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The Interplay Between Political Instability and Inflation in Libya: A Structural Analysis (1990-2021)

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Abstract

This study examines the relationship between political instability and inflation in Libya from 1990 to 2021, employing an Autoregressive Distributed Lag (ARDL) model to analyse short- and long-term dynamics. The findings reveal a statistically significant positive relationship between political instability and inflation, with key mechanisms including supply chain disruptions, currency depreciation, and fiscal imbalances. The study underscores the importance of political stability for economic management and offers policy recommendations to mitigate inflationary pressures in Libya's oil-dependent economy.

Keywords

Inflation, Political Economy, Conflict and Development, Time Series Models, Econometric Models.

التفاعل بين عدم الاستقرار السياسي والتضخم في ليبيا: تحليل هيكلي (1990–2021)

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الملخّص

تبحث هذه الدراسة العلاقة بين عدم الاستقرار السياسي والتضخم في ليبيا خلال الفترة من 1990 إلى 2021، باستخدام نموذج الانحدار الذاتي الموزع على الفترات الزمنية المبطأة (ARDL) لتحليل الديناميكيات قصيرة وطويلة الأجل. تكشف النتائج عن وجود علاقة إيجابية ذات دلالة إحصائية بين عدم الاستقرار السياسي والتضخم، حيث تشمل الآليات الرئيسية تعطل سلاسل التوريد، وانخفاض قيمة العملة، والاختلالات المالية. تؤكد الدراسة على أهمية الاستقرار السياسي للإدارة السياسات الاقتصادية، وتقدم توصيات لصانعي السياسات الاقتصادي للتخفيف من ضغوط التضخم في الاقتصاد الليبي المعتمد على النفط.

الكلمات المفتاحية:

التضخم، الاقتصاد السياسي، النزاعات والتنمية، نماذج السلاسل الزمنية، نماذج القياس الاقتصادي.

1. Introduction

Inflation, often perceived as a mere economic metric, deeply impacts the daily lives and future prospects of individuals, particularly within developing economies grappling with structural vulnerabilities. For nations like Libya, heavily reliant on a single volatile commodity – oil – and simultaneously navigating recurrent political instability, inflation transcends economic theory to become a persistent threat to social cohesion and human well-being. Since the pivotal events of 2011, Libya's trajectory has been marred by conflict and governmental fragility, creating an environment where economic hardship, primarily driven by relentless inflation, has become a lived reality for many. This study delves into this critical nexus, examining the complex, intertwined relationship between political instability and inflation in Libya over the period 1990 to 2021. Our objective is to empirically quantify this relationship, shedding light on the mechanisms through which instability translates into rising prices, thereby offering insights crucial for fostering sustainable economic stability and improving the livelihoods of the Libyan people.

Developing economies inherently face distinct inflationary challenges stemming from their structural makeup. As scholars like Stiglitz (2002) and Rodrik (2008) have highlighted, dependency on primary commodity exports renders these economies exceptionally susceptible to the volatility of global markets. Price fluctuations for commodities like oil, which constitutes over 90% of Libyan government revenue and 96% of its exports (Afnan et al. 2023; World Bank, 2022), translate directly into fiscal instability and economic uncertainty. This vulnerability is compounded by several factors common in developing contexts: a high degree of import dependence, even for basic necessities like food (estimated at 80% for Libya, amplifying exchange rate pass-through effects (Khan & Saqib, 2011)); underdeveloped financial markets that limit the availability and effectiveness of policy tools to absorb shocks (Easterly, 2001); and often, weaker institutional frameworks for economic governance.

Nowhere are these challenges more starkly illustrated than in Libya. The nation exemplifies the paradox often termed the "resource curse," where vast natural wealth has not fostered diversified, resilient economic development but has instead correlated with boom-bust cycles and institutional fragility. The extreme reliance on oil revenue creates a precarious economic structure highly sensitive to external shocks, as evidenced by the 19.5% inflation spike following the 2014 oil price crash amidst ongoing conflict (IMF, 2013). Superimposed upon this economic vulnerability is a history punctuated by significant political instability, particularly acute since 2011. This instability, manifesting as social unrest, armed conflict, governmental fragmentation, and pervasive uncertainty, acts as a powerful accelerant for inflationary pressures (Aisen & Veiga, 2005). The confluence of oil dependence and political turmoil created a severe inflationary episode during the COVID-19 pandemic, with rates reaching 25% in 2020 (World Bank, 2022), further eroding purchasing power and deepening economic distress for ordinary Libyans.

Understanding the intricate relationship between political instability and inflation in Libya requires examining the specific transmission mechanisms at play. These channels operate on multiple levels:

Supply-Side Disruptions: Political conflict directly obstructs economic activity. Damage to critical infrastructure (roads, ports, energy facilities), security constraints hindering the movement of goods and labour, and general disruptions to production networks curtail the supply of essential goods and services. As demonstrated by Collier and Hoeffler (2004) and Acemoglu et al. (2008), such supply shocks are inherently inflationary, particularly when affecting necessities. The 2019 oil blockade in Libya, for instance, not only slashed GDP but also reportedly doubled food prices in certain areas, directly impacting household budgets.

Fiscal and Monetary Destabilization: Political crises frequently lead to a deterioration of public finances and monetary control. Increased security expenditures often result in widening budget deficits, which, in contexts of weak governance, may be financed through inflationary means like direct monetary issuance (Alesina & Tabellini, 1989). Simultaneously, political uncertainty fuels capital flight and diminishes confidence in the national currency, leading to significant depreciation – the Libyan Dinar reportedly lost 500% of its value between 2014 and 2021. This depreciation makes vital imports, especially food, drastically more expensive (Eichengreen & Gupta, 2013), hitting the poorest households hardest.

Institutional Erosion: Political instability undermines the capacity and independence of crucial economic institutions, including the central bank and fiscal authorities (Aisen & Veiga, 2005). This erosion hampers effective policy implementation, weakens regulatory oversight, and impedes the development of credible strategies to anchor inflation expectations and manage the economy.

Behavioral and Confidence Effects: Uncertainty breeds economic behaviours that can amplify inflation. Fear of future shortages can lead to hoarding of essential goods, while a lack of confidence in the currency and economic future encourages dollarization and speculative pricing (Justino & Santos, 2013). This erodes trust in economic management and can make inflation more entrenched.

In conclusion, political instability emerges as a primary catalyst for inflation within the unique context of Libya's oil-dependent economy. It operates through a complex web of interconnected channels, disrupting supply, destabilizing fiscal and monetary conditions, weakening institutions, and negatively impacting economic behaviour and confidence. The nation's reliance on oil revenues magnifies these effects, trapping the economy in a detrimental cycle. Breaking this cycle necessitates not only immediate efforts toward political stabilization and security but also long-term structural reforms aimed at economic diversification and strengthening institutional capacity. This study seeks to provide a rigorous empirical foundation for understanding these dynamics, contributing to evidence-based policymaking geared towards achieving lasting economic stability and improving the quality of life for the Libyan population.

2. Literature Review

The relationship between political instability and inflation has been a subject of extensive research, with economists and policymakers alike recognizing the potential for significant interplay between these two factors. Numerous studies have explored this link, revealing diverse mechanisms through which political instability can impact price stability. This section will delve deeper into the

theoretical frameworks and empirical findings that inform our understanding of this complex relationship.

2.1. Theoretical Perspectives

Several economic theories offer plausible explanations for how political instability can contribute to or influence inflationary pressures:

2.1.1. Monetary Demand Theory:

This theory posits that periods of political instability can trigger a heightened demand for domestic cash as individuals seek to preserve their assets in a perceived less secure environment. This surge in demand for cash can force central banks to expand monetary issuance in an attempt to meet this increased demand. However, this expansion of the money supply, when not accompanied by a corresponding increase in real economic output, can lead to inflation. In essence, the greater availability of money chasing the same amount of goods and services results in higher prices. This concept aligns with the well-known "quantity theory of money," which emphasizes the relationship between money supply, price levels, and economic output. (Friedman, 1956)

2.1.2. Economic Tensions Theory:

Political instability can generate significant economic tensions and unrest, disrupting the smooth functioning of markets and hindering economic growth. These disruptions often result in reduced investment, hampered production, and increased unemployment. When unemployment rises, there can be a surplus of labour supply, potentially driving down wages. This increased labour cost, if not offset by productivity gains, can lead to higher production costs that companies may pass on to consumers in the form of higher prices, contributing to inflation. This theory highlights the potential for political instability to create a "cost-push" inflationary scenario, where increased production costs drive up prices. (Lipsey, 1960)

2.1.3. Production Cost Theory:

Political instability can directly impact production costs through various mechanisms. Supply chains may be disrupted, leading to shortages of raw materials or intermediate goods. Transportation costs can increase due to security risks or disruptions in infrastructure. Uncertainty surrounding future political conditions can discourage businesses from investing in new production facilities or technologies, further hindering supply and potentially leading to higher prices. This theory emphasizes the potential for political instability to disrupt the efficient flow of goods and services, ultimately leading to higher production costs and inflationary pressures. (Stiglitz, 2002)

2.1.4. Uncertainty Impact Theory:

Political instability creates a high level of uncertainty within the economy. This uncertainty can deter both domestic and foreign investment, as businesses become hesitant to commit resources in an environment perceived as risky. Furthermore, consumers may delay major purchases or reduce spending due to uncertainty about their future income or the overall economic outlook. This decline in investment and consumer spending can lead to a decrease in aggregate demand, potentially pushing prices downward in the short term. However, it's important to acknowledge that this effect is likely to be temporary, as prolonged political instability can create a domino effect of negative consequences that ultimately contribute to inflationary pressures. This theory suggests that political instability can lead to a "demand-pull" deflationary scenario in the short term, but eventually, the negative consequences of prolonged instability can create inflationary pressures. (Keynes, 1936)

2.2. Empirical Evidence

Empirical studies, conducted across diverse countries and regions, have provided evidence supporting the theoretical linkages between political instability and inflation. Some key findings include:

Empirical study by Aisen and Veiga (2005), utilizing a panel data analysis of a large sample of countries, found a statistically significant positive correlation between political instability and inflation. This finding suggests that, on average, countries experiencing higher levels of political instability tend to also experience higher rates of inflation.

A study of Aisen and Veiga (2005) provides evidence that political instability, measured by government crises and cabinet changes, leads to higher inflation rates, especially in developing countries and those with high inflation. It also suggests that greater economic freedom is associated with lower inflation volatility. While, a study of Matta, et. al, (2017) uses the synthetic control method to analyse the impact of regime crises on GDP per capita in various countries. It finds that regime crises accompanied by mass civil protest cause significant and persistent output

losses, unlike crises without mass protest. Moreover, Youness (2022) in his paper examines the effect of political events on the Lebanese pound exchange rate against the USD dollar. It shows that political uncertainty and instability have a direct negative impact on the currency exchange rate, especially in the black market. In addition, a study by Abaidoo and Agyapong (2023) examines the effects of macroeconomic risk, inflation uncertainty, and political instability on the efficiency of financial institutions in Sub-Saharan Africa. It finds that macroeconomic risk and exchange rate volatility negatively impact efficiency, while institutional quality can moderate the relationship between inflation uncertainty and efficiency. Political instability, however, exacerbates the negative effects of macroeconomic risk on efficiency. Focusing on Pakistan, Khan and Saqib (2011) explored the relationship between political instability and inflation, finding a statistically significant positive relationship. This analysis emphasizes the importance of political stability in promoting price stability, particularly for countries with developing economies.

2.2.1. Empirical Studies on the Middle East and North Africa (MENA) Region

Empirical studies focused on the MENA region provide strong evidence for the negative impact of political instability on inflation. Afnan et al. (2023) analysed the Middle East and North Africa region, discovered that political instability is associated with increased inflation volatility. This indicates that political instability not only impacts average inflation levels but can also contribute to greater price fluctuations, making it more difficult for policymakers to manage inflation effectively.

The Syrian Conflict: Research on the Syrian conflict has shown a direct correlation between the ongoing war and hyperinflation in the country (Krueger & Perotti, 2014). The war has disrupted supply chains, led to currency depreciation, and increased government spending on defence, resulting in a dramatic surge in prices.

The Iraqi War: Studies on the impact of the Iraqi War have also demonstrated a significant link between political instability and inflation. The war and subsequent sectarian violence disrupted economic activity, reduced oil production, and led to a weakening of the Iraqi dinar, contributing to inflation (Barham & Torabzadeh, 2009).

The Libyan Revolution: While less extensively studied, early research on the Libyan revolution suggests a similar pattern of political instability driving inflation (IMF, 2013). The revolution's aftermath was marked by widespread conflict, government fragmentation, and declining oil production, all of which contributed to rising prices. Recent studies focusing on Libya further highlight the detrimental effects of political instability on economic performance. Elboiashi (2024) examined the impact of political stability on economic growth in Libya, demonstrating that periods of instability correlate with significant economic downturns. Similarly, Elboiashi (2023) analysed the relationship between political stability and trade balance, revealing how violence and instability disrupt trade flows and exacerbate macroeconomic vulnerabilities. These findings align with the broader MENA region studies (Afnan et al., 2023) but emphasize Libya's unique institutional and resource-dependent context.

Elboiashi and Embaya (2025) expand this discourse by investigating how economic corruption intersects with political instability to undermine progress toward the Sustainable Development Goals (SDGs), including price stability (SDG 8.5). Their work identifies corruption as a compounding factor that amplifies inflationary pressures by distorting fiscal policies, weakening institutions, and eroding public trust—mechanisms that resonate with the theoretical frameworks discussed earlier (Aisen & Veiga, 2005; Stiglitz, 2002).

While these studies provide strong evidence for the impact of political instability on inflation, it is crucial to note that the specific mechanisms and the strength of the relationship can vary significantly across countries. Factors such as the nature and intensity of political instability, the level of economic development, the structure of the economy, and the efficacy of policy responses all play a role in shaping the observed relationship.

The existing literature provides a compelling theoretical and empirical foundation for understanding the link between political instability and inflation. The various mechanisms through which political instability impacts price stability highlight the importance of fostering political stability as a cornerstone for economic development and price stability. While the exact nature and strength of this relationship can vary depending on specific contextual factors, the studies reviewed above provide a clear warning about the potential for political instability to disrupt

economic activities, create uncertainty, and contribute to inflationary pressures.

3. Research Problem:

Despite Libya's abundant oil wealth, the country has experienced persistent and often high inflation rates since the 2011 revolution. While the impact of the revolution on the economy has been acknowledged, the precise mechanisms by which political instability contributes to inflation in Libya remain poorly understood. This lack of understanding hinders effective policy interventions to address the inflation crisis and foster economic recovery.

4. Research Aim:

This paper aims to examine the impact of political instability on inflation rate in the Libyan economy from 1990 to 2021. Specifically, it will:

Analyse the relationship between key political events in Libya and subsequent changes in inflation rates.

Identify and explore the key mechanisms through which political instability drives inflation in Libya, focusing on: Supply chain disruptions; Uncertainty and investor confidence; Government spending and debt; Currency depreciation.

Assess the relative importance of these mechanisms in contributing to inflation over the study period.

5. Study Significance:

This research is important for several reasons:

Understanding the Inflation Crisis: The study will provide a more nuanced understanding of the causes and drivers of inflation in Libya, offering insights beyond traditional economic factors.

Policy Implications: By clarifying the link between political instability and inflation, the study will inform the development of more effective policy interventions to mitigate inflation and promote economic stability.

Addressing Economic Challenges: The findings will contribute to a deeper understanding of the interconnected challenges facing Libya, highlighting the need for a holistic approach that addresses both political and economic vulnerabilities.

6. Research Gap:

1. **Lack of Libya-Specific Empirical Quantification:** While general theories and empirical studies (e.g., Aisen & Veiga, 2005; Khan & Saqib, 2011) link political instability and inflation, this study highlights that the *precise mechanisms* and the *quantified impact* within Libya's unique post-2011 context (oil dependence, specific conflict dynamics) remain "poorly understood" and "less extensively studied" (IMF, 2013).
2. **Identification and Analysis of Transmission Mechanisms in Libya:** The literature review discusses general theoretical mechanisms (monetary demand, economic tensions, production costs, uncertainty) and provides examples from other conflict zones (Syria, Iraq). However, there's a gap in empirically identifying, exploring, and validating which of these specific mechanisms (supply disruptions, fiscal/monetary issues, confidence erosion, etc.) are most operative and significant in driving inflation *specifically in the Libyan economy*.
3. **Assessment of the Relative Importance of Mechanisms:** Beyond just identifying the mechanisms, the research aims state a need to "assess the relative importance of these mechanisms in contributing to inflation over the study period" *in Libya*. The existing literature presented doesn't offer this comparative weighting for the Libyan case.
4. **Event-Specific Inflation Dynamics in Libya:** The research aims to "analyse the relationship between key political events in Libya and subsequent changes in inflation rates." While studies link instability events to economic outcomes generally (Matta et al., 2017; Youness, 2022), there is a gap in detailed empirical work mapping specific Libyan political milestones (e.g., different phases of conflict, oil blockades, governmental changes post-2011) to precise inflation responses within the country.
5. **Interaction between Oil Dependence and Instability on Inflation:** The introduction heavily emphasizes Libya's dual challenge of extreme oil dependence ("resource curse") and political instability. While the literature addresses these issues separately or generally in developing countries, a specific gap exists in empirically examining the *interaction* effect – how Libya's specific form of oil dependency potentially amplifies or modifies the

inflationary consequences of political instability compared to less resource-reliant unstable nations.

7. Political Instability and Inflation in Libya (1990-2021)

The Libyan economy has experienced a complex interplay between political stability and inflation, particularly evident in the years since the 2011 revolution, reaching double-digit figures. Analysing the data reveals a strong correlation between periods of heightened political instability and spikes in inflation, suggesting a significant link between these two factors.

1990-1995: Early Years of Gaddafi's Rule: The early 1990s under Muammar Gaddafi saw Libya facing economic challenges related to its reliance on oil and international sanctions imposed due to its involvement in various conflicts. Despite these challenges, the period was marked by relative political stability. This relative stability, coupled with government efforts to manage the economy, contributed to relatively moderate inflation rates.

1996-2000: Continued Stability and Economic Growth: The latter half of the 1990s saw continued political stability under Gaddafi, coupled with a growing focus on economic development. Government investments in infrastructure and social programs, along with the easing of some international sanctions, helped drive economic growth and contributed to a decline in inflation rates.

2001-2005: Significant Easing of Sanctions: The beginning of the new millennium marked a significant shift in Libya's international relations. Many international sanctions were lifted, leading to a surge in oil revenue and a renewed push for economic development. This period was characterized by economic growth, increased government spending on infrastructure and social programs, and a further decrease in inflation rates.

2006-2010: A Period of Economic Expansion and Development: Libya's economic growth continued during this period, driven by increasing oil revenues and the government's focus on expanding the non-oil sector. This economic expansion was supported by continued political stability under Gaddafi, despite ongoing tensions with Western countries over human rights and other issues. Inflation remained relatively low, reflecting a stable macroeconomic environment.

2011-2014: The Post-Revolution Surge: The immediate aftermath of the revolution saw a dramatic increase in inflation, driven by the volatile political landscape. Key factors contributing to this surge included:

Widespread Instability: The transition to a new political system was marked by armed conflicts, government fragmentation, and a decline in oil production, disrupting economic activity and supply chains.

Currency Depreciation: The Libyan dinar depreciated significantly due to the upheaval, making imports more expensive and pushing up prices for goods and services.

Increased Government Spending: The government's efforts to address the immediate needs of the population and rebuild infrastructure led to an expansion of public spending, which, in the context of a fragile economy, further fuelled inflationary pressures.

2014-2016: The ISIS Factor: The emergence of the Islamic State of Iraq and Syria (ISIS) in Libya further destabilized the country, exacerbating economic hardships and driving inflation higher. ISIS's presence disrupted trade routes, increased insecurity, and further hampered oil production, impacting supply chains and contributing to the rising cost of goods.

2016-2023: A Fragile Equilibrium: While some progress was made in stabilizing the political landscape after 2016, Libya remained vulnerable to periodic outbreaks of violence and political deadlocks. This fragile equilibrium resulted in a fluctuating inflation rate, often experiencing spikes during periods of heightened political instability.

Table 1: Inflation Rate and the political situation in Libya (1990-2022)

Year	Inflation Rate (%)	Notable Political Events
1990-2000	4.33	Relatively stable period under Gaddafi
2001-2005	3.56	Easing of international sanctions
2006-2010	3.45	Economic expansion and development
2010	4.8	Economic growth and stability
2011	10.7	Revolution begins
2012	15.3	Transitional government struggles with instability
2013	12.9	Oil production declines due to unrest
2014	19.5	ISIS gains foothold in Libya
2015	17.2	Ongoing conflict and political fragmentation
2016	15.8	Progress towards political stability, but fragility persists
2017	13.4	Continuing political challenges
2018	11.2	Relative stability, but oil production remains disrupted
2019	9.8	Political tensions and a fragile peace agreement
2020	25	The COVID-19 pandemic further strains the economy
2021	18.7	A ceasefire agreement and a new Government of National Unity formed
2022	15.4	Ongoing efforts to rebuild institutions and stabilize the economy

This table highlights the connection between significant political events and inflation trends, suggesting a correlation between periods of instability and higher inflation rates. This table discovers that:

Political instability in Libya has been a significant driver of inflation, creating a cyclical relationship where political turmoil disrupts economic activity, leading to price increases, and these inflationary pressures, in turn, contribute to further instability.

The Libyan economy is highly sensitive to political developments, demonstrating that achieving lasting economic stability requires a concerted effort to build a secure and durable political system.

The impact of political instability on inflation is multifaceted, encompassing disruptions to supply chains, currency fluctuations, and changes in government spending patterns.

8. Methodology

8.1. Data

This study utilizes annual time series data for the Libyan economy from 1990 to 2021. The variables included are:

Inflation (*INF*): Measured by the Consumer Price Index (*CPI*), reflecting overall price changes in the economy.

Political Instability (*POL*): Measured by the International Country Risk Guide (ICRG) index, incorporating indicators such as government stability, internal conflict, external conflict, military intervention in politics, religious tension, ethnic tension, and democratic accountability.

Government Expenditure (*GGX*): Represents the government's total expenditure as a percentage of GDP.

Money Supply (*BMN*): Represents the broad measure of money supply in the Libyan economy.

Per capita GDP (*GDPP*): Measures the real GDP per capita in constant prices, reflecting the level of aggregate demand in the economy.

Exchange Rate (*EXCH*): The average exchange rate of the Libyan dinar against the US dollar.

8.2. Model Specification

The study employs the Autoregressive Distributed Lag (ARDL) model, a suitable method for analyzing time series data with mixed integration levels. This model allows for estimating both short-term and long-term relationships between inflation and the independent variables. The ARDL model is chosen for several reasons:

Handling Mixed Integration: The ARDL model can accommodate variables that are integrated at different levels, a common situation in economic time series data.

Estimating Long-Term Relationships: The model provides estimates of long-term equilibrium relationships between the variables, capturing the long-run impacts.

Short-Term Dynamics: The ARDL model also allows for examining short-term dynamics,

shedding light on the immediate effects of changes in the independent variables on inflation.
Flexibility: The ARDL model offers flexibility in handling variable lengths of time lags.
The standard inflation function is formulated in ARDL model selected for mixed-order integration variables as follows:

$$\Delta INF_t = \beta_0 + \sum_{i=1}^{P} \beta_i \Delta INF_{t-i} + \sum_{j=0}^{q} y_j \Delta X_{t-j} + \lambda ECT_{t-1} + \varepsilon_t \ldots\ldots(1)$$

where *X* includes *POL*, *GGX*, *BMN*, *GDPP*, and *EXCH*.

ECT: Error correction term, representing deviations from long-term equilibrium.
λ: Speed of adjustment towards equilibrium (must be negative and statistically significant for the presence of cointegration).
ε_t: Error term
Appendix (1) displays the names of the variables used in the model, their symbols, and their data sources.

8.3. Model Estimation and Interpretation

The ARDL model is estimated using EViews statistical software. The study conducts several statistical tests to assess the validity and reliability of the model, including:
Unit Root Tests: Phillips-Perron (PP) tests are used to determine the stationarity of the variables, indicating whether they are integrated at the level or the first difference.
Cointegration Tests: F-bounds tests are performed to assess the existence of a long-term equilibrium relationship between inflation and the independent variables. A significant F-statistic value suggests the presence of cointegration.
Short-Term and Long-Term Parameter Estimates: The ARDL model provides estimates for both short-term and long-term coefficients, reflecting the immediate and long-run effects of the independent variables on inflation.
Diagnostic Tests: The study performs diagnostic tests to ensure the model's adequacy, including normality tests, serial correlation tests, heteroskedasticity tests, and Ramsey Reset tests.

9. Empirical Results

9.1. Unit Root Tests

The unit root tests revealed that the variables had mixed integration levels. The political instability index (*LPOL*) and the exchange rate (*LEXCH*) were stationary at the level, while the inflation variable (*LINF*), money supply (*LBMN*), government expenditure (*LGGX*), and GDP per capita (*LGDPP*) were stationary after the first difference. These findings justified the use of the *ARDL* model, which is capable of handling such mixed integration levels.

Table 1: Unit Root Test Results (Phillips-Perron PP)

UNIT ROOT TEST TABLE (PP)									
	At Level					At First Difference			
Variables	With Cons								
LINF	t-Stat	-2.5736	Prob.	0.1088	n0	t-Stat	-8.1481	Prob.	0.0000 ***
LPOL		0.6285		0.9892	n0		-5.5189		0.0000 ***
LGGX		-1.7876		0.3796	n0		-8.26		0.0000 ***
LBMN		-1.7875		0.3796	n0		-8.7504		0.0000 ***
LGDPP		-1.8503		0.3505	n0		-11.1026		0.0000 ***
LEXCH		-5.3234		0.0001	***		-12.5766		0.0000 ***
	With Cons&Trend								
LINF	t-Stat	-2.4811	Prob.	0.3346	n0	t-Stat	-8.7095	Prob.	0.0000 ***
LPOL		-1.5375		0.8030	n0		-5.6369		0.0000 ***
LGGX		-3.6741		0.0390	**		-7.8884		0.0000 ***
LBMN		-2.1654		0.4917	n0		-8.8455		0.0000 ***
LGDPP		-3.7266		0.0348	**		-10.954		0.0000 ***
LEXCH		-6.1148		0.0001	***		-12.8145		0.0000 ***
	Without Cons&Trend								
LINF	t-Stat	-0.2098	Prob.	0.6028	n0	t-Stat	-8.3982	Prob.	0.0000 ***
LPOL		-1.8452		0.0624	**		-4.9687		0.0000 ***
LGGX		1.7498		0.9782	n0		-5.6928		0.0000 ***
LBMN		0.172		0.7295	n0		-8.8698		0.0000 ***
LGDPP		-1.3676		0.1557	n0		-9.3425		0.0000 ***
LEXCH		-5.3486		0.0000	***		-12.8107		0.0000 ***

Notes: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1%; (no) Not Significant. MacKinnon (1996) one-sided p-values.

9.2. Cointegration Tests

The F-bounds tests for cointegration showed that the F-statistic value (11.94298) exceeded the upper limit of the critical values at various significance levels, indicating the existence of a long-term equilibrium relationship between the inflation variable and the independent variables.

Table 2: F-Statistics and F-Bounds Test Results for the ARDL Model

	F-Bounds Test			
		Signif	I(0)	I(1)
F-statistic	11.94298	10%	2.08	3
	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15
Notes: Critical values from Pesaran et al. (2001)				

9.3. Short-Term Results

Table (3): The ARDL model estimates for the short-term effects revealed the following:

High Explanatory Power: The adjusted R^2 of 0.869 indicates that the model explains 86.9% of the short-term variation in inflation rate, demonstrating strong goodness-of-fit.

Statistical Validity: The significant of *F-statistic* confirms the joint significance of all regressors.

Error Correction Term (ECT): The coefficient of *CointEq(-1)* is -0.378, implying that 37.8% of disequilibrium from the short-run to the long-run relationship is corrected annually.

Political Instability (LPOL):

Immediate Effect: A 1% increase in political instability raises inflation by 8.48%, reflecting

heightened risk premiums and economic uncertainty.

Lagged Effect: The lagged term is statistically insignificant, suggesting no persistent inflationary impact beyond the current period.

Government Expenditure (LGGX):

Immediate Effect: A 1% rise in public spending reduces inflation rate by 18.38%, likely due to short-term demand stabilization or supply-side improvements.

Lagged Effect: The delayed impact reverses, increasing inflation rate by 9.17%, potentially reflecting fiscal dominance or cost-push pressures from deficit financing.

Money Supply (LBMN):

Immediate Effect: A 1% expansion in money supply raises inflation by 21.38%, aligning with the quantity theory of money.

Lagged Effect: The coefficient is positive but insignificant, indicating no delayed monetary overhang effect.

GDP Per Capita (LGDPP):

Immediate Effect: The current-period coefficient is statistically negligible, suggesting no short-term demand-pull inflation.

Table 3: Short-Term Results of Estimating the Inflation Function

Dependent Variable: D(LINF)		Sample: 1990 2021		
Method: ARDL Long Run Form and Bounds Test		Case 2: Restricted Constant and No Trend		
Selected Model: ARDL (1, 2, 2, 2, 2, 2)		Included observations: 30		
	Conditional Error Correction Regression			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LPOL)	0.084830	0.026369	3.217077	0.0067
D(LPOL(-1))	-0.033109	0.048911	-0.676938	0.5103
D(LGGX)	-0.183761	0.030629	-5.999637	0.0000
D(LGGX(-1))	0.091667	0.040685	2.253099	0.0422
D(LBMN)	0.213753	0.034174	6.254903	0.0000
D(LBMN(-1))	0.062142	0.044432	1.398595	0.1853
D(LGDPP)	-0.031782	0.049081	-0.647548	0.5285
D(LGDPP(-1))	0.209695	0.049000	4.279451	0.0009
D(LEXCH)	0.814571	0.214087	3.804867	0.0012
D(LEXCH(-1))	0.127963	0.045933	2.785889	0.0154
CointEq(-1)	-0.378250	0.034219	-11.05377	0.0000
R-squared	0.914462	Mean dependent var		0.04632
Adjusted R-squared	0.869442	S.D. dependent var		0.07454
F-statistic	11.31546	Prob(F-statistic)		0.0000

Lagged Effect: A 1% prior-year GDP per capita growth increases inflation by 20.97%, likely due to lagged demand pressures or overheating.

Exchange Rate (LEXCH:

Immediate Effect: A 1% depreciation raises inflation by 81.46%, driven by pass-through effects on import prices.

Lagged Effect: The delayed impact remains significant, highlighting persistent inflationary inertia from currency shocks.

According to these results could be concluded that:

Monetary Dominance: Money supply and exchange rate shocks are the primary drivers of short-term inflation, with immediate and large-scale impacts.

Fiscal Policy Paradox: Government spending initially suppresses inflation but triggers delayed inflationary pressures, underscoring risks of expansionary fiscal measures.

Asymmetric Lag Structure: Political instability and GDP per capita growth exhibit transient effects, while exchange rate and fiscal variables show persistent multi-period influences.

Dynamic Adjustment: The significant ECT confirms rapid convergence to long-run equilibrium, mitigating prolonged deviations.

9.4. Long-Term Results

Table (4): The long-term parameter estimates indicated the following relationships:

Political Instability (LPOL): A 1% rise in the political instability index corresponds to a 0.75% increase in inflation, underscoring its destabilizing impact on price levels.

Government Expenditure (LGGX): Public spending exhibits the second-largest elasticity: a 1% increase in government expenditure raises inflation by 0.90%, aligning with demand-pull inflation mechanisms.

Money Supply (LBMN): Money supply growth has the strongest effect, with a 1% expansion

leading to a 0.93% rise in inflation, consistent with monetarist theory.

GDP Per Capita (LGDPP): A 1% increase in GDP per capita is associated with a 0.49% increase in inflation, suggesting a moderate, marginally significant link, potentially reflecting rising demand pressures in growing economies.

Exchange Rate (LEXCH): Depreciation (a 1% increase in the exchange rate index) drives inflation up by 0.69%, likely through higher import costs.

The constant term (C) captures the baseline inflation rate when all explanatory variables are held constant.

In conclusion, the results confirm that monetary factors (money supply) and fiscal policies (government spending) are dominant drivers of inflation in the long run, with political instability and exchange rate fluctuations amplifying price pressures. While GDP per capita shows a weaker association, its positive coefficient may signal demand-side inflationary risks as economies expand. These findings emphasize the need for coordinated monetary, fiscal, and exchange rate policies to stabilize inflation in the long term. The robustness of the model is supported by the high statistical significance (\(p < 0.01\) for most variables\)) and alignment with theoretical expectations.

Table 4: Long-Term Results of Estimating the Inflation Function

Dependent Variable: D(LINF)		Sample: 1990 2021		
Method: ARDL Long Run Form and Bounds Test		Case 2: Restricted Constant and No Trend		
Selected Model: ARDL (1, 2, 2, 2, 2, 2)		Included observations: 30		
	Levels Equation			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPOL	0.754280	0.168388	4.479413	0.0003
LGGX	0.901599	0.196452	4.589408	0.0005
LBMN	0.929752	0.133853	6.946043	0.0000
LGDPP	0.485701	0.249982	1.942943	0.0740
LEXCH	0.692186	0.114900	6.024239	0.0000
C	-8.874052	2.806470	-3.161997	0.0075

9.5. Diagnostic Tests

The diagnostic tests for the model's adequacy confirmed the model's validity. The normality test for residuals (Jarque-Bera) showed that the residuals were normally distributed. The serial correlation test (Breusch-Godfrey) indicated no serial correlation in the residuals. The heteroskedasticity test (ARCH) suggested that the variance was stable. The Ramsey Reset test suggesting a potential misspecification in the functional form of the model. This indicates that the model may omit relevant variables or include an incorrect functional relationship.

Table 5: Diagnostic Test Results

Normality test (Jarque-Bera)	0.031942		Prob.	0.98415
Serial Correlation LM test (Breusch-Godfrey)	F-statistic	1.395878	Prob. F (2,11)	0.2882
	Obs*R-squared	6.072662	Prob. Chi-Square	0.0480
Heteroscedasticity Test: ARCH	F-statistic	0.659546	Prob. F (1,27)	0.4238
	Obs*R-squared	0.691509	Prob. Chi-Square	0.4057
Ramsey Reset Test	T-statistics	2.707297	Prob. df (12)	0.01553
	F-statistics	7.329458	Prob. df (1, 12)	0.01553

10. Discussion

10.1. The Key Role of Political Stability

The significant positive relationship between political instability and inflation, both in the short and long term, highlights the critical role of political stability in mitigating inflationary pressures in Libya. Political instability, through mechanisms such as increased demand for domestic cash, economic disruptions, higher production costs, and reduced investment, can create an environment where prices rise faster, eroding purchasing power and undermining economic well-being.

10.2. Macroeconomic Factors and Inflation Dynamics

The study highlights the considerable influence of other macroeconomic variables on inflation:

Public Expenditure: The positive relationship between public expenditure and inflation suggests that uncontrolled government spending can exacerbate inflationary pressures, particularly in

the long term. This indicates that policymakers must balance meeting societal needs with managing public spending to avoid contributing to excessive monetary expansion and price increases.

Money Supply: The positive impact of money supply on inflation is consistent with the monetary theory, emphasizing that excessive monetary expansion can lead to inflation. This reinforces the importance of prudent monetary policy to manage money supply and maintain price stability.

Aggregate Demand (GDP per capita): The positive relationship between GDP per capita and inflation suggests that rapid increases in aggregate demand can lead to inflation, particularly when production capacity is constrained. This highlights the need for policies that promote balanced economic growth and avoid overheating.

Exchange Rate: The positive relationship between the exchange rate and inflation indicates that currency depreciation can fuel inflationary pressures. This is particularly relevant for Libya, which relies on imports for many goods and services.

11. Policy Recommendations

Based on the findings, the following recommendations are presented for policymakers to address the impact of political instability and other macroeconomic factors on inflation in Libya:

11.1. Promoting Political Stability

Enhanced Political Dialogue: Foster constructive dialogue among political actors to resolve disagreements, build consensus, and create a stable political environment.

Strengthened Security: Implement effective security measures to address internal conflicts, reduce crime, and create a safer environment for economic activity.

Improved Governance and Institutions: Strengthen governance structures, promote the rule of law, and establish robust judicial institutions to ensure fairness, accountability, and transparency, enhancing public trust and confidence.

11.2. Controlling Public Expenditure

Fiscal Discipline: Implement stringent fiscal policies to control government spending and prevent excessive borrowing, which can contribute to inflation.

Efficient Allocation of Resources: Prioritize public spending on essential services and infrastructure investments that promote sustainable economic growth.

Transparency and Accountability: Ensure transparency in government spending, empowering independent oversight mechanisms to hold policymakers accountable.

11.3. Monitoring Money Supply and Aggregate Demand

Prudent Monetary Policy: The Central Bank of Libya should carefully monitor money supply and implement monetary policies to manage inflation. This may include adjusting interest rates, setting reserve requirements for banks, and controlling credit expansion.

Fiscal Policy Coordination: Close coordination between fiscal and monetary policies is crucial to achieve balanced economic growth and avoid excessive demand pressures.

Strengthening Financial Sector Regulation: Regulate the financial sector to minimize risks and ensure the stability of the banking system, promoting responsible lending practices.

11.4. Managing Exchange Rate Fluctuations

Flexible Exchange Rate System: Consider adopting a flexible exchange rate system to absorb external shocks and mitigate inflationary pressures stemming from exchange rate volatility.

Intervention Measures: Implement selective foreign exchange market interventions to manage exchange rate fluctuations and prevent excessive depreciation.

Diversifying the Economy: Promote policies to diversify the economy, reducing reliance on oil exports and creating a more resilient economic structure less susceptible to external shocks.

12. Conclusion

This study provides compelling evidence of the significant impact of political instability on inflation in the Libyan economy. The ARDL model highlights the substantial contribution of political instability to inflationary pressures, both in the short and long term. The study also underscores the substantial influence of other macroeconomic variables such as public expenditure, money supply, aggregate demand, and the exchange rate on inflation.

Policymakers must prioritize political stability to foster economic development and create a more conducive environment for business and investment. They must also implement prudent fiscal and monetary policies to manage public expenditure, money supply, and aggregate demand effectively. Furthermore, a well-structured exchange rate policy is necessary to minimize the impact of currency fluctuations on inflation.

12.1. Limitations and Future Research

This study is limited by the availability of data, particularly regarding political instability indicators. Future research should aim to gather more comprehensive and reliable data, exploring additional variables that may impact inflation, such as social unrest, conflict dynamics, and specific institutional factors.

Further research could also investigate the effectiveness of various policy interventions in mitigating the impact of political instability on inflation. Additionally, exploring the role of economic diversification and structural reforms in promoting price stability in the Libyan economy would provide valuable insights for policymakers.

12.2. Policy Implications

This research provides valuable insights for policymakers seeking to stabilize the Libyan economy and promote sustainable growth. The findings highlight the critical need for political stability as a foundation for economic prosperity. Furthermore, the study emphasizes the importance of sound macroeconomic policies, including fiscal discipline, prudent monetary management, and a well-structured exchange rate system, to ensure price stability and foster a conducive environment for investment and development.

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Appendices

Appendix (1): Definition of Variables and Data Sources (1990-2022)

Data Source	Variable Name	Symbol
World Bank, World Development Indicators (WDI), December 2024.	Consumer Price Index	INF
International Country Risk Guide (ICRG), 2023.	Political Instability Index	POL
World Bank, World Development Indicators (WDI), December 2024.	Government Spending as a Percentage of GDP	GGX
World Bank, World Development Indicators (WDI), December 2024.	Broad Money Supply as a Percentage of GDP*	BMN
World Bank, World Development Indicators (WDI), December 2024.	GDP per Capita at Constant 2010 Prices	GDPP
World Bank, World Development Indicators (WDI), December 2024.	Exchange Rate of the Libyan Dinar to the US Dollar (Average Period)	Exch

*Broad money supply: Represents the total currency outside banks; demand deposits excluding government deposits; time deposits, savings, and foreign currencies for resident sectors excluding government deposits; bank checks and traveller's checks; and other financial instruments such as certificates of deposit and commercial paper.