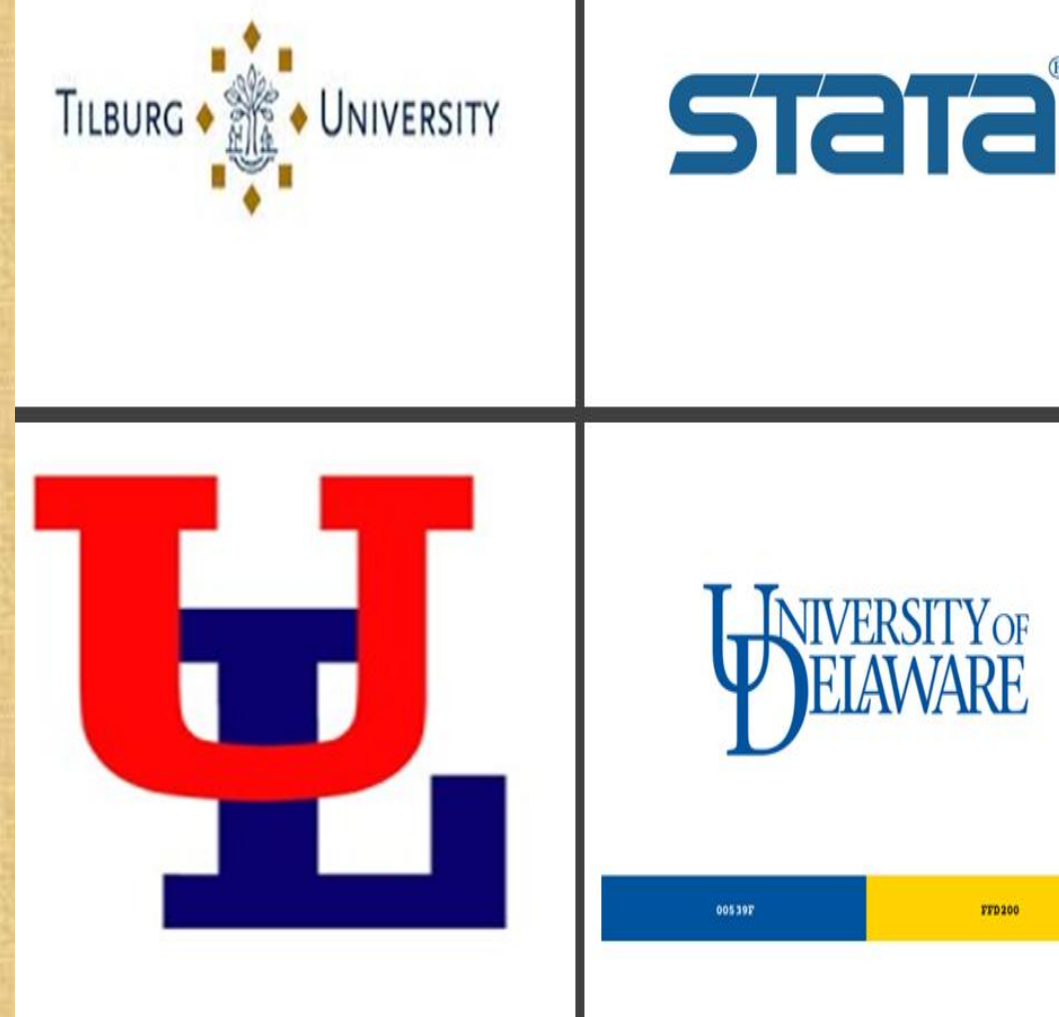


Revisiting the Phillips Curve in Liberia: An Empirical Analysis of Inflation and Unemployment Dynamics (2001–2023)

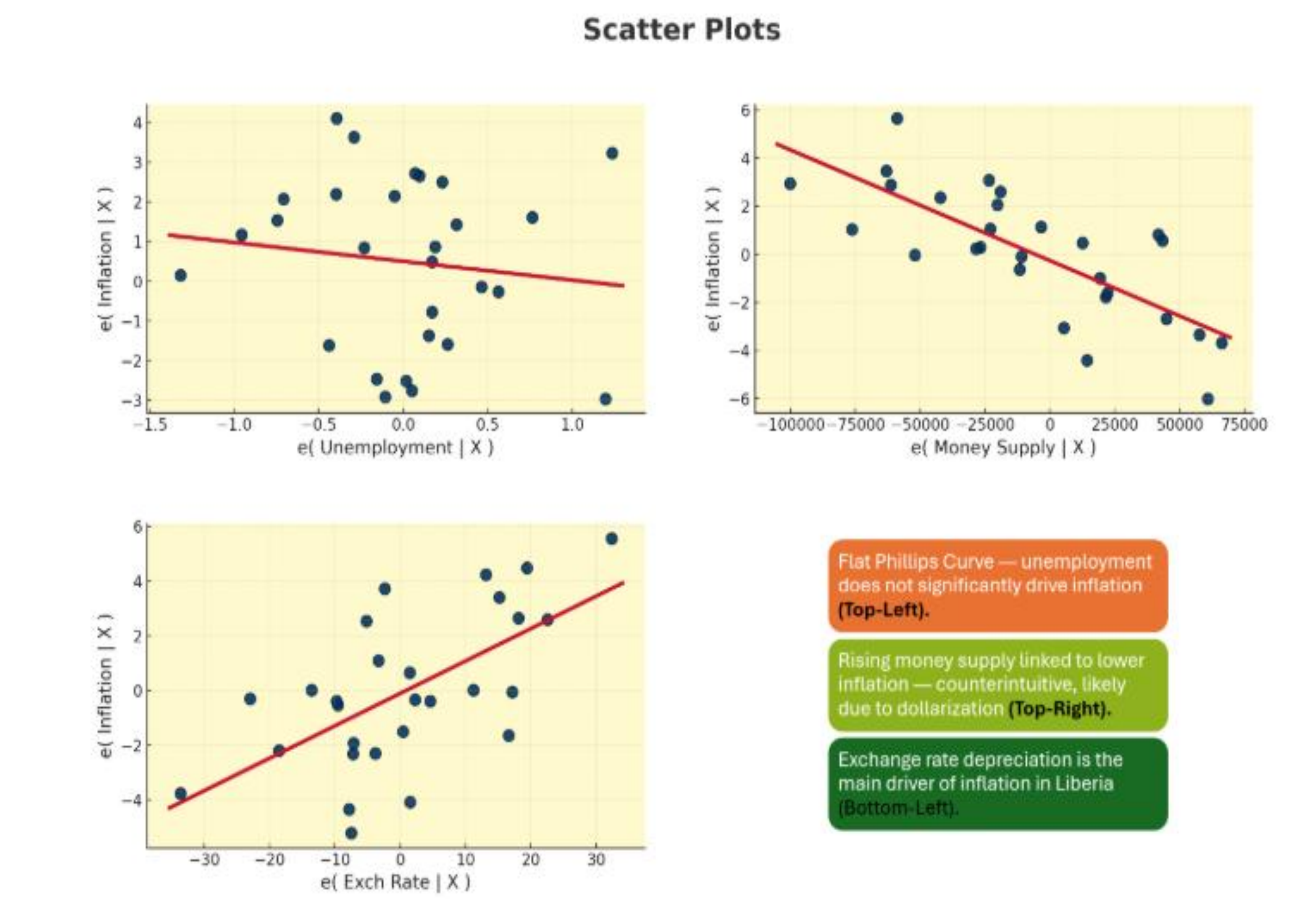
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1 Introduction / Motivation

Liberia faces high inflation volatility and weak labor markets. Despite global interest in the Phillips Curve, Liberia remains underexplored. This study tests the inflation–unemployment trade-off and assesses the roles of exchange rate and money supply.

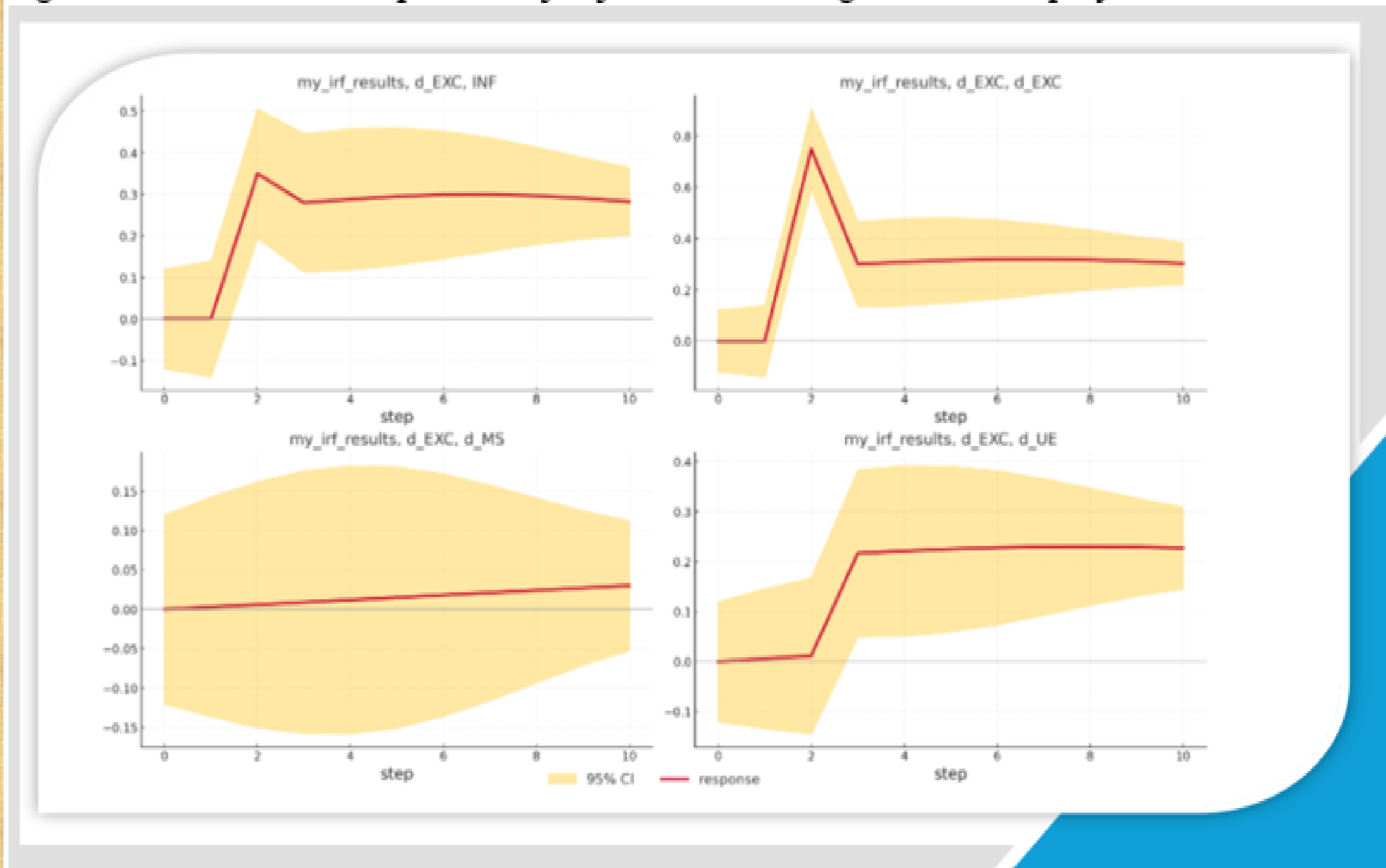
Figure 1: Scatterplot of key variables



4 Policy Implications

- Exchange Rate Stabilization is critical for price stability.
- Employment-sensitive policies should complement inflation control.
- Beyond Monetarism:** Money supply alone cannot explain Liberia's inflation dynamics.
- Integrated Strategy:** Fiscal discipline, export diversification, and labor market reforms are essential.

Figure 3: Variance Decomposition of Inflation, Exchange rate, Unemployment and MS

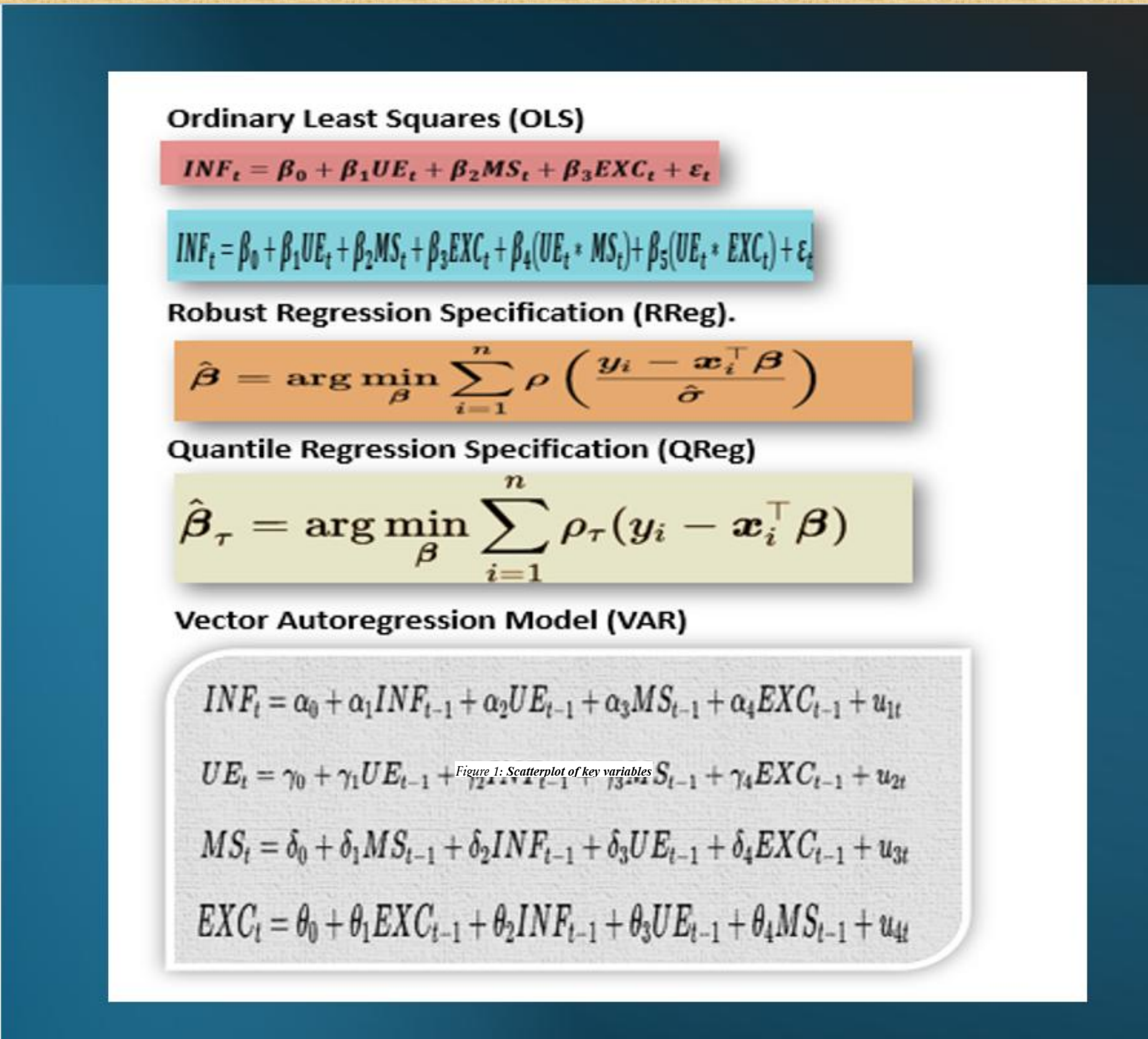


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2 Data & Methods

Annual data (2001–2023) from IMF, World Bank, and Central Bank of Liberia.

Models: OLS, Robust Regression, Quantile Regression, VAR, Granger Causality, Impulse Response, Variance Decomposition.



5 Conclusion

- The Phillips Curve holds partially in Liberia.
- Inflation dynamics are shaped mainly by exchange rate shocks.
- Policymakers must adopt context-specific, coordinated frameworks instead of relying on textbook models.

6 Limitation

- Small sample size (n = 23) limits statistical power and generalizability, while Liberia's informal labor market and limited data coverage may obscure the true extent of unemployment.
- Excluding structural variables such as productivity, wages, and sectoral employment reduces the explanatory power of the models.
- Reliance on annual data restricts the detection of short-term shocks and seasonal dynamics, which may be better captured using quarterly or monthly data.

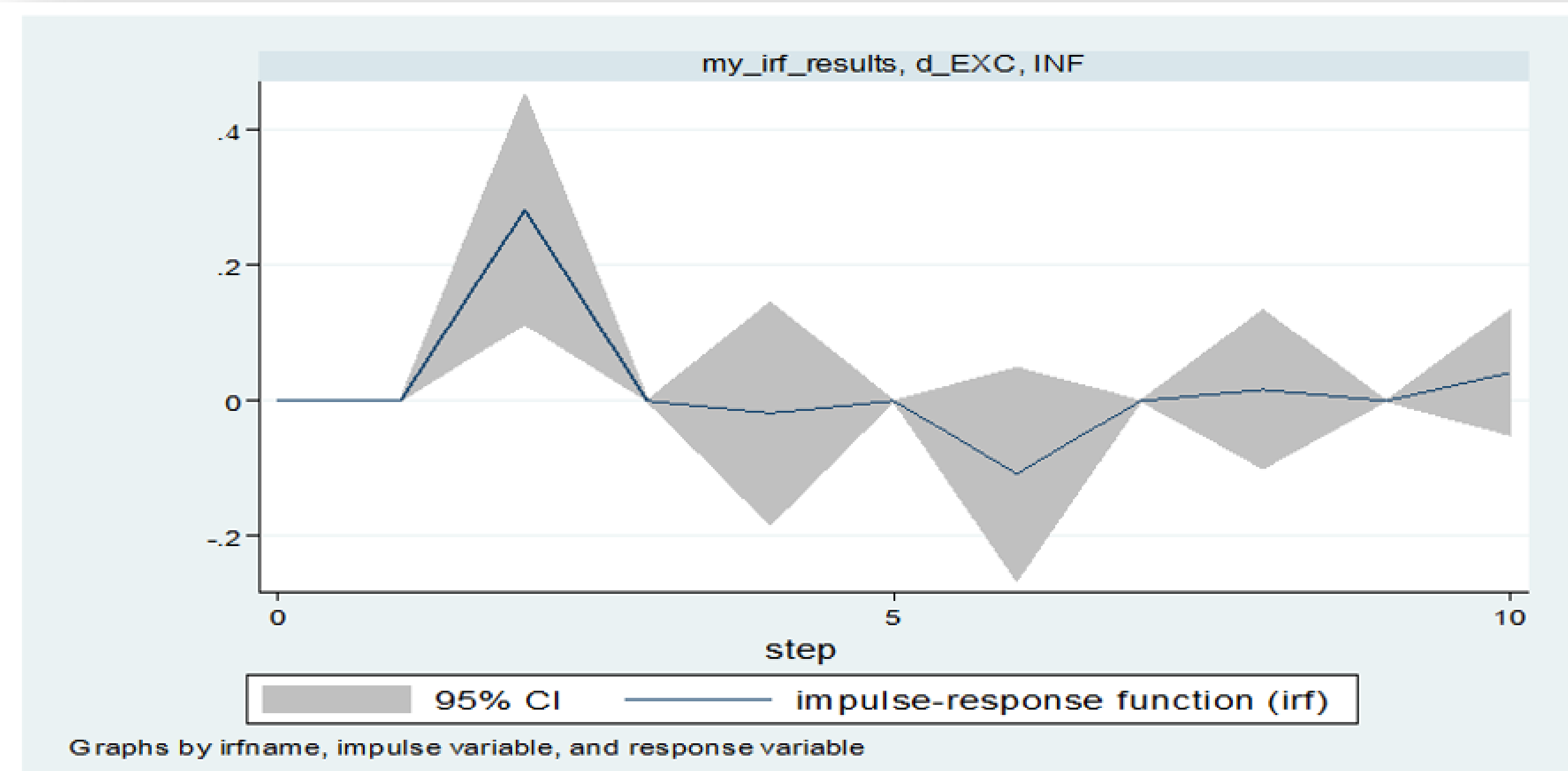
7 Further Research

- Incorporate higher-frequency datasets, disaggregated labor market indicators, and structural macroeconomic variables
- Nonlinear modelling frameworks, such as threshold VARs or regime-switching models, could offer deeper insights into how macroeconomic relationships change under different economic regimes.
- Comparative studies with other fragile and post-conflict economies may yield valuable lessons and policy benchmarks.

3 Key Findings

- Weak but negative short-run relationship between inflation & unemployment.
- Exchange rate depreciation is the strongest driver of inflation.
- Money supply shows unexpected but significant deflationary effect.
- Bidirectional link between inflation & exchange rate; exchange rate shocks also affect unemployment.
- Interaction terms reveal context-specific trade-offs.

Figure 2: Impulse Response of Inflation(INF) to an Exchange rate shocks (d_EXC)



Source: Author compilations from IMF (2023), World Bank(2022), and Central Bank of Liberia (2023)

Table 2: Summary of Granger Causality Test Results

Null Hypothesis (Excluded Variable)	Chi-square (χ²) Statistic	p-value	Conclusion (at 5% significance level)	Economic Interpretation
UE does not Granger-cause INF	2.6969	0.101	Fail to Reject (No causality)	Unemployment changes do not predict inflation.
EXC does not Granger-cause INF	10.583	0.001***	Reject (Causal relationship exists)	Exchange rate movements strongly predict inflation.
INF does not Granger-cause EXC	9.6363	0.002***	Reject (Causal relationship exists)	Inflation significantly influences exchange rate movements.
EXC does not Granger-cause UE	6.1142	0.013**	Reject (Causal relationship exists)	Exchange rate fluctuations impact unemployment.

Significance levels: ***p < 0.01, **p < 0.05, *p < 0.10. A rejected null hypothesis (p < 0.05) indicates that the excluded variable Granger-causes the dependent variable. A non-rejected null hypothesis (p > 0.05) means there is no evidence of causality.

Source: Author compilations from IMF (2023), World Bank (2022), and Central Bank of Liberia (2023)

Table 3: Johansen Cointegration Test Results

Rank (r)	Number of Parameters	Log-Likelihood (LL)	Eigenvalue	Trace Statistic	5% Critical Value	Decision
0	20	-385.74699	.	84.1568	47.21	Reject H ₀
1	27	-364.9982	0.87443	42.6592	29.68	Reject H ₀
2	32	-356.41757	0.57602	25.498	15.41	Reject H ₀
3	35	-349.67941	0.49024	12.0217	3.76	Reject H ₀
4	36	-343.66858	0.45178	-	-	-

Source: Author compilations from IMF (2023), World Bank (2022), and Central Bank of Liberia (2023)