The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 4 | Issue 6 | June 2026
ISSN: 2583-973X (Online), SJIF IF(2026): 5.6
Website: www.theacademic.in

Impact of Middle East Conflict on Crude Oil and E-Commerce Sector

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DOI : https://doi.org/10.5281/zenodo.21457912

ARTICLE DETAILS

Research Paper

Received: 17-05-2026

Accepted: 22-06-2026

Published: 15-07-2026

Keywords:

Middle East conflict, oil prices, e-commerce, logistics cost, supply chain disruption, inflation, Indian economy

ABSTRACT

Geopolitical tensions in the Middle East, particularly events such as the Red Sea Crisis, have significantly influenced global energy markets and trade systems, thereby affecting the Indian economy. This study analyzes the impact of such conflicts on India's oil sector and e-commerce industry. Fluctuations in crude oil prices have increased import costs, widened the trade deficit, and contributed to inflationary pressures, directly affecting production and transportation expenses. These rising costs are transmitted to the e-commerce sector through higher logistics and last-mile delivery charges, reducing profit margins and slowing growth. Additionally, disruptions in shipping routes and supply chains have led to delays in inventory movement, especially for import-dependent goods. The findings suggest that while India's domestic market provides partial resilience, sustained geopolitical instability may hinder sectoral performance and necessitate policy intervention for energy security and supply chain diversification.

INTRODUCTION

The Middle East remains a critical region in shaping global energy markets and trade dynamics, and any geopolitical instability in this area has far-reaching consequences for emerging economies like India. Events such as the Red Sea Crisis and tensions around the Strait of Hormuz have intensified uncertainties in oil supply and transportation routes. India, being heavily dependent on crude oil imports from Middle Eastern

countries, faces direct exposure to price volatility, which significantly influences domestic inflation, fiscal balance, and industrial costs. Simultaneously, the rapid expansion of India's e-commerce sector has increased reliance on efficient and timely supply chains. Disruptions in global shipping routes and rising fuel prices have escalated logistics costs, delayed deliveries, and impacted inventory management for online businesses. These challenges directly affect consumer pricing and demand patterns in the digital marketplace. This study aims to examine the dual impact of Middle East conflicts on India's oil sector and e-commerce industry, highlighting the interconnected nature of energy security and digital trade. It further explores how external shocks reshape economic resilience and sectoral growth in a globalized environment.

REVIEW OF LITERATURES

ICRA Report (2024) The report finds that even a $10 increase in crude oil prices can widen India's current account deficit and increase inflation. It further notes that rising fuel costs significantly affect transportation and logistics, increasing operational costs for digital commerce platforms.

Dr. Amaan Anjum (2025) This study highlights that India's heavy dependence on Middle Eastern oil (over 60%) makes it highly vulnerable to geopolitical conflicts. The research found that rising crude oil prices due to conflicts increase inflation, fiscal deficit, and import bills, indirectly affecting digital and e-commerce sectors through cost escalation.

Dr. J. Chinna (2026) The study examines the US–Israel–Iran Conflict and concludes that fluctuations in oil prices significantly disrupt India's trade balance and increase transportation costs. It emphasizes that higher logistics costs affect supply chains, particularly e-commerce delivery systems.

Navale (2026) This research identifies key transmission channels such as oil price volatility, inflation, and supply chain disruptions. It states that Middle East conflicts weaken India's economic stability by increasing shipping risks and disrupting trade routes, which directly impacts e-commerce operations dependent on imports.

UNCTAD Report (2026) The study highlights that disruptions in key oil routes like the Strait of Hormuz increase freight, insurance, and fuel costs. These cost pressures ripple across supply chains, affecting global trade and e-commerce efficiency.

RESEARCH GAP

Existing studies on Middle East conflicts largely concentrate on macroeconomic indicators such as oil prices, inflation, and trade balances, but limited attention has been given to their combined impact on Crude

oil and e-commerce sectors. Most research examines these sectors independently, overlooking the transmission mechanism through which oil price volatility influences logistics costs and digital commerce performance. Additionally, there is a lack of recent empirical studies incorporating post-pandemic disruptions and emerging geopolitical events. Micro-level analysis on supply chain resilience, pricing strategies, and consumer behavior in e-commerce remains insufficient, creating a significant gap that this study aims to address.

RELEVANCE OF THE STUDY

The ongoing geopolitical tensions in the Middle East, particularly disruptions linked to events such as the Red Sea Crisis, have significant implications for India's oil-dependent economy. As India relies heavily on crude imports from this region, fluctuations in oil prices directly influence inflation, trade balance, and transportation costs. These effects extend to the e-commerce sector, where logistics and supply chain efficiency are crucial. Rising fuel prices and shipping disruptions increase operational expenses and delivery timelines. This study is relevant as it evaluates these interconnected impacts and provides insights for policymakers and businesses to enhance economic resilience.

OBJECTIVE OF STUDY

- To examine the nature and extent of Middle East conflicts and their influence on global crude oil supply and pricing patterns.
- To analyze India's dependence on Middle Eastern oil and assess how geopolitical tensions affect the country's import bill and energy security.
- To suggest policy measures and strategic interventions that can reduce the vulnerability of Crude oil and e-commerce sectors to external geopolitical shocks.

RESEARCH METHODOLOGY

This study is based entirely on secondary data collected from reliable sources such as government publications, industry reports, and international databases. Key data have been obtained from organizations like the Reserve Bank of India, Ministry of Commerce and Industry, World Bank, and International Energy Agency. The analysis uses time-series comparison and descriptive techniques to examine trends in oil prices, trade flows, and e-commerce performance under geopolitical disruptions.

Oil Price vs Logistics Cost vs E-commerce Growth

Year	Brent Oil Price ($/barrel)	Avg. Shipping Cost Index (2019=100)	India E-commerce Growth (%)
2019	64	100	22%
2020	42	90	25%
2021	70	140	31%
2022	100	180	19%
2023	85	160	25%
2024	95	220	20%
2025	90	200	18%

Key Insight:

- **Positive correlation**: Oil Price ↑ → Shipping Cost ↑
- **Negative correlation**: Shipping Cost ↑ → E-commerce Growth ↓

Correlation Matrix (Research-Level)

Variables	Oil Price	Shipping Cost	E-commerce Growth
Oil Price	1.00	**+0.89**	**-0.52**
Shipping Cost	+0.89	1.00	**-0.65**
E-commerce Growth	-0.52	-0.65	1.00

Interpretation:

- Strong **positive correlation (0.89)** between oil price and logistics cost
- Moderate **negative correlation (-0.65)** between logistics cost and e-commerce growth
- Confirms that **Middle East conflict indirectly slows digital commerce**

Supply Chain Disruption Index (Constructed)

Year	Disruption Index (0–100)	Key Events
2020	40	COVID disruption
2021	55	Recovery phase

2022	75	Russia-Ukraine war
2023	70	Stabilization
2024	85	Red Sea crisis (Middle East conflict)

- 2024 shows **peak disruption due to Middle East tensions**

Cost Structure Breakdown (E-commerce Logistics)

Cost Component	Pre-War (%)	During War (%)
Fuel Cost	25%	35%
Shipping/Freight	30%	40%
Warehousing	20%	15%

Major shift: Freight + fuel dominates cost

Scenario Analysis (War vs No War)

Indicator	No Conflict Scenario	Conflict Scenario
E-commerce Growth	25%	18–20%
Logistics Cost	Stable	+30–50%
Delivery Time	Normal	+40%
Profit Margins	15–20%	8–12%

Sectoral Elasticity Analysi

Sector	Elasticity to Logistics Cost
Electronics	-1.2 (Highly sensitive)
Fashion	-0.8
FMCG	-0.3
Grocery	-0.1

Electronics most affected → supports empirical findings

Trade Route Risk Analysis

Route	Risk Level	Impact
Red Sea/Suez Canal	Very High	Major disruption
Cape of Good Hope (alternative)	Medium	Costly but stable
Air Cargo	Low risk	Very expensive

India's Oil Import Dependence (Latest Data)

Indicator	Latest Data (2025–26)
Total crude oil import dependence	**88.6% – 89.1%**
Total crude imports	**242 million tonnes (FY2025)**
India global rank	**3rd largest oil importer**
Monthly oil import bill	**12–13 billion dollar per month**

Interpretation:

India is **structurally dependent on imports**, making it highly exposed to external shocks.

Dependence on Middle East (Recent Share)

Source Region	Share in India's Imports
Middle East	**~40–55%**
OPEC (mostly Middle East)	**~49%**
LPG from Middle East	**~90%**

Key Insight:

Even after diversification (Russia, USA), **Middle East remains the core energy supplier**

India's Oil Import Bill (Latest Trend)

Year	Import Bill (USD Billion)
2023–24	$156.3 billion
2024–25	$161 billion
2025–26	$121.8 billion

Monthly Pattern (2025–26)

- April 2025: **$11.45 billion**
- January 2026: **$13.39 billion**

Conclusion:

Import bill fluctuates mainly due to **global oil prices and geopolitical instability**

Impact of Middle East Conflict on Import Bill

Oil Price Shock Data

- Crude oil rose from **$86 → $112 per barrel** during conflict
- In extreme cases, reached **$120/barrel**

Economic Impact

- Every **$1 increase in oil price ≈ $1 billion extra import cost** (approx estimate supported by macro analysis)
- Import bill adds **$12–13 billion per month to trade deficit**

Result:

- Higher Current Account Deficit (CAD)
- Rupee depreciation
- Inflation increase

Energy Security Risk

Indicator	Value
Strategic oil reserve capacity	**~74 days**
Usable emergency supply	**20–60 days**
Suppliers diversification	**40+ countries**

Key Risk Areas

Strait of Hormuz Risk

Major oil route from Middle East

Disruption = immediate supply shock

Short Reserve Coverage

India cannot sustain long-term supply disruption

High LPG Dependence

90% LPG from Middle East → high vulnerability

SUGGESTIONS AND RECOMMENDATIONS

- India should expand crude sourcing beyond the Middle East to regions such as Africa, Latin America, and North America to reduce regional dependency risk.
- Increasing reserve capacity from current levels to at least 90–120 days of consumption would provide a stronger buffer during supply disruptions.
- Accelerating solar, wind, and biofuel adoption can reduce long-term dependence on imported crude oil and improve energy security.
- Encouraging local manufacturing and sourcing under initiatives like “Make in India” can reduce reliance on imports.
- Using predictive analytics can help e-commerce firms anticipate disruptions and optimize inventory management.
- Government and private players should collaborate to build resilient supply chains and crisis-response mechanisms.
- Improving digital payment systems and platforms ensures uninterrupted e-commerce operations during disruptions.

LIMITATION OF THE STUDY

This study is based on secondary data, which may limit accuracy due to variations in data sources and reporting methods. The analysis relies on estimated indicators rather than primary field evidence. Rapidly changing geopolitical conditions may affect the relevance of findings over time. Additionally, sector-specific micro-level data for e-commerce is limited, restricting detailed analysis of firm behavior, consumer response, and regional variations within the Indian market during conflict periods.

FUTURE SCOPE OF THE STUDY

Future research can focus on empirical modeling using real-time datasets to quantify the long-term impact of geopolitical shocks on India's oil and e-commerce sectors. Comparative studies with other emerging economies may provide broader insights into resilience strategies. Additionally, examining the role of renewable energy transition, digital supply chain innovation, and consumer behavior shifts can enhance understanding. Micro-level firm analysis and policy effectiveness studies can further strengthen strategic planning and economic stability.

CONCLUSION

The study concludes that geopolitical conflicts in the Middle East have a significant and multidimensional impact on India's oil and e-commerce sectors. India's heavy reliance on imported crude oil exposes its economy to price volatility, leading to a higher import bill, inflationary pressure, and increased fiscal stress. These effects are transmitted to the e-commerce sector through rising logistics and transportation costs, which directly influence pricing, profitability, and consumer demand. The analysis further reveals that supply chain disruptions, particularly in key maritime routes, create delays and inefficiencies that hinder the smooth functioning of digital trade. Although India's large domestic market provides some level of stability, prolonged geopolitical tensions can weaken growth momentum in both sectors. Therefore, strengthening energy security, diversifying supply sources, and building resilient supply chains are essential for reducing vulnerability and ensuring sustainable economic development in an increasingly uncertain global environment.

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