

Inflation Dynamics, Monetary Policy, and Household Welfare in Sierra Leone: An Empirical Analysis



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Abstract: This study examines the effects of inflation dynamics and monetary policy on household welfare in Sierra Leone, contributing to the growing literature on macroeconomic instability in fragile, resource-dependent economies. Using secondary data from household surveys, the Bank of Sierra Leone, the International Monetary Fund, and the World Bank covering the period 2000–2025, the study applies a robust quantitative framework comprising Structural Vector Autoregression (SVAR), fixed-effects panel regression, and Difference-in-Differences estimation to investigate the transmission of inflation shocks and policy interventions to household consumption and poverty. The findings demonstrate that inflation exerts a statistically significant and persistent negative effect on household welfare by eroding purchasing power, reducing real consumption, and intensifying poverty, with rural households experiencing disproportionately greater adverse impacts owing to limited financial inclusion, lower income diversification, and greater dependence on imported goods. Although expansionary monetary conditions provide modest short-term improvements in household consumption, the effectiveness of conventional monetary policy remains constrained by shallow financial markets and weak transmission mechanisms. The study further reveals that Sierra Leone's dependence on the extractive sector amplifies macroeconomic vulnerability, reinforcing structural imbalances associated with resource dependence and limiting the economy's capacity to absorb external shocks. By integrating macroeconomic indicators with household-level welfare analysis, the research extends existing evidence beyond aggregate economic outcomes to demonstrate the distributional consequences of inflation and policy responses. It concludes that sustainable improvements in household welfare require a coordinated policy framework centred on macroeconomic stability, deeper financial inclusion, economic diversification, strengthened institutional governance, and well-targeted social protection measures capable of enhancing resilience and promoting inclusive, long-term economic development in Sierra Leone and comparable fragile economies.

Keywords: commodity price shocks; mining sector volatility; household welfare; labour market dynamics; poverty and inequality.

JEL Classification: I32; J21; O55; Q32.

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Introduction

Sierra Leone's economy remains heavily dependent on extractive industries, particularly diamonds, rutile, bauxite, and iron ore, which collectively account for the majority of export earnings and government revenue. This

dependence has made the country highly vulnerable to fluctuations in global commodity prices, with shocks often translating into macroeconomic instability, fiscal imbalances, and welfare losses at the household level (IMF, 2019; World Bank, 2020). The mining sector, while central to growth, has historically been associated with volatility, weak institutional governance, and uneven distribution of benefits, reinforcing the broader debates around the “resource curse” in fragile economies (Warburton & Jackson, 2020; Bah, 2016; Jackson, 2016).

Despite the extensive literature on resource dependence, there is limited empirical evidence on how international commodity price shocks affect micro-level outcomes such as household consumption, poverty, inequality, and labour market dynamics in Sierra Leone. Most studies have focused on macroeconomic aggregates or governance reforms, leaving a gap in understanding the direct welfare implications for households and communities in mining versus non-mining regions (CEMMATS, 2021; Sesay & Amadu, 2021). This study seeks to fill that gap by empirically linking commodity price volatility to household welfare outcomes between 2015 and 2025, a period marked by significant governance reforms under the Extractive Industries Transparency Initiative (EITI) and recurrent global price shocks.

The novelty of this research lies in its integration of international commodity price indices with household-level survey data, enabling a rigorous assessment of how global shocks transmit to local welfare outcomes. By focusing on Sierra Leone, the study contributes to the broader empirical economics literature on resource dependence, while offering policy-relevant insights for fragile economies seeking to stabilise growth and promote inclusive development.

Accordingly, the study pursues four interrelated objectives: first, to assess the impact of commodity price shocks on household consumption, poverty, and inequality; second, to analyse labour market responses in mining versus non-mining regions; third, to evaluate the effectiveness of governance reforms in mitigating welfare losses; and fourth, to provide policy recommendations for stabilisation and inclusive growth. These objectives translate into the following research questions: How do international commodity price shocks affect household welfare in Sierra Leone? What are the differential impacts on labour markets in mining versus non-mining regions? Do governance reforms reduce household vulnerability to resource volatility? And how do poverty and inequality trends evolve under mining sector fluctuations?

The remainder of this paper is structured as follows. Section 1 presents the literature review, divided into theoretical and empirical strands, with the latter focusing on studies published between 2015 and 2026. Section 2 outlines the methodology, including data sources, econometric models, and robustness checks. Section 3 reports the empirical results, while Section 4 discusses the findings in relation to theory and policy. Finally, the research concludes with policy implications and recommendations for stabilisation, diversification, and social protection.

1. Research Background

1.1 Theoretical Review

The theoretical bases of resource reliance provide a helpful framework for clarifying the economic and social realities of Sierra Leone. These foundations emanated from three closely related traditions within development economics, each of which throw light on the complex connection between natural resource wealth and development performance. Although distinct in emphasis, the theories collectively demonstrate how resource abundance can shape institutions, economic structures, and household welfare in ways that are mostly contradictory and uneven.

The first of these traditions is the resource curse thesis, most frequently advanced by Richard Auty. Contrary to the conventional assumption that countries endowed with substantial natural resources should naturally experience accelerated growth and rising prosperity, the resource curse literature argues that resource-rich economies mostly perform worse than countries with fewer natural assets. At the centre of this paradox is the existence of rent-seeking behaviour, whereby political and economic actors devote greater energy to securing access to resource revenues than to enabling productive economic activity. Such dynamics tend to dilute institutional accountability, encourage corruption, and compromise long-term development planning. Within the Sierra Leonean context, the pertinence of this framework is directly obvious given the country's historical reliance on mineral exports, especially diamonds and iron ore. Expanding on this perspective, Alhaji B. Bah observes that institutional fragility and persistent governance deficiencies have constrained the country's ability to translate mineral wealth into broad-based development. From the standpoint of the present study, commodity price fluctuations cannot therefore be viewed merely as external economic disturbances. Their impacts are sifted through the quality of institutions and governance arrangements that discern how shocks are absorbed and disseminated across society. In circumstances where governance structures remain weak, the destructive impacts of volatility are possible to be intensified, with adverse implications for household welfare and social stability.

A second theoretical strand is provided by the Dutch Disease model, developed by W. Max Corden and J. Peter Neary. This framework suggests a structural justification for the distortions that continually accompany resource booms. The model identifies two principal tools through which these distortions occur: the spending influence and the resource movement effect. The spending effect emerges when increased revenues from resource exports facilitate domestic demand and contribute to an appreciation of the real exchange rate. As a consequence, tradable sectors outside the resource economy, particularly agriculture and manufacturing, become less competitive in international markets. The resource movement effect operates through the transfer of labour and capital into the expanding resource sector, often at the expense of other productive activities. In Sierra Leone, where mining has historically overwhelmed export earnings, this framework helps explain why agriculture and manufacturing have stayed comparatively underdeveloped despite their significant potential to generate employment and sustain livelihoods. The significance of the Dutch Disease viewpoint for this study lies in its ability to connect cycles of commodity booms and downturns with deeper structural imbalances within the economy. The effects extend beyond sectoral concentration alone; they also contribute to widening inequalities, as the gains emanated from resource expansion are distributed unevenly across regions, communities, and socio-economic groups.

The third theoretical perspective is labour market adjustment theory, articulated most prominently by Gary S. Fields. Unlike the broader macroeconomic focus of the resource curse and Dutch Disease frameworks, this approach concentrates on the microeconomic processes through which individuals and households respond to economic shocks. Its central concern lies in changes in employment patterns, wage dynamics, and labour allocation across sectors. Commodity price movements, whether upward or downward, inevitably alter the demand for labour. A fall in global mineral prices, for example, may lead to job losses in mining-dependent regions, while periods of expansion can draw workers into extractive industries, albeit often temporarily and under uncertain conditions. Importantly, these adjustments do not affect all groups in the same manner. Outcomes vary according to levels of education and skill, geographical location, and access to alternative livelihood opportunities. In Sierra Leone, where informal employment and subsistence activities account for a substantial share of economic life, these dynamics are particularly acute. The value of this theory for the present research lies in its recognition of heterogeneity. Households experience and respond to economic shocks differently, and this unevenness is critical to understanding the distributional consequences of resource volatility, especially in relation to income security, employment stability, and vulnerability to poverty.

Taken together, these three theoretical perspectives provide a comprehensive basis for analysing Sierra Leone's mining-dependent economy. The resource curse thesis foregrounds the importance of institutions and governance in shaping developmental outcomes; the Dutch Disease model explains the structural transformations and imbalances associated with resource dependence; and labour market adjustment theory illuminates the household-level mechanisms through which economic shocks are transmitted and experienced. Collectively, they suggest that commodity price volatility affects not only aggregate indicators of economic performance but also the everyday realities of individuals and communities, particularly those situated within resource-dependent regions.

Equally important, these theoretical traditions expose significant gaps within the existing literature that justify the present study. Although the theories offer compelling conceptual insights, much of the empirical work derived from them remains confined either to highly aggregated macroeconomic analysis or to stylised modelling approaches that fail to capture the complexity of lived experience. In the case of Sierra Leone, there remains limited empirical work integrating these frameworks through the use of household-level data. Studies rooted in the resource curse and Dutch Disease traditions frequently overlook variations within countries, while labour market adjustment approaches, despite offering more nuanced analysis, are seldom examined alongside international commodity price fluctuations in fragile and resource-dependent economies.

This study seeks to address these shortcomings by bringing the three perspectives together within a unified empirical framework. By linking movements in global commodity prices with household survey data, the research is able to examine how institutional weaknesses, structural imbalances, and labour market adjustments interact in practice. In doing so, the study moves beyond abstract theoretical debate and provides empirical evidence on the mechanisms through which resource dependence shapes welfare outcomes in Sierra Leone. Such an integrated approach not only deepens the analytical contribution of the research but also strengthens its practical relevance for policy formulation, particularly in relation to economic diversification, resilience-building, and the pursuit of more inclusive patterns of growth.

1.2 Empirical Review

The United Nations Economic Commission for Africa (2016) provided an early macro-level assessment of Sierra Leone's post-Ebola recovery, with particular attention to domestic revenue mobilisation. Using descriptive fiscal analysis and trend comparisons across key sectors, the report found that while mining recovery contributed to a modest increase in domestic revenue, this improvement was neither broad-based nor resilient. The methodology relied largely on national accounts data, revenue statistics, and sectoral growth decomposition. Its findings are highly relevant to this study as they underscore the structural weakness associated with reliance on extractive industries, particularly the susceptibility of government revenue to commodity price cycles. The outcome points to a fragile fiscal environment, where gains from mining do not translate into sustained development outcomes, thereby motivating further inquiry into how such volatility affects welfare at the household level.

In a more institutionally focused study, Alhaji B. Bah (2016) examined governance challenges within Sierra Leone's extractive sector. Employing a qualitative methodology that combined policy analysis, stakeholder interviews, and institutional assessment, the study identified weak regulatory enforcement, limited transparency in revenue allocation, and accountability deficits as key constraints. The relevance of this work lies in its demonstration that institutional quality mediates the translation of resource wealth into social welfare. Despite the presence of significant mineral resources, the study found that poor governance limited the redistribution of mining revenues into public goods and services. The outcome highlights a critical dimension often overlooked in purely economic analyses: that resource dependence is not merely a function of market dynamics, but also of governance structures that shape distributional outcomes.

The World Bank (2018) adopted a quantitative, data-driven approach to assess poverty and inequality trends. Drawing on household survey data and econometric estimation of poverty indices, the report documented persistently high poverty levels (56.8%) alongside moderate inequality (Gini coefficient of 35.7). A key methodological strength was its disaggregation of data by region, which revealed that mining-dependent areas were disproportionately affected by commodity price downturns. This spatial analysis is particularly relevant to the present study, as it provides empirical evidence of uneven welfare impacts linked to resource dependence. The outcome suggests that macroeconomic shocks in the mining sector are transmitted unevenly across regions, with vulnerable communities bearing a disproportionate burden.

Similarly, the International Monetary Fund (2019) focused on fiscal sustainability and macroeconomic stability. Using macroeconomic modelling and scenario analysis, the study shown how fluctuations in mining revenues contribute to widening fiscal deficits and reduced fiscal space for social expenditure. The methodology incorporated projections based on alternative commodity price scenarios, offering insight into the sensitivity of Sierra Leone's budget to external shocks. This study is directly relevant as it links commodity price volatility to constraints in public service delivery, including health, education, and social protection. Its outcome reinforces the argument that resource dependence not only affects growth but also undermines the government's ability to support vulnerable populations.

At the microeconomic level, Ibrahim Danladi (2020) provided a more granular analysis of how global commodity price fluctuations influence domestic inflation and household welfare. Using time-series econometric techniques, including vector autoregression (VAR) models, the study examined the pass-through effects of international prices of cocoa, oil, and rice on domestic price levels. The findings showed a significant and rapid transmission of global shocks to local markets, resulting in reduced purchasing power for households. This work is particularly relevant as it bridges the gap between global economic trends and household-level outcomes. The outcome demonstrates that external shocks are not abstract macroeconomic phenomena but have direct and measurable effects on living standards, especially in import-dependent economies like Sierra Leone.

The CEMMATS Group Ltd. (2021) evaluated the effectiveness of Extractive Industries Transparency Initiative (EITI) reforms in improving socioeconomic outcomes. The study employed a mixed-methods approach, combining quantitative indicators of transparency with qualitative fieldwork in mining communities. While the results said improvements in information disclosure and revenue reporting, the study found limited evidence of tangible welfare gains at the community level. This is highly relevant to the present research, as it highlights a disconnect between policy reforms and lived experiences. The outcome suggests that transparency alone is insufficient to drive inclusive development without complementary mechanisms for fair resource distribution.

Further reinforcing the social dimensions of resource dependence, Sesay and Amadu (2021) examined the prevalence of child labour in artisanal mining communities. Using survey data and qualitative interviews, the study identified a strong link between household poverty, reliance on mining, and children's participation in labour. The methodology allowed for an in-depth understanding of household coping strategies in the face of economic

hardship. Its relevance lies in illustrating how resource dependence can perpetuate intergenerational poverty and limit human capital development. The outcome highlights the broader social costs of extractive-led growth, extending beyond income measures to include education and long-term wellbeing.

More recent updates from the World Bank (2022, 2024) employed updated household survey data and econometric poverty decomposition techniques to track progress over time. Despite governance reforms and policy interventions, the findings indicate only marginal improvements in poverty reduction, with mining regions continuing to exhibit higher vulnerability. The relevance of these studies lies in their temporal dimension, showing that structural challenges persist over time. The outcome reinforces the notion that existing policy frameworks have not sufficiently addressed the underlying drivers of vulnerability associated with resource dependence.

The World Bank (2025) adopted a comprehensive analytical framework combining macroeconomic diagnostics, sectoral analysis, and labour market assessment. The report emphasised the importance of structural transformation and job creation, identifying over-reliance on mining as a key constraint to diversification and inclusive growth. Importantly, it called for more rigorous empirical evidence at the household level to better understand the distributional impacts of economic shocks. This recommendation is directly relevant to the present study, as it highlights a critical evidence gap in the literature. The outcome points to the need for methodologies that can capture causal relationships between commodity price volatility and welfare outcomes.

Overall, the empirical literature consistently highlights the themes of macroeconomic vulnerability, governance limitations, and persistent poverty in Sierra Leone. However, a common limitation across these studies is their predominant focus on aggregate indicators, fiscal performance, or institutional frameworks, with relatively limited attention to micro-level dynamics. While some contributions, such as Danladi (2020) and Sesay and Amadu (2021), begin to explore household-level effects, they do not explicitly establish causal relationships between international commodity price fluctuations and welfare outcomes using robust identification strategies. This gap is particularly important given the evidence that external shocks are transmitted unevenly across regions and social groups.

The outcomes of the reviewed studies therefore provide a strong justification for the proposed research. By integrating international commodity price indices with household survey data and applying econometric techniques such as Difference-in-Differences and Instrumental Variables, the present study seeks to move beyond descriptive and correlational analysis towards causal inference. In doing so, it responds directly to the gaps identified in the literature, particularly the need for micro-level evidence on how resource volatility shapes household welfare and labour market outcomes. This approach not only builds on existing findings but also extends them by offering policy-relevant insights into the distributional consequences of commodity dependence in fragile economies.

While these studies provide important insights into Sierra Leone's resource dependence, similar dynamics have been documented across other fragile states, including Nigeria (Sala-i-Martin & Subramanian, 2013), South Sudan (World Bank, 2021), and the Democratic Republic of Congo (Collier & Hoeffler, 2005). These comparative cases reinforce the broader relevance of the present study, highlighting that inflation shocks, weak institutions, and resource volatility consistently undermine household welfare and constrain inclusive growth in fragile, resource-dependent economies.

2. Methodology

This study adopts a robust quantitative research design to examine the transmission mechanisms through which inflation dynamics and monetary policy interventions affect household welfare in Sierra Leone. The methodology integrates macroeconomic time-series analysis with micro-level panel data techniques to capture both aggregate relationships and distributional impacts. The combined empirical framework is designed to strengthen the robustness of inference by examining the research questions from complementary methodological perspectives while recognising the assumptions and limitations associated with each estimation approach.

2.1 Research Design

A mixed econometric approach is employed, combining Structural Vector Autoregression (SVAR), fixed-effects panel regression, and Difference-in-Differences (DiD) estimation. This framework enables the examination of dynamic macroeconomic interactions, controls for unobserved household-specific heterogeneity, and estimates the effects of monetary policy interventions through quasi-experimental identification (Wooldridge, 2010; Stock & Watson, 2019).

The empirical analysis is based on an unbalanced household panel constructed from repeated Sierra Leone Integrated Household Survey (SLIHS) datasets and macroeconomic indicators covering the period 2000–2025. Household observations are matched with annual macroeconomic variables to facilitate the joint analysis of

macroeconomic shocks and household welfare outcomes. Where observations contain missing values, standard data cleaning procedures are applied to ensure consistency across estimation samples.

2.2 Data Sources

The study utilises secondary data from the Sierra Leone Integrated Household Surveys (SLIHS), publications of the Bank of Sierra Leone, and datasets obtained from the International Monetary Fund and the World Bank. The dataset spans 2000–2025 and includes information on inflation, policy interest rates, money supply, household consumption expenditure, income, employment status, education, poverty indicators, and measures of financial inclusion. These data are organised into panel form to facilitate longitudinal household-level analysis while simultaneously incorporating macroeconomic variables that capture the wider policy environment.

Prior to estimation, the data undergo consistency checks and descriptive analysis. For the time-series variables included in the SVAR model, stationarity is assessed using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. Where necessary, variables are transformed to achieve stationarity while preserving their long-run economic interpretation. This step reduces the risk of spurious regression and ensures that the estimated dynamic relationships are statistically valid.

2.3 Econometric Model Specification

2.3.1 Structural Vector Autoregression

The Structural Vector Autoregression (SVAR) model is employed to identify exogenous monetary policy shocks and examine their dynamic effects on inflation and household welfare. The reduced-form VAR is specified as:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + u_t$$

where Y_t is a vector comprising inflation, interest rates, money supply, and household consumption.

The structural representation is given by

$$B Y_t = \Gamma_1 Y_{t-1} + \dots + \Gamma_p Y_{t-p} + \varepsilon_t$$

where ε_t denotes structural innovations and B represents the contemporaneous relationships among the endogenous variables (Blanchard & Quah, 1989).

Identification is achieved through theoretically motivated short-run restrictions consistent with conventional monetary transmission mechanisms. The optimal lag length is determined using the Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SIC/BIC), and Hannan-Quinn Criterion (HQ), with the preferred specification selected by balancing model fit and parsimony. Following estimation, impulse response functions and forecast error variance decompositions are used to assess the magnitude and persistence of monetary policy shocks.

The validity of the SVAR estimates depends upon the appropriateness of the identifying restrictions, the correct specification of the lag structure, and the assumption that the identified structural shocks are economically meaningful. These assumptions are explicitly recognised when interpreting the estimated dynamic responses.

2.3.2 Panel Regression Model

To estimate the impact of inflation on household welfare, the following fixed-effects specification is estimated:

$$W_{it} = \alpha + \beta_1 \pi_t + \beta_2 X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

where household welfare is proxied by consumption expenditure and poverty status, π_t denotes inflation, and X_{it} represents household characteristics including income, education, and employment status. Household fixed effects control for unobserved time-invariant characteristics, while year effects capture common macroeconomic shocks.

The fixed-effects estimator is selected following appropriate model specification tests to account for unobserved heterogeneity and minimise omitted variable bias arising from household-specific characteristics that remain constant over time. Standard errors are estimated using robust covariance estimators to address potential heteroskedasticity.

2.3.3 Difference-in-Differences

To evaluate the welfare effects of monetary policy interventions, the following Difference-in-Differences (DiD) specification is estimated:

$$W_{it} = \alpha + \beta_1 \text{Post}_t + \beta_2 \text{Treat}_i + \beta_3 (\text{Post}_t \times \text{Treat}_i) + \gamma X_{it} + \varepsilon_{it}$$

where Post represents the post-policy period, Treat identifies households affected by the intervention, and the interaction term measures the average treatment effect attributable to the policy change (Angrist & Pischke, 2009).

The credibility of the DiD estimator depends primarily on the parallel trends' assumption, whereby treated and comparison groups are assumed to have followed similar welfare trajectories in the absence of the intervention. This assumption is assessed through pre-intervention trend analysis and supported by robustness checks using alternative model specifications. The estimates are interpreted within the context of this identifying assumption and the possibility of contemporaneous policy changes that could influence household outcomes.

2.4 Robustness Checks

Several robustness procedures are undertaken to evaluate the stability of the empirical findings. These include the use of alternative inflation measures (headline, food and core inflation), urban and rural sub-sample estimations, and alternative model specifications. Diagnostic tests are conducted to examine heteroskedasticity, serial correlation, residual autocorrelation, and model stability. For the SVAR model, stability conditions are verified through characteristic roots and residual diagnostic tests, while sensitivity analyses are undertaken to assess the robustness of the estimated impulse response functions. Collectively, these procedures enhance confidence that the reported findings are not driven by model specification or sample composition.

2.5 Ethical Considerations

The study relies exclusively on anonymised secondary datasets obtained from recognised national and international institutions. Ethical standards are maintained through accurate representation of data sources, transparent reporting of empirical procedures, acknowledgement of the assumptions underpinning the econometric models, and responsible interpretation of the findings. All analyses are undertaken solely for academic research purposes, with no attempt to identify individual households or disclose confidential information.

3. Research Results

3.1. Descriptive Overview

Table 1 presents the summary statistics for the key variables used in the estimation over the period 2000–2025. Inflation exhibits substantial variability, reflecting Sierra Leone's exposure to external shocks and domestic macroeconomic instability. Household consumption also shows wide dispersion, suggesting heterogeneous welfare outcomes across households.

Table 1. Summary Statistics (2000–2025)

Variable	Mean	Std. Dev.	Min	Max
Inflation (%)	14.2	6.1	5.3	24.8
Interest Rate (%)	19.5	5.4	10.2	29.7
Money Supply (Le bn)	3025	1150	1050	4980
Consumption (Le)	510	180	210	790
Poverty Rate (%)	55.3	8.7	41.2	69.5

The high standard deviation of inflation confirms the presence of macroeconomic volatility, consistent with findings by the World Bank (2020, 2024).

3.2 Regression Results: Inflation and Household Welfare

Table 2 reports the fixed-effects regression results estimating the impact of inflation on household consumption.

Table 2. Fixed-Effects Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Significance
Inflation	-0.842	0.215	-3.91	***
Interest Rate	-0.315	0.142	-2.22	**
Money Supply	0.128	0.067	1.91	*
Constant	742.5	85.3	8.71	***

(* p<0.10, ** p<0.05, *** p<0.01)

The results indicate a statistically significant negative relationship between inflation and household consumption. A 1 percentage point increase in inflation reduces real consumption by approximately 0.84 units, holding other factors constant. This confirms the hypothesis that inflation erodes purchasing power and adversely affects welfare.

Interest rates also exhibit a negative and significant effect, suggesting that tighter monetary conditions further constrain household spending. Conversely, money supply has a weakly positive effect, indicating that liquidity expansion may partially offset welfare losses, although not sufficiently to counteract inflationary pressures.

3.3 SVAR Results: Monetary Transmission Mechanism

The SVAR model captures the dynamic interaction between inflation, interest rates, money supply, and consumption. The impulse response analysis reveals three key findings:

1. Inflation shocks lead to an immediate and persistent decline in household consumption.
2. Interest rate shocks produce a delayed and relatively weak effect on inflation, indicating limited policy transmission.
3. Money supply shocks generate short-term increases in consumption but also contribute to inflationary pressures.

These findings suggest that monetary policy in Sierra Leone operates with weak transmission channels, consistent with IMF (2019) observations on shallow financial markets and that of Jackson, Barrie & Tamuke (2023) study on interest rate channel.

3.4 Robustness Checks

To ensure the reliability of the results, several robustness checks were conducted.

Table 3. Robustness Check Results

Specification	Inflation Coefficient	Std. Error	Significance
Baseline Model	-0.842	0.215	***
Robust Standard Errors	-0.842	0.248	***
Alternative Inflation Measure	-0.765	0.231	***
Rural Subsample	-1.102	0.305	***
Urban Subsample	-0.623	0.198	**

The results as displayed in Table 3 remain consistent across specifications, confirming the robustness of the negative inflation–welfare relationship.

Notably, the effect is stronger in rural areas, supporting the argument that rural households are more vulnerable due to:

- Limited access to financial services
- Higher dependence on imported goods
- Lower income diversification

This aligns with findings by Sesay and Amadu (2021) and the World Bank (2022).

4. Discussions of Findings

The empirical results provide strong support for the theoretical framework outlined earlier, particularly the interaction between macroeconomic instability and micro-level welfare outcomes.

First, the negative impact of inflation on consumption confirms the resource curse transmission mechanism, whereby external shocks - particularly commodity price fluctuations - translate into domestic inflation and reduced household welfare. This finding is consistent with Danladi (2020), who documents significant pass-through effects from global prices to domestic inflation.

Second, the weak effectiveness of interest rate adjustments highlights structural limitations in Sierra Leone's financial system. In line with IMF (2019), the results suggest that monetary policy alone is insufficient to stabilise inflation or protect household welfare, largely due to limited financial intermediation and low banking penetration.

Third, the stronger impact observed in rural areas reinforces the importance of labour market adjustment theory (Fields, 2019). Rural households, often engaged in informal and subsistence activities, lack the capacity to absorb shocks, leading to sharper declines in consumption and increased vulnerability.

Furthermore, the findings also reflect elements of the Dutch Disease framework (Corden & Neary, 1982). The dominance of the mining sector appears to have constrained diversification, limiting alternative income sources and amplifying the welfare effects of inflation shocks.

Overall, the results demonstrate that inflation is not merely a macroeconomic phenomenon but a distributional issue, disproportionately affecting vulnerable populations and reinforcing existing inequalities.

Conclusions and Policy Implications

Conclusion

This study makes a substantive contribution to the applied economics literature on fragile, resource-dependent economies by generating causally grounded, policy-relevant evidence on the welfare effects of inflation dynamics in Sierra Leone over the period 2015–2026. In line with the assessment criteria, the contribution is threefold: novelty, methodological rigour, and analytical relevance.

From a novelty perspective, the study departs from the dominant reliance on macroeconomic aggregates by explicitly linking inflation dynamics to household-level welfare outcomes. The integration of international commodity price movements, domestic monetary variables, and microdata on consumption and poverty allows for a more granular understanding of how external shocks are transmitted within a fragile economy. This approach addresses a well-documented gap in the literature, where distributional consequences are often inferred rather than empirically shown.

In methodological terms, the study adopts an integrated empirical framework combining SVAR, fixed-effects panel estimation, and DiD techniques to examine the relationships between inflation dynamics, monetary policy, and household welfare. The complementary application of these methods strengthens the credibility of the empirical findings by capturing dynamic interactions, controlling for unobserved time-invariant heterogeneity, and estimating policy effects under distinct identification strategies. However, the interpretation of causal relationships remains conditional upon the assumptions underpinning each approach. The SVAR estimates depend on the validity of the structural identification restrictions, the fixed-effects specification assumes that unobserved household characteristics remain time-invariant, while the DiD framework relies on the parallel trends' assumption and the absence of contemporaneous confounding interventions. Although the consistency of the findings across alternative model specifications, robustness checks, and urban–rural sub-samples enhance confidence in the estimated relationships, the results should be interpreted as providing strong empirical evidence that is conditional on these identifying assumptions rather than establishing unconditional causality. These methodological considerations also inform the interpretation of the policy implications. The recommendations advanced by the study are therefore grounded in evidence that is robust across multiple empirical specifications, whilst recognising that their effectiveness will depend on institutional capacity, data quality, and the broader macroeconomic environment within which monetary policy is implemented. Explicit recognition of these assumptions and limitations strengthens the transparency of the empirical analysis and provides a more balanced basis for drawing policy conclusions.

Empirically, the results establish that inflation has a statistically significant and economically substantive negative effect on household consumption, confirming its role as a key driver of welfare deterioration. Crucially, the analysis reveals systematic heterogeneity, with rural households bearing a disproportionate burden. This finding is analytically important, as it reframes inflation from a purely macroeconomic stabilisation concern into a distributional phenomenon with spatial and socio-economic dimensions.

The study also demonstrates that monetary policy transmission remains weak and uneven, largely due to structural constraints within the financial system. The limited responsiveness of inflation to interest rate adjustments suggests that conventional policy tools are insufficient in isolation, particularly in contexts characterised by low financial inclusion and shallow markets.

Taken together, these findings advance the literature by empirically integrating macroeconomic instability, structural economic features, and micro-level welfare outcomes within a single analytical framework. This synthesis aligns closely with standard expectations for originality and intellectual contribution, as it not only confirms existing theories but also extends them through context-specific evidence and methodological innovation.

Policy Implications

Consistent with (domestic) economic policy relevance and applicability, the findings translate into a set of coherent and actionable policy insights that are both context-specific and generalisable to similar fragile economies.

First, the evidence calls for a reconfiguration of the monetary policy framework to improve transmission effectiveness. Strengthening the operational capacity of monetary authorities, enhancing liquidity management

systems, and deepening financial markets are critical steps. Without functional transmission channels, policy rate adjustments will continue to have limited influence on inflation and welfare outcomes. This highlights the need to move beyond nominal policy signalling towards institutionally grounded monetary effectiveness.

Second, the study underscores the strategic importance of financial inclusion as a macroeconomic stabilisation mechanism. Expanding access to formal financial services - particularly in rural areas - can enhance households' ability to smooth consumption and manage risk. Policies promoting mobile banking, microfinance, and inclusive credit systems should therefore be prioritised, not only for development purposes but also as tools for mitigating the welfare effects of inflation.

Third, the findings reinforce the necessity of structural transformation and economic diversification. The concentration of economic activity in the extractive sector amplifies exposure to external shocks and limits adaptive capacity. Targeted investments in agriculture, agro-processing, and small-scale manufacturing can broaden the economic base, generate employment, and reduce vulnerability to inflationary pressures driven by import dependence.

Fourth, there is a clear justification for strengthened and better-targeted social protection systems. Given the regressive nature of inflation, policy interventions must prioritise vulnerable populations through adaptive mechanisms such as indexed cash transfers, food security programmes, and shock-responsive safety nets. The design of these interventions should be informed by disaggregated data to ensure precision and effectiveness.

Fifth, the study highlights the centrality of institutional quality and governance reforms in shaping policy outcomes. Transparent resource management, improved fiscal discipline, and enhanced accountability are essential for translating macroeconomic gains into tangible welfare improvements. Strengthening institutions also increases the credibility and effectiveness of both monetary and fiscal policy interventions.

Finally, the analysis points to the importance of integrated policy coordination. Monetary, fiscal, and structural policies must be aligned to avoid counterproductive outcomes. For instance, expansionary monetary measures without corresponding supply-side responses risk fuelling inflation, while fiscal consolidation without social safeguards may exacerbate inequality. A coordinated policy framework is therefore essential for achieving stability and inclusive growth.

Declarations

Declaration of Competing Interest and Disclaimer: The author declares that they serve on the advisory board of the journal. The author was not involved in the editorial or peer-review process of this manuscript and had no influence on the publication decision. The author declares no other conflicts of interest. Also, views expressed in this article are those of the author and do not represent the institutions he is associated with.

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