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-RESEARCH ARTICLE-

THE EFFECT OF STABILIZATION POLICIES ON THE GENERAL PRICE LEVEL IN THE SOUTHERN AFRICAN COMMON MONETARY AREA

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─Abstract─

Ensuring economic stability hinges on the stabilization of the price level, as unanticipated fluctuations in prices can disrupt economic activity, fostering uncertainty among businesses, consumers, and investors. This investigation delves into the impact of stabilization measures on the general price level within the Southern African Common Monetary Area (CMA), employing the Panel Autoregressive Distribution Lag (PARDL) methodology. The analysis encompasses data from CMA economies spanning 1990 to 2022. The findings reveal that government revenue, interest rates, and exchange rates exert a significantly positive influence on the general price level over the long term. Conversely, the fiscal deficit exhibits an insignificant effect on the general price level in the long run. Notably, money supply and government expenditure demonstrate a significantly negative association with the general price level over the long term, indicating that increases in these variables do not necessarily correspond with heightened price levels within the CMA economies over time. Moreover, elevations in the interest rate fail to achieve the desired outcome of reducing the general price level within the CMA over the long term. Consequently, relying solely on interest rate adjustments for price level stabilization proves ineffective, as factors beyond monetary flows contribute to price dynamics within the CMA. Monetary policy in isolation proves inadequate for detecting inflationary pressures, underscoring the Imperative for fiscal interventions to manage macroeconomic conditions effectively.

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Therefore, this study advocates for enhanced coordination between fiscal and monetary policies, emphasizing the necessity for vigilant oversight and execution. Additionally, in devising strategies to stabilize price levels, policymakers should prioritize addressing supply-side and structural determinants alongside traditional monetary measures.

Keyword: CMA, Price, Monetary, Fiscal, Policy, Stabilisation, PARDL

JEL Classification Codes: E63, C23, E31

INTRODUCTION

Ensuring economic stability hinges upon the imperative of stabilizing the price level. Unforeseen fluctuations in prices can precipitate disruptions in economic activities, thereby fostering a climate of uncertainty for businesses, consumers, and investors. Stabilization policies, encompassing fiscal, monetary, or hybrid approaches, constitute pivotal mechanisms toward this end. Within the context of the Southern African CMA, comprising economies in developmental stages, such policies are instrumental in steering economic variables such as inflation, economic expansion, and unemployment rates, thus fostering the overarching goal of economic stability.

The fundamental objective of fiscal policy revolves around attaining equilibrium in the allocation of public and private sector resources, aiming to mitigate inflationary pressures and alleviate balance of payment challenges (Blejer & Cheasty, 1992). Fiscal policy pertains to the strategies governing the generation and allocation of funds within the state treasury (Stošić, 2015), encompassing governmental expenditures and tax frameworks. In instances of inflationary tendencies, fiscal policy typically manifests through heightened taxation and reductions in government spending. Conversely, during periods of economic downturn, tax reductions and augmented public expenditures are often deployed as components of expansionary fiscal measures. Analogous to their counterparts in other emerging economies, member states within the Southern African CMA are acknowledged for their substantial government expenditure (T. W. Bank, 2023), undertaken to invigorate economic activity, combat unemployment rates, poverty, and socioeconomic disparities. Keynesian theorists advocate for government expansionary spending to stimulate economic vitality (Blinder, 2008), yet this stance implies potential inflationary repercussions, particularly when monetary policy interventions are employed to curtail inflationary pressures.

Within the framework of the Southern African CMA, member economies employ monetary policy as a strategic instrument to influence the real economic transactions of their respective economies in order to realize predetermined objectives. Each government's macroeconomic agenda typically encompasses objectives such as fostering economic growth, maintaining price stability, achieving full employment, and

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ensuring balance of payments equilibrium, objectives that are pursued through the implementation of stabilization policies. As delineated, stabilization policy entails the coordinated deployment of fiscal and monetary measures to attain macroeconomic goals, with monetary policy historically recognized as a pivotal instrument in addressing inflationary pressures.

Nevertheless, economists hold divergent views regarding the efficacy of governmental intervention via monetary or fiscal measures in fostering relative stability. Friedman (1970), for instance, contends that monetary policy typically exerts a more pronounced impact on price levels compared to fiscal policy, asserting its greater efficacy in stabilizing price dynamics. In contrast, Keynes (1940) advocates for the necessity of fiscal policy stimuli to engender economic stability, positing that fiscal interventions are more potent than monetary measures in achieving stabilization objectives.

Despite such theoretical debates, monetary authorities across numerous jurisdictions have implemented monetary policies aimed at regulating and sustaining general price levels within desirable thresholds. Nonetheless, it is important to recognize that fluctuations in the general price level stem not only from the mechanisms of monetary policy, including money supply, exchange rates, and interest rates, but also from the tools of fiscal policy, encompassing government revenue and expenditure, balance of payments dynamics, investment patterns, and public indebtedness. Member economies within the Southern African CMA are characterized by volatile price levels juxtaposed with escalating government expenditures, fiscal shortfalls, and interest rate fluctuations (A. D. Bank, 2022; T. W. Bank, 2023).

For instance, South Africa witnessed an increase in its annual general price level from 3.3% in 2020 to 4.5% in 2021, as reported by the (A. D. Bank, 2022). Consequently, the interest rate was elevated from 3.5% in 2020 to 3.75% in 2021. However, despite these measures, the annual general price level surged further to 6.9% in 2022, marking a 2.4% increase from the preceding year (Stats SA, 2022). This suggests that the efforts of the South African Reserve Bank (SARB) to mitigate inflation through interest rate adjustments have not yielded immediate results, as prices continued to escalate. In the fiscal year 2022, South Africa registered a fiscal deficit amounting to 4.2% of gross domestic product (GDP), marginally exceeding the 4.0% recorded in 2021 (T. W. Bank, 2023). Achieving robust economic growth accompanied by a stable, subdued general price level remains a paramount objective for numerous economies globally. Consequently, the stabilization of price levels assumes pivotal significance in delineating the trajectory of an economy's development.

Limited scholarly inquiry exists concerning the impact of stabilization policies on the general price level within the Southern African CMA. Therefore, this study represents a significant contribution to the discourse surrounding the influence of stabilization

policies on price dynamics. Policymakers stand to derive invaluable insights from this research, facilitating a nuanced comprehension of the role of stabilization policies, specifically their effect on price levels within the CMA. Such comprehension can enable policymakers to formulate more efficacious policies aligned with objectives such as price stability.

The subsequent sections of this paper are structured as follows: the literature review section precedes the empirical methodology section. Following this, the penultimate section comprises the presentation of findings and subsequent discussion. Finally, the concluding section encapsulates the study's conclusions and offers recommendations.

LITERATURE REVIEW

Theoretical Framework

Monetarist Theory of Inflation

Friedman emerged as a prominent figure in the 1970s, popularizing the monetary theory of inflation (Frisch, 1983). Rooted in the classical quantity theory of money (QTM), this theory posits that inflation primarily stems from monetary phenomena. According to Friedman (1970), inflation is an omnipresent monetary phenomenon, attributable solely to a more rapid expansion in the money supply relative to output. Furthermore, the monetarist viewpoint posits that economic policies can influence employment and output only to the extent that they induce unanticipated price changes among private-sector actors. Over the long term, such effects on real variables diminish, while a heightened price level persists (Frisch, 1983). According to monetary theory, the growth rate of the money supply is the sole determinant of price levels within an economy, and governmental intervention is limited to regulating this growth rate to align it eventually with the expansion rate of real GDP. Hence, monetarists assert that excessive monetary expansion is the singular requisite and effective mechanism for engendering inflationary trends.

Keynesian Theory of Inflation

According to Keynesian theory, inflation primarily emanates from the demand side, where societal aspirations exceed its economic capacity. Fahlevi et al. (2020) elucidate that inflation manifests as social groups vie for a larger share of resources than the community can accommodate, engendering a perpetual scenario where aggregate demand consistently outstrips the available supply of goods. This condition, termed the inflationary gap, arises due to these societal segments effectively translating their aspirations into demand for goods, thereby exerting pressure on available resources. Essentially, they succeed in mobilizing resources to realize their purchasing objectives. As noted by Frisch (1983), escalations in wages contribute to inflation by elevating

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production costs, thereby amplifying prices. Keynesian theory contends that the elevation in the general price level results from excessive aggregate demand within the economy, comprising consumption, investment, and government expenditures.

The Fiscal Theory of Price Level (FTPL)

Cochrane (2021) credits the inception of the FTPL to Leeper (1991), Sims (1994), and Woodford (1994). This contemporary theory posits that fiscal policies exert an immediate impact on the price level independent of monetary variables, underscoring the pivotal role of fiscal measures in shaping price dynamics. Fiscal theory aligns with monetary philosophy, it offers a broader perspective of the contemporary economy wherein fiscal and monetary policies intertwine through government budget constraints (Lubik, 2022).

Rother (2004) underscores the significance of the price level as a critical adjustment variable in ensuring adherence to the government's intertemporal budget constraint (IBC). The IBC tracks the accumulation of government debt stemming from expenditure and revenue, with surpluses or deficits resulting from disparities between the two. In the event of a deficit, the government must bridge this gap by issuing debt. Price level fluctuations serve as mechanisms to rectify imbalances within the IBC framework, particularly in the absence of Ricardian equivalence and in the presence of a fully committed and independent central bank.

Empirical Literature

In Nigeria, (Okotori, 2019) delved into the determinants of monetary policy and inflation employing an error correction model. The study employed monthly time series data spanning from January 2009 to December 2017. Findings from the study indicated that money supply and exchange rates exerted a positive influence on inflation in the long term, whereas the interest rate exhibited a negative effect on inflation. Furthermore, the study identified money supply, liquidity ratio, exchange rate, Treasury bill rates, interest rates, and required reserves as inflationary sources in Nigeria. Okotori (2019) recommended that the central bank undertake periodic investigations to discern the underlying dynamics of the identified relationships, facilitating more effective policy interventions once the inflation rate reaches the 6-9 percent threshold. In contrast, Ezeanyeji, Obi, Imoagwu, and Ejefobihi (2021) demonstrated that money supply and exchange rates had an insignificant and negative impact on inflation, both in the short and long term. This discrepancy could be attributed to the temporal nature of the data utilized, as (Ezeanyeji et al., 2021) analysed quarterly data, whereas (Okotori, 2019) examined monthly data.

Kaur (2021) examined the responsiveness of inflation to fiscal deficits in India over the period from the first quarter of 1996 to the first quarter of 2017. Time series data were

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subjected to analysis using the Autoregressive Distributed Lag (ARDL) technique. The study revealed a positive association between inflation and fiscal deficits, as well as money supply, in both the short and long term. Furthermore, the exchange rate and oil prices emerged as significant determinants of domestic price levels. These findings contrast with the conclusions drawn by MR (2014), which could be attributed to the differing timeframes of the respective studies. However, they align with the tenets of the monetary theory of inflation and fiscal theory of price level. Kaur (2021) proposed that, to mitigate the adverse impacts of elevated and enduring inflation in India, the government should reinforce its anti-inflation commitments through supply-side reforms, as well as through the implementation of coordinated fiscal and monetary policies.

Leshoro (2020) recommended heightened attention from monetary authorities in South Africa towards fiscal, demand-side, and structural determinants when endeavouring to stabilize price levels. Eita, Manuel, Naimhwaka, and Nakusera (2021) examined the impact of fiscal deficits on inflation in Namibia using the ARDL methodology with quarterly data from 2002 to 2017. Their model included variables such as Namibia's consumer price index, South Africa's consumer price index, prime lending rate, and budget deficit. The results reveal a long-run positive effect of Namibian fiscal deficit on inflation, potentially jeopardizing price stability objectives in monetary policy. These findings echo those of Leshoro (2020) and support the fiscal theory of price level. Additionally, the analysis identifies a unidirectional link from fiscal deficit to inflation and underscores the direct impact of South African prices on Namibian inflation. Consequently, the study advocates for a tight integration of fiscal and monetary policies to mitigate fiscal shortfalls to an appropriate level.

Scholars have employed time-series analysis, which presents several limitations. Among these drawbacks are the challenges of generalizing findings from individual studies, difficulties in obtaining sufficient measures, and issues in accurately identifying the appropriate model to depict the data. Consequently, the current study aims to address these limitations by employing panel data to encompass an area rather than relying on time-series data, which typically represent a single economy.

EMPIRICAL METHODOLOGY

Empirical Model

This study follows the framework introduced by Nguyen (2015), who utilized panel data to investigate the impact of money supply and fiscal deficits on inflation across select Asian economies, including Bangladesh, Cambodia, Indonesia, Malaysia, Pakistan, Philippines, Sri Lanka, Thailand, and Vietnam. Inflation was conceptualized as a function of various factors, including fiscal deficit (BUD), exchange rate (EXC),

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trade openness (OPEN), broad money (M2), gross domestic product (GDP), interest rate (INTE), and government expenditure (GEXP).

The model is specified as follows:

INF=f(BUD, GEXP, M2, GDP, INTE, OPEN)…… ..(1)

Equation (1) is reformulated from its theoretical framework into an econometric model:

$$INF = \mathfrak{F} + \vartheta_1 BUD + \vartheta_2 M2 + \vartheta_3 GDP + \vartheta_4 GEXP + \vartheta_5 INTE + \vartheta_6 EXC + \vartheta_7 OPEN + \mu_t \ldots..(2)$$

In the specified equation, all variables are as previously delineated, with F representing the constant term of the regression. The parameters ϑ_1 to ϑ_7 denote the coefficients to be estimated, while μ_(t) signifies the random error term assumed to adhere to a normal distribution. However, this study adapts and refines the model delineated in equation (2) to investigate the response of the general price level to monetary and fiscal policies within CMA economies. Modifications entail the inclusion of revenue (tax) based on the presumption of its correlation with prices. Brechling and Utgoff (1979):224) posit that under the Keynesian model, aggregate supply remains constant, with tax increases stimulating aggregate demand, thereby exerting deflationary effects. Conversely, in the traditional model, aggregate demand is influenced by money supply, implying that tax hikes diminish aggregate supply and result in inflationary outcomes. Additionally, adjustments involve the exclusion of variables such as trade openness and GDP due to their negligible relevance to the present study. The selection of variables in this study is informed by pertinent theories and empirical literature. Consequently, the modified model is as follows.

$$CPI_{i,t} = \mathfrak{F}_i + \vartheta_1 BUD_{i,t} + \vartheta_2 M2_{i,t} + \vartheta_3 REV_{i,t} + \vartheta_4 GEXP_{i,t} + \vartheta_5 INTE_{i,t} + \vartheta_6 EXC_{it} + \mu_{i,t} \ldots.(3)$$

In the given equation, all variables are previously defined, except for REV, which denotes government revenue. While ϑ_1, ϑ_2, ϑ_3, ϑ_4, ϑ_5, and ϑ_6 , are the parameters of country i and ε is the error term.

Data

Yearly data for the listed variables were obtained from the African Development Bank and World Bank. CMA economies were sampled from 1990 to 2022, primarily driven by data availability. The panel autoregressive distributed lag (PARDL) technique was utilized to examine the short- and long-term relationships among the variables across all economies. The table 1 outlines the data metrics and variable sources.

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Table 1. Data Metrics and Sources for the Variables

Variables	Abbreviation	Data Metrics	Sources	Previous Studies used the Variables
Consumer Price Index (CPI)	CPI	Consumer Inflation Percentage	World Bank	Eita et al. (2021)
Money Supply (M2)	M2	Broad Money (% of GDP)		Nguyen (2015)
Government Expenditure	GEXP	Government Final Consumption Expenditure (% of GDP)		
Interest Rate	INTE	Lending Interest Rate Percentage		
Exchange Rate	EXC	Official Exchange Rate (Local Currency Vs US Dollar)		
Fiscal Deficit	BUD	Fiscal Balance (% of GDP)	African Development Bank	
Government Revenue	REV	Government Total Revenue + Grants (% of GDP)		Yasmin et al. (2021)

Estimation Technique

This study adopts the PARDL methodology to delineate the linear relationship between the dependent and independent variables. Originally introduced by Pesaran, Shin, and Smith (2001), ARDL entails the establishment of a single cointegrating equation, further refined by (Pesaran et al., 2001). As noted in the studies by Chudik, Mohaddes, Pesaran, and Raissi (2015) and Mashao and Choga (2023), this approach is preferred over others due to several comparative advantages. Firstly, the ARDL method performs well with limited sample sizes. Additionally, its flexibility, accommodating a mixed order of integration across economic variables, renders it highly recommended. The ARDL methodology's capability to accommodate varied lags in diverse variables enhances its appeal and underscores its adaptability. The specification of the long-run PARDL model is presented as follows:

$$CPI_{it} = \sum_{\varsigma=1}^{\rho yi} \varpi_{i\varsigma}\ cpi_{i,t-\varsigma} + \sum_{\varsigma=0}^{\rho xi} \xi_{i\varsigma}\, BUD_{i,t-\varsigma} + \sum_{\varsigma=0}^{\rho xi} \psi_{i\varsigma}\, M2_{i,t-\varsigma} + \sum_{\varsigma=0}^{\rho xi} \phi_{\varsigma i}\, REV_{i,t-\varsigma} + \sum_{\varsigma=0}^{\rho xi} \vartheta_{i\varsigma}\, GEV_{i,t-\varsigma} + \sum_{\varsigma=0}^{\rho xi} \varphi_{i\varsigma}\, INTE_{i,t-0} + \sum_{\varsigma=0}^{\rho xi} \varrho_{i\varsigma}\, EX_{i,t-0} + \acute{\gamma}_i f_t + \varepsilon_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

where i represents the number of nations (1, 2,…,4), t signifies the period of the study (1990, 1991,….,2022), ε_{it} symbolizes a separate error term that was dispersed on i and $\varpi_{i\varsigma}$, $\xi_{i\varsigma}$, $\psi_{i\varsigma}$, $\phi_{\varsigma i}$, $\vartheta_{i\varsigma}$, $\varphi_{i\varsigma}$, as well as $\varrho_{i\varsigma}$ symbolize long run coefficients.

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Likewise, the subsequent equation delineates the short-term model for the principal PARDL approach utilized in this investigation.

$$\Delta CPI_{it} = \beta_i CPI_{i,t-1} + \pi_i CPI_{i,t-1} \sum_{\Im=1}^{\rho-1} \gamma_{it} \Delta CPI_{i,t-\Im} + \sum_{\Im=0}^{q-1} \xi_{i\Im} \Delta BUD_{i,t-\Im} + \sum_{\Im=0}^{q-1} \psi_{i\Im} \Delta M2_{i,t-\Im} + \sum_{\Im=0}^{q-1} \phi_{i\Im} \Delta REV_{i,t-\Im} + \sum_{\Im=0}^{q-1} \vartheta_{i\Im} \Delta GEV_{i,t-\Im} + \sum_{\Im=0}^{q-1} \varphi_{i\Im} \Delta INTE_{i,t-\Im} + \sum_{\Im=0}^{q-1} \varrho_{i\Im} \Delta EX_{i,t-\Im} + \acute{\gamma}_i f_t + \varepsilon_{it} \ldots\ldots (5)$$

where β_i represents the error correction term (ECT), which denotes the correction ratio. If β_i equals zero, no variables are cointegrated, because it is hypothetically predicted that β_i should show a negative sign and is statistically significant for the variables to be cointegrated. $\varpi_{i\varsigma}$, γ_{it}, $\xi_{i\varsigma}$, $\psi_{i\varsigma}$, $\phi_{\varsigma i}$, $\vartheta_{i\varsigma}$, $\varphi_{i\varsigma}$, as well as $\varrho_{i\varsigma}$ symbolize short run coefficients.

The PARDL analysis encompasses the panel unit root test, optimal lag determination, panel cointegration assessment, Granger causality examination, and diagnostic check evaluation.

Methodology Graphical Framework

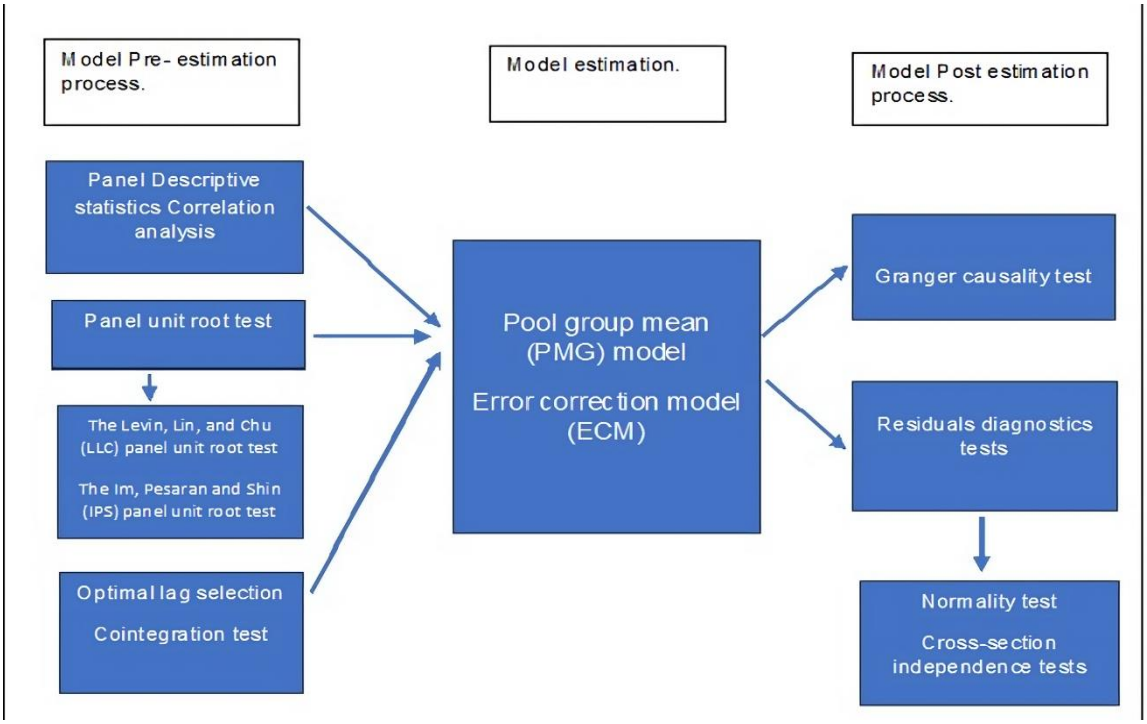

Figure 1. Flowchart of Estimation Process

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EMPIRICAL RESULTS

This section presents descriptive statistics, correlation analyses illustrating inter-variable relationships, and stationarity tests to ascertain integration orders and cointegration. Subsequently, the PARDL estimation outcomes, encompassing the Error Correction Model (ECM), Granger causality test, and residual diagnostic outcomes, are detailed, accompanied by an extensive discussion.

Descriptive Statistics

As demonstrated in Table 2, the Jarque-Bera statistic reveals that all variables considered exhibit statistical significance at the 5% level. Hence, it can be inferred that the variables examined do not adhere to a normal distribution. Moreover, the price level, fiscal deficit, money supply, government revenue and expenditure, and exchange rate display positive skewness, while the interest rate exhibits normal skewness. Table 2 displays the descriptive statistics.

Table 2. Descriptive Statistics

	CPI	BUD	M2	REV	GEXP	INTE	EX
Mean	7.344	-2.025	40.766	33.429	23.977	13.364	8.203
Median	6.385	-2.545	37.459	29.647	21.625	12.629	7.321
Maximum	21.600	17.717	74.117	62.797	43.484	23.363	16.470
Minimum	1.430	-14.878	17.106	20.054	13.375	6.860	2.587
Std. Dev.	3.469	4.282	16.363	11.032	7.677	4.003	3.919
Skewness	1.241	0.917	0.529	1.044	0.842	0.418	0.507
Kurtosis	4.979	6.276	2.083	2.712	2.530	2.057	2.258
Jarque B.	52.898	73.972	10.288	23.345	16.050	8.346	8.286
P(JB)	0.000	0.000	0.006	0.000	0.000	0.015	0.015
Sum	925.343	-255.133	5136.485	4212.020	3021.139	1683.864	1033.633
Sum Sq.Dev.	1505.011	2291.935	33467.73	1521.38	7366.227	2002.684	1920.767
Observations	126	126	126	126	126	126	126

Source: The author

Correlation Matrix

Table 3 presents the correlation coefficient matrix encompassing all variables under investigation.

In pairwise variable comparisons, collinearity may arise when the correlation coefficient value is elevated. Typically, when the absolute value of the Pearson correlation coefficient exceeds ±0.8, it indicates a potential collinearity risk (Shrestha, 2020). Thus, Table 3 reveals that the correlation among explanatory variables ranges

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between -0.80 and 0.80, with the exception of the correlation between government expenditure and revenue, which surpasses 0.80. This signifies a strong correlation between government expenditures and revenue. This positive correlation is anticipated, given that higher government revenue corresponds to increased expenditure. Fiscal deficit, money supply, government revenue and expenditure, interest rate, and exchange rate demonstrate modest to moderate correlations with general price levels. Moreover, fiscal deficits, government revenue, and interest rates exhibit positive correlations with the general price level, while all other variables display negative correlations.

Table 3. Correlation Matrix

	CPI	BUD	M2	REV	GEXP	INTE	EX
CPI	1.000						
BUD	0.088	1.000					
M2	-0.295	-0.201	1.000				
REV	0.006	0.414	-0.209	1.000			
GEXP	-0.097	0.206	-0.163	0.889	1.000		
INTE	0.664	0.103	-0.362	0.048	-0.030	1.000	
EX	-0.552	-0.169	0.366	0.057	0.167	-0.721	1.000

Source: The author

Panel Unit Root Test

Table 4 provides the results of the unit root and stationarity tests employed in this study to determine the order of integration for each variable under investigation.

Table 4. Results of Panel Unit Root Tests

Variables	At level I(0)			At 1st difference I(1)		Order of integration
	Test	With Intercept		With Intercept		
		Statistic	P-Value	Statistic	P-Value	
CPI	LLC	-5.016	0.000***	…	…	I(0)
	IPS	-3.580	0.000***	…	…	I(0)
BUD	LLC	-3.876	0.000***	…	…	I(0)
	IPS	-3.647	0.000***	…	…	I(0)
M2	LLC	0.409	0.659	-5.898	0.000***	I(1)
	IPS	0.889	0.813	-5.416	0.000***	I(1)
REV	LLC	-0.413	0.340	-6.853	0.000***	I(1)
	IPS	-1.576	0.058*	…	…	I(0)
GEXP	LLC	-0.775	0.219	-6.359	0.000***	I(1)
	IPS	-0.769	0.221	-6.805	0.000***	I(1)
INTE	LLC	-2.814	0.002***	…	…	I(0)
	IPS	-0.654	0.257	-7.598	0.000***	I(1)
EX	LLC	0.875	0.809	-7.192	0.000***	I(1)
	IPS	2.689	0.996	-6.503	0.000***	I(1)

Notes: *** and * indicate statistical significance at the 1% and 10% levels, respectively.

Source: Estimation by author using Eviews 12

As shown in Table 4, the LLC and IPS unit root test results reveal that the general price level and fiscal deficit exhibit stationarity at the level. Government revenue and interest rates demonstrate stationarity at both the level and first difference. On the other hand, the exchange rate, government expenditure, and money supply are stationary at the first difference. Therefore, these unit root test findings offer robust support for employing PARDL as an estimation technique.

Optimal Lag Selection

The optimal lag length for this study was determined using EViews 12 software with automated model selection. Selection criteria were defined to minimize the information criteria values, with the maximum explained variable and regressor lags set at one and three, respectively, for automatic selection. Table 5 illustrates the criteria used for selection.

Table 5. Criteria Table

Model	LogL	AIC	BIC	HQC	Specification
3	-110.160	3.441*	5.506	4.279	ARDL(1,3,3,3,3,3,3)
2	-168.147	4.038	5.526	4.642	ARDL(1,2,2,2,2,2,2)
1	-202.448	4.218	5.130	4.589	ARDL(1,1,1,1,1,1,1)

Notes: * denotes the ideal model.
Source: The author

As depicted in Table 5, AIC exhibited the lowest value. Consequently, the selected best model was ARDL (1,3,3,3,3,3,3).

Cointegration Test

To assess cointegration, the Kao (1999) test was employed in this study. The existence of cointegration within the model suggests a long-term equilibrium relationship among the variables under investigation.

Table 6. Kao (1999) Cointegration Test Findings

Test	ADF T-statistic	Probability	Conclusion
Kao Cointegration Test	-5.863	0.000***	Cointegrated

Notes: *** indicates indicate statistical significance at 1% level
Source: The author

Table 6 indicates a long-term relationship among the variables under scrutiny, with the probability value being less than the 1% level of significance.

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Long Run Regression Results

The long-run outcomes are delineated in Table 7.

Table 7. Long Run Regression Estimates

Model: PARDL (1,3,3,3,3,3,3)				
Dependent Variable: CPI				
Independent Variables	**Coefficient**	**Standard Error**	**T-Statistic**	**Probability**
BUD	0.059	0.086	0.691	0.494
M2	-0.169	0.028	-0.066	0.000***
REV	0.419	0.126	3.312	0.002***
GEXP	-0.150	0.057	-2.658	0.011**
INTE	0.583	0.089	6.582	0.000***
EX	0.123	0.045	2.758	0.009***

Notes: *** and ** indicate statistical significance at the 1% and 5% level, respectively.
Source: The author

Table 7 illustrates that the fiscal deficit (BUD) exhibits a positive association with the price level in the long run, aligning with findings from (Eita et al., 2021), (Leshoro, 2020), and (Kaur, 2021). Additionally, the long-term analysis reveals a significant and positive impact of the interest rate (INTE) on prices in the CMA economies. This implies that a one-unit increase in the interest rate leads to a 0.583 unit rise in the price level. Consequently, the interest rate fails to effectively stabilize prices in the CMA and does not exhibit the intended negative relationship with the price level. This underscores the presence of structural and cost-push inflation signs within CMA economies, which traditional demand-pull inflation management techniques cannot control. Consequently, monetary policy proves ineffective in consistently managing inflation in CMA economies over the long term. However, these results contrast with those of Eita et al. (2021) and Okotori (2019), likely due to differences in the nature of time series data, as (Eita et al., 2021) utilized quarterly data, (Okotori, 2019) employed monthly data, while the present study utilized annual data.

As anticipated, the long-term outcomes reveal a significant positive effect of government REV on the price level in the CMA. This implies that a one-unit increase in government revenue would result in a 0.419 unit increase in the price level, with all other variables held constant. Government revenue serves as a pivotal component of fiscal policy through taxation and public expenditures. Therefore, the positive coefficient of revenue may be attributed to the tax structures of CMA member economies. Furthermore, this indicates that higher income taxes and other levies contribute to elevated general price levels in CMA economies. This finding finds support in the research of (Yasmin, Urooge, Umair, & Ali, 2021).

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The long-term analysis further reveals that GEXP exerts a significant negative influence on the price level in the CMA. A one-unit increase in government expenditure results in a decrease of the price level by 0.150 units. This suggests that heightened government spending can mitigate price levels by boosting employment, thereby expanding the economy's output. The substantial effect of government expenditure on the price level aligns with the Keynesian theory of inflation, which posits that alterations in government components will impact the price level. However, the negative coefficient of government expenditure contrasts with the findings of (Yasmin et al., 2021).

In the long run, the exchange rate significantly impacts the price level in CMA economies, with a one-unit increase in the exchange rate leading to a 0.123 unit increase in prices. This reflects that currency depreciation raises import costs, driving up production expenses and thus, increasing price levels. This finding aligns with prior research by (Okotori, 2019) and (Yasmin et al., 2021).

Moreover, the long-term analysis highlights the influence of money supply, government expenditure, interest rate, government revenue, and exchange rate on the general price level in CMA economies. This underscores the enduring impact of fiscal and monetary policy shifts on price levels within CMA economies. These findings imply that alterations in these factors can significantly affect price levels in CMA economies.

Short Run Regression Results

The short-term estimates are expected to vary across CMA economies due to differences in their respective characteristics and policy responses. Table 8 provides the short-term regression estimates, highlighting the dynamic nature of the effects of stabilization policies on the general price level.

Throughout the study period, the equilibrium correction coefficients for the economies exhibit significance levels at 1% and 10%. While Eswatini, Namibia, and South Africa show moderate adjustments from short-run disequilibrium to long-run equilibrium, Lesotho displays a more pronounced adjustment.

Table 8 demonstrates that the impact of stabilization policies on the general price level varies across CMA economies in the short run. Notably, fiscal deficit, money supply, government revenue, government expenditure, interest rate, and exchange rate exhibit significance across economies but with varying effects. For instance, while fiscal deficit and government revenue have negative effects on Eswatini and Lesotho, money supply has a negative impact on Namibia. Additionally, the interest rate affects Eswatini positively, and the exchange rate affects South Africa negatively.

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Table 8. Short Run Regression Estimates

Explained Variable: D(CPI)				
Lagged Variables	**Eswatini**	**Lesotho**	**Namibia**	**South Africa**
D(BUD (-1))	-0.034 (0.244)	-0.119 (0.000)***	-0.171 (0.002)***	0.337 (0.002)***
D(M2(-1))	0.599 (0.006)***	0.574 (0.000)***	-0.099 (0.001)***	0.259 (0.000)***
D(REV(-1))	-0.209 (0.014)**	-0.144 (0.000)***	0.586 (0.002)***	0.163 (0.024)**
D(GEXP(-1))	0.585 (0.003)***	-0.179 (0.000)***	-0.289 (0.066)*	1.484 (0.005)***
D(INTE(-1))	0.419 (0.009)***	-0.562 (0.000)***	-0.219 (0.374)	-0.469 (0.000)***
D(EX(-1))	0.584 (0.061)*	1.043 (0.000)***	0.285 (0.053)*	-0.218 (0.002)***
ECT(-1)	-0.567 (0.000)***	-1.101 (0.000)***	-0.051 (0.050)*	-0.187 (0.000)***

Notes: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.
Source: The author

Causality Test

Table 9 presents the results of the Granger causality tests used to test for cointegration.

Table 9. Results of Causality Tests

Null Hypothesis	Obs.	F-Statistic	Prob.	Decision
BUD does not exhibit Granger causality over CPI	124	0.655	0.521	No Causality
CPI does not exhibit Granger causality over BUD		0.556	0.946	
M2 does not exhibit Granger causality over CPI	121	1.592	0.208	No Causality
CPI does not exhibit Granger causality over M2		0.859	0.426	
REV does not exhibit Granger causality over CPI	124	0.242	0.786	No Causality
CPI does not exhibit Granger causality over REV		0.642	0.528	
GEXP does not exhibit Granger causality over CPI	120	0.523	0.594	No Causality
CPI does not exhibit Granger causality over GEXP		2.895	0.059*	Causality
INTE does not exhibit Granger causality over CPI	123	2.927	0.058*	Causality
CPI does not exhibit Granger causality over INTE		0.404	0.667	No Causality
EX does not exhibit Granger causality over CPI	124	9.497	0.000***	Causality
CPI does not exhibit Granger causality over EX		6.034	0.003***	

Notes: *** and * indicate statistical significance at the 1 and 10% levels, respectively.
Source: The author

At significance levels of 1 and 10 percent, the findings depicted in Table 9 illustrate that alterations in the interest rate and exchange rate prompt adjustments in the price level within the CMA. Consequently, the long-term association extends from the interest rate

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to the price level, from the exchange rate to the price level, and reciprocally from the price level to government expenditure, interest rate, and exchange rate.

Diagnostic Check

Diagnostic checks were employed to ensure that the PARDL model produced valid and reliable estimates. Table 10 provides the post-estimation results of residual diagnostics.

Table 10. Results of Residuals Diagnostics Following Estimation

Test	Type of the Test	Null Hypothesis	T. Stat.	P. Value	Decision
Normality Test	Jacque-Bera	H_0: The residuals are normally distributed.	1.093	0.579	Fail to reject H_0
Cross-Section Independence Tests	Breusch and Pagan LM dependence test	H_0: There is no serial correlation	9.378	0.153	Fail to reject H_0
	Pesaran cross-section dependence test		0.975	0.329	Fail to reject H_0
	Pesaran scaled LM dependence test		0.906	0.365	Fail to reject H_0
	Bias corrected LM dependence test		0.201	0.841	Fail to reject H_0

Source: The author

The results in Table 10 indicate that we do not reject the null hypothesis for both the cross-sectional independence and normality tests. Thus, we can conclude that the residuals exhibit normal distribution and lack serial correlation.

DISCUSSION AND CONCLUSION

The primary aim of this research was to examine how stabilization policies affect the general price level in the Southern African CMA during the period spanning from 1990 to 2022, utilizing the PARDL model. Within CMA economies, maintaining price stability is a paramount objective for monetary authorities. They achieve this goal by adjusting interest rates to regulate the flow of money in the economy, encouraging savings while discouraging borrowing. However, when local price levels are influenced by factors beyond monetary flow, relying solely on interest rate adjustments proves ineffective.

The derived long-run regression outcomes indicate that money supply had a statistically significant negative effect on the general price level in the CMA, contradicting the expected positive impact suggested by the monetary theory of inflation. Likewise, government expenditure displayed a significant negative influence on the general price level within the CMA. Additionally, the long-run regression findings reveal significant

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positive impacts of government revenue, interest rate, and exchange rate on the general price level by 0.419, 0.583, and 0.123 units, respectively. However, fiscal deficit exhibited an insignificant effect on the general price level in the CMA.

In examining the consistency of factors impacting the general price level across CMA economies in the long run, results indicate variations in influence. Government expenditure and money supply negatively impact the general price level, while government revenue, interest rates, and exchange rates positively influence it. Conversely, fiscal deficit shows no significant impact on the general price level in the CMA in the long run.

To empirically assess the long-run correlation between stabilization policies and the general price level in the CMA, the Kao cointegration test confirms the existence of such relationships.

RECOMMENDATIONS AND IMPLICATIONS FOR POLICY

The economic implication is that changes in various factors such as money supply, government expenditure, interest rate, government revenue, and exchange rate influence the general price level in CMA economies. Specifically, increases in money supply and government expenditure lead to price level decreases, while increases in interest rates, government revenue, and exchange rates cause price level increases. This highlights the significant role of both monetary and fiscal policies in stabilizing the price level within CMA economies.

The study reveals that in the CMA, the interest rates increase doesn't decrease the price level as expected, indicating its ineffectiveness in stabilizing prices. Moreover, the price level rise isn't due to increased money supply alone, showing monetary policy's limited impact on inflation. Structural and cost-push inflation signs suggest traditional techniques may not manage inflation well. Thus, fiscal policies must complement monetary policies. Coordination is crucial, with fiscal policies potentially mitigating manufacturing costs through subsidies for small and medium-sized businesses in CMA economies.

When crafting strategies to stabilize price levels, monetary authorities should prioritize fiscal, supply-side, and structural factors. This highlights the need for flexibility in the policy instruments and measures employed by monetary authorities in CMA economies to align with the current demands of the economy.

LIMITATION AND RECOMMENDATION FOR FUTURE STUDIES

A constraint of this study lies in its exclusive examination of the impact of monetary and fiscal policy indicators on the general price level within CMA economies,

overlooking the influence of structural factors. Hence, forthcoming research endeavours should encompass an analysis of the effects of structural factors on general price levels.

AUTHOR CONTRIBUTIONS

The project's conceptualization, main ideas, and framework were developed collectively by all authors. Prof. Ireen Choga provided project supervision. Teboho Mashao conducted material preparation, data collection, and analysis. Teboho Mashao drafted the initial manuscript, with input and feedback from all authors on earlier versions. All authors reviewed and endorsed the final manuscript**.**

DISCLOSURE STATEMENT

The authors have no competing interests to declare that are relevant to the content of this article.

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DATA AVAILABILITY STATEMENT

All the data used for this study is openly available in the World Development Indicators data set, at https://data.worldbank.org/, except for data on fiscal deficit and government revenue, which are derived from the African Development Bank Socio Economic Database available at https://dataportal.opendataforafrica.org/nbyenxf/afdb-socio-economic-database-1960-2022

REFERENCE

Bank, A. D. (2022). African Economic Outlook 2022: Supporting Climate Resilience and a Just Energy Transition in Africa. Abidjan. *African Development Bank*. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African_Economic_Outlook_2018_-_EN.pdf.

Bank, T. W. (2023). *Africa's Pulse, No. 28, October 2023: Delivering Growth to People through Better Jobs* (Vol. 28): World Bank Publications. https://search.worldcat.org/title/1407086837

Bléjer, M. M. I., & Cheasty, M. A. (1992). How to Measure the Fiscal Deficit New thinking on alternative fiscal deficit measures. *Finance & Development*. https://www.elibrary.imf.org/view/journals/022/0029/003/article-A013-en.xml

Blinder, A. S. (2008). Keynesian economics. *The concise encyclopedia of economics, 2*(008). http://www.econlib.org/LIBRARY/Enc/Keynesian Economics.html

Brechling, F., & Utgoff, K. C. (1979). *Taxes and inflation.* Paper presented at the Carnegie-Rochester Conference Series on Public Policy. https://ideas.repec.org/a/eee/crcspp/v11y1979ip223-248.html

Chudik, A., Mohaddes, K., Pesaran, M. H., & Raissi, M. (2015). Long-Run Effects in Large Heterogeneous Panel Data Models with Cross-Sectionally Correlated Errors. https://www.econ.cam.ac.uk/people-files/faculty /km418/CS-DL.pdf

Cochrane, J.H. 2021. *The Fiscal Theory of the Price Level*. New Jersey: PRINCETON UNIVERSITY PRESS. fiscal_theory_posted_3_18_2021.pdf (squarespace.com)

Eita, J. H., Manuel, V., Naimhwaka, E., & Nakusera, F. (2021). The impact of fiscal deficit on inflation in Namibia. *Journal of central banking theory and practice, 10*(1), 141-164. https://doi.org/10.2478/jcbtp-2021-0007

Ezeanyeji, C. I., Obi, C. O., Imoagwu, C. P., & Ejefobihi, U. F. (2021). Monetary policy and inflation control: the case of Nigeria. *European Journal of Management and Marketing Studies, 6*(2). http://dx.doi.org/10.46827/ejmms.v6i2.1017

Fahlevi, R., Ernayani, R., Lestari, W., Hubur, A.A. and Wahyudi, A., 2020. A brief review on the theory of inflation. *Journal of Critical Reviews*, *7*(8), pp.2069-2076.https://www.jcreview.com/admin/Uploads/Files/61c8d4385e5a38.20875889.pdf

Friedman, M. (1970). A theoretical framework for monetary analysis. *journal of Political Economy, 78*(2), 193-238. https://doi.org/10.1086/259623

Frisch, H. (1983). *Theories of inflation*: Cambridge University Press. https://cir.nii.ac.jp/crid/1130000796914433792

Kao, C., 1999. Spurious regression and residual-based tests for cointegration in panel data. *Journal of econometrics*, *90*(1), pp.1-44. https://doi.org/10.1016/S0304-4076(98)00023-2

Kaur, G. (2021). Inflation and fiscal deficit in India: An ARDL approach. *Global Business Review, 22*(6), 1553-1573. https://doi.org/10.1177/0972150919828169

Keynes, J. M. (1940). On a method of statistical business-cycle research. A comment. *The Economic Journal*, 154-156. https://doi.org/10.2307/2225764

Leeper, E.M. 1991. Equilibria under ‘ active ’ and ‘ passive ’ monetary and fiscal policies. *Journal of Monetary Economics*. 27(1):129–147. https://doi.org/10.1016/0304-3932(91)90007-B

Leshoro, T. L. (2020). Monetary policy or fiscal policy, which one better explains inflation dynamics in South Africa? *African Journal of Business & Economic Research, 15*(1). https://hdl.handle.net/10520/EJC-1c8e876ef2

Lubik, T.A., 2022. Analyzing Fiscal Policy Matters More Than Ever: The Fiscal Theory of the Price Level and Inflation. *Richmond Fed Economic Brief*, *22*(39).

https://www.richmondfed.org/publications/research/economic_brief/2022/eb_22-39

Mashao, T., & Choga, I. (2023). An investigation of the impact of exchange rate movements on consumer prices in the Southern African Customs Union (SACU). *Cogent Business & Management, 10*(2), 2244766. https://doi.org/10.1080/23311975.2023.2244766

MR, A. R. (2014). Relationship between fiscal deficit and inflation in India: a long term empirical analysis. *The Indian Economic Journal, 62*(3), 1099-1120. https://doi.org/10.1177/0019466220140303

Nguyen, B. (2015). Effects of fiscal deficit and money M2 supply on inflation: Evidence from selected economies of Asia. *Journal of Economics, Finance and Administrative Science, 20*, 49-53. https://ssrn.com/abstract=2614047

Okotori, T. W. (2019). The Dynamics of monetary policy and inflation in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF), 10*(2), 37-49. http://dx.doi.org/10.9790/5933-1002013749

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics, 16*(3), 289-326. https://doi.org/10.1002/jae.616

Rother, P.C. 2004. Fiscal policy and inflation volatility. *European Central Bank Working Paper Series No. 317*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=515081

Sims, C.A. 1994. A Simple Model for Study of the Determination of the Price Level and the Interaction of Monetary and Fiscal Policy. *Economic Theory*. 4(3):381–399. https://link.springer.com/article/10.1007/bf01215378

Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics, 8*(2), 39-42. https://scindeks.ceon.rs/article.aspx?artid=2334-735X1501076S

Stošić, M. L. (2015). Conditionality economic policy and economic system. *Journal of Process Management and New Technologies, 3*(1), 76-83. https://scindeks.ceon.rs/article.aspx?artid=2334-735X1501076S

Woodford, M. 1994. Monetary policy and price level determinacy in a cash-in-advance economy. *Economic Theory*. 4:345–380. https://link.springer.com/article/10.1007/BF01215377

Yasmin, F., Urooge, S., Umair, M., & Ali, S. (2021). Revisiting the dynamic impact of fiscal policy on inflation in Pakistan. *Journal of Accounting and Finance in Emerging Economies, 7*(2), 349-356. https://doi.org/10.26710/jafee.v7i2.1708