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From War to the Kitchen: How Geopolitical Conflict Drives Resource Substitution and Social Stress

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Abstract: *This study explores how global geopolitical events influence the availability and affordability of LPG (liquefied petroleum gas) for households in Mumbai. It focuses on how people respond to changes in fuel supply, particularly in relation to their income levels and daily cooking practices. Data was collected from 52 respondents across different socioeconomic backgrounds.*

The findings show that although a large number of respondents believe that global events affect LPG prices and supply, most households did not face major difficulties in accessing it. A significant majority (88.5%) continue to rely on LPG as their primary cooking fuel, even as prices rise. There is limited adoption of alternatives such as induction or electric cooking methods.

However, the impact is not evenly distributed. Lower-income households experience greater financial strain due to rising LPG costs. Overall, while geopolitical conflicts influence pricing, they do not significantly change cooking behavior in urban Mumbai households..

Keywords: Geopolitical conflict, LPG shortage, Energy security, Household adaptation, Mumbai

I. INTRODUCTION

Geopolitical conflicts and wars affect more than just international relations—they also disrupt global economic systems. One major consequence is the disturbance of energy supply chains, especially when key oil- and gas-producing regions are involved. For countries like India, which depend heavily on energy imports, such disruptions can create serious challenges.

In urban India, LPG is the primary cooking fuel for most households. Any fluctuation in its price or availability directly impacts daily life. Cooking, a basic necessity, becomes an area where global issues are felt at a personal level.

This study examines how global conflicts influence LPG supply and how households in Mumbai respond to these disruptions. It also looks at whether these responses vary across different income groups and how they contribute to broader issues like inequality and stress.

II. LITERATURE REVIEW

The global economic system after World War II was largely built on the idea of open markets and free trade. Over time, countries reduced trade barriers to benefit from globalization. However, recent geopolitical tensions—especially events like the Russia-Ukraine war—have started to challenge this system (Góes & Bekkers, 2022).

In recent years, global trade and capital flows have slowed down, partly due to rising political tensions and scepticism about globalization. These trends began even before the COVID-19 pandemic and have intensified since (Aiyar & Ilyina, n.d.).

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Researchers have also highlighted the importance of domestic policies such as infrastructure investment, financial inclusion, and labour reforms in dealing with such disruptions (Antràs et al., 2017; Lyon & Waugh, 2018).
Looking ahead, increasing fragmentation in the global economy may make it harder to address global challenges like climate change and public health. It may also slow economic growth as uncertainty causes businesses and households to delay decisions.

Rationale
This study aims to connect global geopolitical conflicts with everyday challenges faced by households. Events such as the Russia-Ukraine war or tensions in the Middle East can disrupt global energy supplies, which in turn affect LPG availability and pricing in cities like Mumbai.
The research also examines how households adjust to these challenges and whether these adjustments reflect existing social and economic inequalities.

Relevance
Understanding how LPG shortages affect households helps us see how people adapt to resource constraints in their daily lives. It also highlights differences in access to alternative energy sources and infrastructure.
Such insights are important for understanding urban resilience, energy security, and the social impact of economic disruptions.

Purpose
- To understand how global conflicts affect everyday household activities like cooking
- To examine India's dependence on imported energy
- To analyze how households adapt to LPG shortages
- To study differences in responses across income groups
- To explore changes in consumption behavior

Research Objectives
- To examine how geopolitical conflicts disrupt LPG supply in Mumbai
- To analyze how households in Mumbai adapt to LPG shortages
- To identify differences in adaptation across socioeconomic groups
- To explore how these adaptations contribute to social and economic stress

HYPOTHESES
Hypothesis 1
Alternative (H1) – Geopolitical conflicts have a significant impact on LPG availability and cooking practices among urban households in Mumbai.
Null (H0) – Geopolitical conflicts do not have a significant impact on LPG availability and cooking practices among urban households in Mumbai.
Hypothesis 2
Alternative (H1) – LPG shortages lead to significant substitution in cooking fuels and methods across different socioeconomic groups in Mumbai.
Null (H0) – LPG shortages do not lead to significant substitution in cooking fuels and methods across different socioeconomic groups in Mumbai.

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III. METHODOLOGY

Research Design

This study adopts a **mixed-method research design**, combining both qualitative and quantitative approaches to provide a comprehensive understanding of the research problem. The quantitative aspect is based on survey data collected through questionnaires to identify patterns in household responses to LPG shortages. The qualitative aspect draws from personal observation and lived experiences to capture deeper insights into behavioral changes, coping mechanisms, and emotional stress within households.

The research is primarily **descriptive, thematic and exploratory in nature**, as it seeks to describe the impact of geopolitical conflicts on LPG availability and explore how different socioeconomic groups in Mumbai adapt to such disruptions. This design enables the study to connect global-level events with micro-level household practices.

Sampling

Purposive sampling, a non-probability sampling technique, is used in the study to make sure that only respondents who are pertinent to the study's goals are included. The questionnaire survey had a total sample size of 52 respondents. Because they are immediately impacted by changes in LPG availability, prices, and supply disruptions, participants were specifically chosen from urban households in Mumbai that use LPG as their main cooking fuel. The accuracy and usefulness of the data gathered are improved by this focused selection.

The sample comprises people from a range of socioeconomic backgrounds, including lower, middle, and upper income groups, in order to represent a variety of viewpoints. This makes it possible to compare how various groups react to supply problems, price hikes, and the demand for different cooking techniques. Additionally, respondents from different age groups and occupations were considered to reflect varied household decision-making dynamics.

Research Instruments

The primary research instrument used in this study is a structured questionnaire. The questionnaire consists of Close-ended questions to measure changes in LPG usage, alternative fuel adoption, and perceived stress levels

The questionnaire was designed to cover key areas such as:

- LPG availability and price changes
- Changes in cooking practices
- Use of alternative fuels or technologies
- Financial and emotional impact on households

In addition to the questionnaire, personal observation and lived experience were used as a qualitative tool to support and contextualize survey findings. This helped in understanding real-life adjustments and challenges faced by households during LPG shortages.

Data Collection

Observation

Observation was used to gain firsthand insight into how households in Mumbai respond to fluctuations in LPG availability and pricing. By observing day-to-day cooking practices, fuel usage patterns, and adjustments made during periods of shortage, the researcher was able to understand real-life behavioral changes..

Survey (Questionnaire Method)

Quantitative data was gathered from Mumbai's urban families using a standardized questionnaire. Closed-ended survey questions were used to gauge shifts in LPG availability, price sensitivity, alternative fuel use, and reported levels of home and financial stress.

To find trends and differences in adaption tactics, the questionnaire was given to participants from various socioeconomic backgrounds. This approach produced quantifiable data that confirms the study's hypotheses and offers a more comprehensive picture of trends in the sample group.

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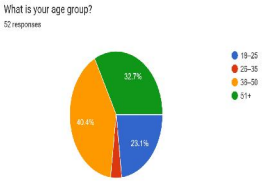
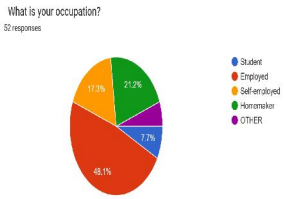
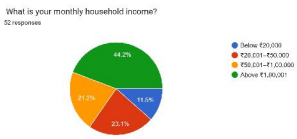
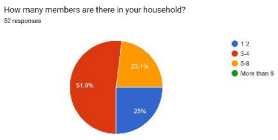
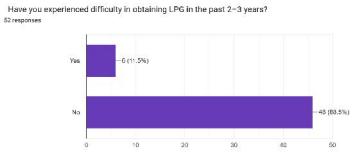
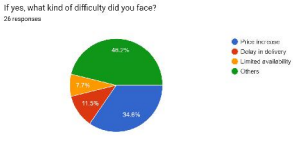
IV. FINDINGS AND DISCUSSION

Table -

Sr. No.	Variable	Key Findings (%)	Analysis Summary	Chart
1	Age Group	36–50 (40.4%), 51+ (32.7%), 18–25 (23.1%), 26–35 (low)	Majority are middle-aged and older, indicating a mature sample influencing household and fuel decisions.	
2	Occupation	Employed (48.1%), Homemaker (21.2%), Self-employed (17.3%), Student (7.7%)	Dominated by working individuals and homemakers, reflecting active economic and household decision-makers.	
3	Monthly Income	Above ₹1L (44.2%), ₹20K–50K (23.1%), ₹50K–1L (21.2%), Below ₹20K (11.5%)	Skewed toward higher-income households, suggesting better affordability and access to resources.	
4	Household Size	3–4 (51.9%), 1–2 (25%), 5–8 (23.1%)	Mostly nuclear or medium-sized families, impacting consumption patterns.	
5	Difficulty in Obtaining LPG	No (88.5%), Yes (11.5%)	LPG supply is largely stable, though minor access issues exist.	
6	Type of Difficulties	Others (46.2%), Price (34.6%), Delay (11.5%), Availability (7.7%)	Price increase is the major concern; logistical issues are less common.	

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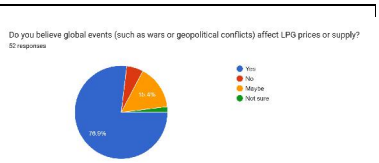
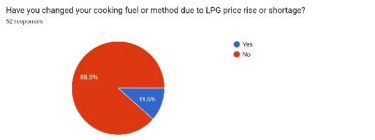
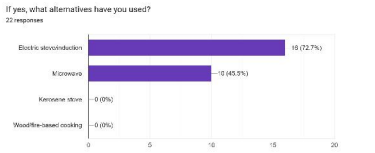
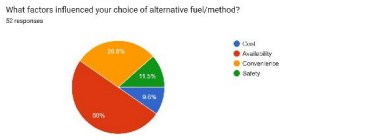
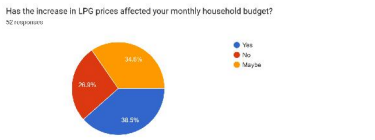
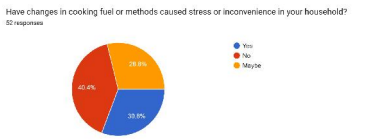
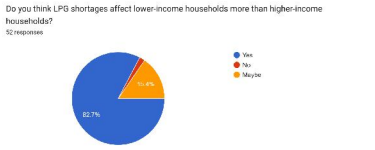
7	Impact of Global Events	Yes (76.9%), Maybe (15.4%)	High awareness of global factors influencing LPG prices and supply.	
8	Change in Cooking Method	No (88.5%), Yes (11.5%)	Strong dependence on LPG despite price increases or shortages.	
9	Alternatives Used	Electric/Induction (72.7%), Microwave (45.5%)	Preference for modern, clean energy alternatives; no shift to traditional fuels.	
10	Factors Influencing Choice	Availability (50%), Convenience (28.8%), Safety (11.5%), Cost (9.6%)	Accessibility and ease of use outweigh cost and safety concerns.	
11	Budget Impact	Yes (38.5%), Maybe (34.6%), No (26.9%)	Majority experience some financial strain due to LPG price rise.	
12	Stress/Inconvenience	Yes (30.8%), Maybe (28.8%), No (40.4%)	Over half face some level of stress or inconvenience.	
13	Impact on Lower-Income Groups	Yes (82.7%), Maybe (15.4%), No (1.9%)	Strong consensus that lower-income households are more affected.	

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V. CONCLUSION

Tools used under Qualitative Research

The study on LPG usage, accessibility, and its socio-economic impact in Mumbai households was conducted using a structured questionnaire along with personal observations. The questionnaire helped in gathering primary data from 52 respondents across different age groups, occupations, and income levels. Personal insights further supported the interpretation of behavioral patterns related to fuel usage and adaptation strategies.

Themes that emerged from the data are:

Strong Dependence on LPG

The majority of responders (88.5%) have not altered their cooking fuel or technique, suggesting that LPG is still a necessary and indispensable resource for urban homes.

Limited but Present Supply Challenges

Although most people had no trouble getting LPG, a tiny portion did, indicating that supply problems are present but not pervasive.

Price Sensitivity as a Key Concern

Rising costs surpassed practical issues like availability or delays as the biggest problem among those who encountered difficulties.

Shift Towards Modern Alternatives (When Needed)

Respondents favor electric and induction-based cooking techniques when substitutes are available, indicating a move away from conventional fuels and toward greener and more practical technology.

Occasional Use of Alternatives

The fact that other cooking techniques are employed infrequently suggests that they are backup plans rather than the main ones.

Awareness of Global Influence

High awareness levels are demonstrated by the vast majority of respondents' recognition of the influence of worldwide events (such as wars and geopolitical crises) on LPG pricing and supply.

Moderate Financial and Emotional Impact

Increases in LPG prices have varying effects on household budgets. In a similar vein, while many people suffer worry and inconvenience, not everyone does.

Perceived Inequality in Impact

There is broad agreement that LPG shortages and price rises disproportionately impact lower-income households, underscoring socioeconomic inequality.

Hypotheses

Hypothesis 1

H1 (Alternative): Geopolitical conflicts have a significant impact on LPG availability and cooking practices among urban households in Mumbai.

H0 (Null): Geopolitical conflicts do not have a significant impact on LPG availability and cooking practices among urban households in Mumbai.

Result: Partially Accepted (H1)

According to the findings, a significant majority of respondents (76.9%) think that worldwide events such geopolitical wars affect LPG supply and pricing, demonstrating a high level of knowledge of global influences. In contrast, 88.5% of respondents did not alter their cooking fuel or technique, and 88.5% did not encounter significant challenges in getting LPG. This implies that although LPG systems are thought to be impacted by geopolitical crises, their direct influence on supply and cooking methods is minimal. As a result, there is only partial support for the alternative theory.

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Hypothesis 2

H1 (Alternative): LPG shortages lead to significant substitution in cooking fuels and methods across different socioeconomic groups in Mumbai.

H0 (Null): LPG shortages do not lead to significant substitution in cooking fuels and methods across different socioeconomic groups in Mumbai.

Result: Rejected (H0 Accepted)

The results show that despite price hikes or small shortages, the vast majority of respondents (88.5%) have not altered their cooking fuel or technique. The total movement is small and not widespread, despite the fact that some respondents reported utilizing alternatives such electric or induction stoves (72.7% among those who switched). Furthermore, alternative approaches are not used as principal substitutes; rather, they are used infrequently. This demonstrates that there hasn't been any notable replacement behavior as a result of LPG shortages. The null hypothesis is so accepted.

Future Research Scope

Future studies can expand by including a larger and more diverse sample, especially focusing on lower-income and rural households. Comparative studies across different cities or regions can provide broader insights.

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