides findings on the role of macroeconomic policy instruments in shaping changes in output as captured by the output gap. Whilst columns (5) and (6) have been estimated, ultimately, we discuss findings in column (7) which are comprehensive and include both monetary policy variables and interaction terms. This model is preferred as it captures the simultaneous impact of both policy channels and their coordination.

Based on column (7) the coefficient for fiscal deficit (FDT) is negative and statistically significant ($\beta = -1.87$, $p < 0.001$). Higher fiscal deficits cause the output gap to contract. This is confirmed in columns (5) and (6), suggesting there are issues over fiscal sustainability or crowding out in the countries under study. It also happens where deficit spending is directed into productive areas. These views are consistent with Sharma et al. (2023), who suggest that fiscal policy's impact on output-inflation trade-offs may negatively affect growth under conditions of high debt.

More so, Cattelan & Nandwa (2024) argue that in the context of emerging markets, countries with uncertain output gaps estimates may respond less countercyclically which worsens such gaps. Public debt (PDT) has similar negative influence (β = –0.24, p < 0.001) on the output gap in column (7) as well as in column 5 and 6. It is possible that high public debt dampens investor confidence and constrains growth potential. This is supported by past studies (Ostry et al., 2010; Mendoza & Ostry, 2008) which suggest high debt reduces output growth potential.

On the monetary policy front, higher money supply growth (MSG) is associated with a strong positive impact on the output gap (β = 1.72, p < 0.001). Expansionary monetary policy can increase aggregate demand and reduce negative output gaps. This finding is consistent with Pastpipatkul & Ko (2025) who show that in Thailand, during downturns, output was boosted using growth in broad money supply. On the contrary, high policy interest rate (INR) have a negative and significant impact (β = –0.57, p < 0.01), which is confirmed in column (6). Consistent with the monetary transmission theory, results show economic activity can be suppressed when countries impose tighter monetary conditions which in turn increase the output gap.

The fiscal-monetary coordination term (FMD1) demonstrates a marginally significant positive effect (β = 0.0019, p = 0.071) as confirmed using results in columns (5) and (7). Thus, it is possible that policy coordination can amplify economic activity, though the effect size is modest. Findings resonate with Bolhuis et al. (2024) who suggest that effective policy coordination can stabilize debt and inflation. The coordination term based on interest rate (FMD2) is statistically insignificant. This may mean that it is more effective when dealing with inflation as opposed to output stabilization. The term controlling for the influence of global economic activity, global GDP, is not significant while there is evidence of a significant macroeconomic shift during the pandemic since the coefficient for COV is significant (β = 47.90, p < 0.001). Despite global shocks, counter-cyclical responses such as fiscal stimulus and liquidity injections successfully narrow output gaps despite global shocks. The mixed pattern in the interaction terms FMC1 (β = 0.086, p = 0.001) and FMC2 (β = -0.261, p = 0.001) confirm temporal asymmetries in the policy response during the pandemic years which is consistent with Sina Knicker et al. (2023).

Findings suggest that currency appreciation can reduce output gaps (β = 0.057, p < 0.001). This is consistent in results in all columns 5 to 7 showing that most countries benefited from imported disinflation and stronger purchasing power. The coefficient for domestic credit to the private sector (CPS) is positive in columns 5, 6 and 7 suggesting that more output is produced as credit is channelled to the productive sectors of the economy.

Inflation Dynamics: Monetary Policy Transmission

In assessing the contribution of policy coordination on inflation dynamics we used two models. Results in column 3 incorporates money supply growth (MSG) while column 4 incorporates policy rates. Both models control exchange rates (EXR), Public debt (PDT), global economic conditions (GGDP) and the covid-19 pandemic (COV). Column 4 shows the best fit as it explains at least forty percent of within the country's variation in inflation while the overall variation is forty-six percent. Both estimations confirm that F-test is significant as there is meaningful heterogeneity across countries. The value of rho is higher with column 4 which shows that when using monetary aggregates, there is more inflation variance due to persistent cross-country differences.

Column 3 shows that fiscal deficits are inflationary, which is consistent with finance theory (Blanchard, 2019). Inflationary pressures build where there is monetary policy accommodation (Batini et al., 2014; Alesina et al., 2020). On the other hand, estimations in column 4 suggest that they are contractionary which happens where there is policy conflict (Ilzetzki et al., 2013). This shows money supply growth mediates the inflationary pressures brought about by fiscal policy.

The money supply channel provides evidence of policy sterilization or underdeveloped transmission mechanisms where growth in money supply reduces inflationary pressures as supported by Ilzetzki et al. (2013). On the other hand, the interest rate channel shows that policy rates have a positive significant effect on inflation. This is consistent with Petrevski (2023) who point out the complex nature of monetary policy transmission and challenges to control inflation. The policy coordination term is negative using estimations in column 3 which shows that combining fiscal deficits with monetary expansion could reduce inflation with improved synchronization of demand support and liquidity management. Column 4 suggests that inflationary pressures build up when high policy rates are combined with fiscal deficits due to policy conflict. Past studies (Chen et al., 2023; Harding et al., 2023) also associate high policy rates with inflation when they are combined with fiscal initiatives. Rising debt levels reduce inflation when crowding out effects are expected (column 3) (Hänsel, 2024) while in column (4) they have no effect. In both estimations, credit to the private sector is associated with low inflation, which is possible when productivity improves as supported by past studies (Chen et al., 2023; David et al., 2024). Column 3 shows that potential pass-through effects and low import costs may reduce inflation, the coefficient of exchange rates is negative and significant. This resonates with findings by Alexious & Holmberg (2023) which show that pass-through raises exchange rate volatility and hence shocks to prices in the domestic market.

Real GDP Growth: Long-Run Effects and Recovery

Both models show R^2 values of at least 16% suggesting that they explain modest proportion of changes in GDP growth within countries over time. F-tests are significant which justifies the use of FE model. The values for rho are at least 18% which means that a notable proportion of error variance is caused by country specific effects and there is unobserved heterogeneity in the sampled countries. The model with policy rates explains cross country differences while the model with monetary aggregates captures with country dynamics.

Higher fiscal deficits reduce growth in GDP in the output model while they have no effect on the interest rate model. This is in line with Alesina et al. (2019) who argue that persistent deficits, because of fiscal expansion, crowd out private investment and hence reduce long term growth. Changes in monetary aggregates have no effect on output while policy rates have marginal effects in reducing GDP growth. The effect of latter is consistent with macroeconomic theory that increasing rates causes borrowing costs to rise and hence slowdown in economic activity (Clarida et al., 1999). The ineffectiveness of the monetary channel points that tightening money supply growth may reduce the effect of fiscal policy on output. Policy coordination has no effect on GDP growth using both models. Global conditions have a positive influence on domestic output. Both the covid dummy and its interactions are insignificant. High public debt is associated with reduction in GDP growth which may worsen debt overhang in emerging market economies.

According to Reinhart & Rogoff (2010) and Cecchetti et al. (2011), this finding is consistent with the view that excessive debt discourages investment and reduces economic expansion. This is possible in emerging markets where risk premiums are high and fiscal space is constrained. The pandemic shock variable and its interaction terms are insignificant which suggests that while short term disruptions are real, the long-term effects of the pandemic are successfully mitigated (Blanchard et al., 2021; Cuerpo, 2022).

For Inflation, Model 1: F test that all u_i=0: F(16, 569) = 10.62 and Prob > F = 0.0000. This shows country fixed effects are important. Inflation levels differ systematically across countries in a way which is captured by variables in the model only. So, using FE model instead of pooled OLS is statistically justified.

The study estimated a dynamic system generalized methods of moments (GMM) model with inflation (CPI) as a dependent variable. The model controls for potential endogeneity and reverse causality between monetary policy and inflation. Internal instruments comprise lagged levels and differences of endogenous regressors. Thus, the study ensures that the debt overhang hypothesis is robust to omitted variable bias and simultaneity.

Model (3) is as follows:

$$CPI_{it} = \alpha CPI_{it-1} + \beta_1 INR_{it} + \beta_2 FDT_{it} + \beta_3 MSG_{it} + \beta_4 FMD + \beta_5 PDT_{it} + \beta_6 CPS_{it} + \beta_7 EXR_{it} + \beta_8 GGDP_t + \beta_9 COV_t + \mu_i + \varepsilon_{it} \quad (3)$$

Findings (Table 7) show that system GMM addresses potential endogeneity issues and give robust estimates for the debt overhang hypothesis. Specifically, inflation (CPI) has a positive and significant coefficient which confirms that inflationary pressures in the past period are persistent and carried over into the current period. The positive and significant results on policy rates are consistent with responses by central banks to inflationary pressures. All other variables like fiscal deficits (FDT), public debt (PDT), money supply (MSG) and policy coordination (FMD) are not significant. The direct effects of policy coordination variables on inflation are weak and may be conditional on the sample. Diagnostics suggest that instruments are valid. Findings based on AR (2) tests and Hansen test p-values, respectively, show that there is no second order autocorrelation and instruments are not overidentified.

Table 7: Findings Based on system GMM

Variable /Model	Inflation (CPI)	
	1	2
CPI (L1)	0.366**	0.286**
FDT	0.311	-0.688
INR	1.475***	1.815*
MSG	0.106	0.03
FMD1		-0.01
FMD2		0.138
PDT	0.024	0.028
CPS	-0.062	-0.037
EXR	0.01	-0.002
GDPG	-0.508	0.124
Shock (COV)	-3.612	2.427

Variable /Model	Inflation (CPI)	
	1	2
Constant	-8.015	-11.529
N	578	578
F-test	33.11***	103.83***
AR(1)	-1.79 [0.074]	-0.99 [0.042]
AR(2)	-0.43 [0.666]	0.10 [0.921]
Hansen	7.21 [0.705]	7.29 [0.698]
Sargan	29.20 [0.001]	27.79 [0.002]

Note: *significant at 10%, **significant at 5% and ***significant at 1%

Conclusions, Policy Implications, and Recommendations

This study examined how fiscal and monetary policies contribute to key macroeconomic outcomes, namely output gap, inflation and growth in real GDP, especially during crisis periods. The study used data from the Central Banks, World Bank and IMF on emerging market economies in Africa covering the period 1989 to 2023. The study demonstrated that fiscal policy instruments (fiscal deficit and public debt) consistently exert negative influence on macroeconomic outcomes. Their effect, respectively, supports the debt overhang and crowd-out hypothesis and dampens the confidence of investors and future growth.

The effect of monetary policy is dependent on the channel of transmission. The money supply channel can boost short-term output. However, it becomes ineffective in the long-term. The influence of monetary policy rates is to reduce output or cause inflation under conditions of high fiscal deficits.

The study showed that policy coordination has mixed results. For example, there is evidence that output gaps are marginally closed, while weak and contradictory effects are experienced on GDP and inflation. Thus, findings clearly show the importance of carrying that coordination at the right time, composition and in a credible manner. The role of the external sector and financial sector development has been supported by the confirmed importance of exchange rates and credit to the private sector.

The following policy implications can be drawn from this study: consistent with Alesina et al. (2019), policy makers need to have well targeted and temporary fiscal expansion as persistent deficits may crowd out investment and reduce output where public debt is high. By using targeted instruments on conducting monetary policy, long term output growth can be enhanced. The high risk of policy conflict, that can be inflationary, should be avoided by improved coordination between fiscal and monetary authorities. Macroeconomic strategies should focus on debt sustainability as a key objective considering its negative effect on inflation and output (Cecchetti et al., 2011). In the long term, countries can improve output growth by boosting credit to the private sector. This is achieved through financial sector deepening and improving access to finance.

Therefore, this study recommends that countries should avoid ad hoc coordination to strengthen effectiveness of monetary and fiscal policies. Institutional frameworks that align macroeconomic goals are ideal. It's possible to narrow the output gap without triggering inflation through policy synchronization. To improve data and forecasting capabilities, countries need to invest in macroeconomic surveillance to strengthen the effect of real time data on output gap and inflation. Policy design must be tailored to structural characteristics

and account for debt levels, openness, inflationary pressures and institutions. Future studies can explore non-linear policy effects to reveal underlying thresholds; increasing sample coverage to other continents will help us to understand if patterns of policy coordination and impact are region specific; examining how expected policy changes can influence macroeconomic outcomes can be ideal and use of models like vector auto regression models can unmask time lagged effects of policy changes during crisis periods.

Credit Authorship Contribution Statement

Mbulawa, S. led the conceptualization of the research idea, Literature review, coordinated the study design, the development of the empirical strategy, including econometric model specification and estimation procedures and results presentation and discussions. Sekwati, L. supervised the overall implementation of the project, production of final draft, review and editing, and supported the interpretation of theoretical foundations concerning policy coordination and ensured adherence to journal formatting standards.

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Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Data Availability Statement

The data that support the findings of this study are openly available on websites for Central Banks, World Bank and International Monetary Fund.

Ethical Approval Statement

The authors confirm that this research was conducted in accordance with accepted ethical standards for academic research. The study relied solely on publicly available macroeconomic and financial datasets obtained from international organizations and official government sources. No human participants, personal data, surveys, interviews, or experimental procedures were involved. Therefore, formal ethical approval was not required for this study.

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Appendix

Table 4: Tests for Multicollinearity

Variable	CPI	OPG	GDPg	FDT	MSG	FMD1	FMD2	GGDP	INR	PDT	CPS	PDT
CPI	1.000											
OPG	-0.036	1.000										
GDPg	-0.111***	-0.078*	1.000									
FDT	0.089**	-0.166***	-0.011	1.000								
MSG	-0.113***	0.355***	0.085**	0.630***	1.000							
FMD1	-0.047	0.188***	-0.033	0.142***	-0.123***	1.000						
FMD2	-0.095**	-0.120***	-0.033	0.529***	0.482***	0.185***	1.000					
GGDP	-0.027	-0.023	0.335***	0.101**	0.097**	0.0190	0.053	1.000				
INR	0.677***	-0.067	0.003	0.041	0.120***	-0.059	-0.285***	-0.010	1.000			
PDT	-0.014	-0.125***	-0.053	0.028	0.027	-0.137***	-0.020	-0.009	0.038	1.000		
CPS	-0.207***	0.382***	-0.183***	-0.151***	-0.358***	0.022	0.030	-0.017	-0.170***	-0.081**	1.000	
EXR	-0.134***	-0.071*	0.065	0.050	0.168***	-0.134***	0.0732*	-0.002	-0.044	-0.035	-0.257***	1.000

Note: *significant at 10%, **significant at 5% and ***significant at 1%